

*Foreign Direct Investment
&
Its Impact on Economic Growth
in
Afghanistan*

**A Thesis Submitted to
The Department of
Business Administration
Cardiff Metropolitan University**

In partial fulfilment of the requirements for the degree of


**Doctor of Philosophy
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DECLARATION

I declare that this work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

I further declare that this thesis is the result of my own investigations, except where otherwise stated.

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ABSTRACT

The inflow of foreign direct investment (FDI) has long been viewed as one of the main sources of long term economic growth for the recipient countries, since it involves the transfers of both tangible and intangible assets. However, the results of the existing empirical studies regarding its role in the recipient economies are ambiguous. In some of the existing empirical studies it is found to have a constructive role in the recipient economies, while in others negative or no role.

Therefore, this study empirically investigated its role in the Afghan economy through its relationship with exports, imports, gross capital formation, tax revenue, and gross domestic product. The study is based completely on secondary time series data. The time range of the data employed is from 1991 to 2013, which are 23 annual observations. The statistical methods adopted for the analysis of data are the Pearson product moment correlation coefficient test and the Granger causality testing framework within the vector auto-regression (VAR) model.

The results obtained from the Pearson product moment correlation coefficient test revealed that the inflow of FDI has statistically significant strong positive correlation relationships with the country's exports, imports, and gross capital formation, while it has a statistically significant moderate positive correlation relationship with the gross domestic product and tax revenue.

On the other hand, the results obtained from the Granger causality test revealed that the inflow of FDI has a unidirectional causality relationship with the gross domestic product and exports. The direction of causality runs from the gross domestic product and exports to the inflow of FDI. In addition, it has a bidirectional causality relationship with the country's imports, tax revenue and gross capital formation. Furthermore, the results of the innovation accounting method shown that the long run relationship of the FDI inflows with the variables under study is not quite stable as it fluctuates substantially throughout the specified time horizon of the study.

These results of the study suggest that the inflow of FDI has very limited positive impact on the Afghan economy, since it only stimulates the gross capital formation and tax revenue of the country, while its causality relationship with the gross domestic product, exports, and imports is not favourable for the country's economy, since the changes in FDI inflow has causal impact on imports, but it has no causal impact on the level of exports and gross domestic product.

In accordance with the results of the study, it is recommended that for the optimum benefits from FDI, the Afghan government must bring improvement in the country's infrastructure,

provide the raw material and other production inputs within the country, and also attract more long term FDI projects.

Keywords: Foreign Direct Investment, Economic Growth, Afghan Economy.

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LIST OF ACRONYMS

AISA	Afghanistan Investment Support Agency
AIC	Akaike Information Criterion
ADFT	Augmented Dicky Fuller Test
CAREC	Central Asia Regional Economic Cooperation
DI	Domestic Investment
ECO	Economic Cooperation Organization
FDI	Foreign Direct Investment
FPE	Final Prediction Error Criterion
GDP	Gross Domestic Product
GCF	Gross Capital Formation
HQ	Hannan-Quinn Information Criterion
IRF	Impulse Response Function
ICT	Investment Climate Statement
IMF	International Monetary Fund
LDCs	less Developed Countries
LP	Labour Productivity
LN	Natural Log
MNCs	Multinational Corporations
OLS	Ordinary Least Square
PPT	Phillips Peron Test
R&D	Research and Development
SAFTA	South Asian Free Trade Area
SPSS	Statistical Package for the Social Sciences
SAARC	South Asian Association for Regional Cooperation
SIC	Schwarz Information Criterion
TIFA	Trade and Investment Framework Agreement
UNCTAD	United Nations Conference on Trade and Development
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USA	United States of America
VAR	Vector Auto – Regression
VECM	Vector Error Correction Model
WB	World Bank
WTO	World Trade Organization
WIR	World Investment Report

Chapter 1

Introduction

Chapter Contents

- 1.1 Introduction**
- 1.2 Research Background**
- 1.3 Overview of the Afghan Economy**
- 1.4 Justification for the Research**
- 1.5 Research Aim**
- 1.6 Research Objectives**
- 1.7 Research Methods for Data Analysis**
- 1.8 Scope and Sources of the Data**
- 1.9 Statistical Packages**
- 1.10 Structure of the Thesis**

INTRODUCTION

1.1 Introduction

This chapter of the thesis provides a broad picture of the entire study. It highlights the research background, an overview of the Afghan economy, the justification for conducting this research, the aim and objectives of the research, a brief summary of the methods implemented for analysis of the data, the types of statistical packages that were utilized for conducting the statistical tests, the scope and sources of the data employed, and the structure of the overall thesis.

1.2 Research Background

Since the 1990s, the changing economic and political environment of the world has led to a remarkable increase in the volume of worldwide foreign direct investment (FDI). According to the world investment report issued in 2017 by the United Nations Conference on Trade and Development (UNCTAD) the total amount of FDI flows worldwide is recorded at nearly \$1.74 trillion in 2017 and it is expected that this amount will rise to 1.85 trillion by 2018 (UNCTAD/WIR, 2017).

The inflow of FDI is considered to be one of the most important sources for external financing for many countries, particularly for the developing countries and it is regarded as one of the main important factors that has a long term impact on economic growth of the recipient countries (Wang, 2009).

The potential benefits of the inflow of FDI for the recipient countries are believed to be creating employment, increasing productivity, introducing modern techniques of management, eases the access to advanced technology, promoting domestic investment, and facilitating the local market access to the developed world. These advantages of the inflow of FDI are believed to have a significant positive impact on the economic growth of the recipient countries (Falki, 2009).

However, the findings of the existing empirical studies on the role of the inflows of FDI in the economies of the recipient countries are largely ambiguous. In some of the existing empirical studies the inflows of FDI is found to have a significant positive role on the economies of the recipient countries, while in others it is found to have negative or even no impact on the recipient economies.

On the other hand, in the theoretical literature there are strong arguments that its impact is not similar for every recipient countries and it is largely dependent on the type and the quality of the inflows of FDI and the strength of the absorptive capacity of the recipient country in terms of the trading system, human capital, the degree of openness of the economy, and the

economic and technological conditions (Chowdhury and Mavrotas, 2003; Hansen and Rand, 2006).

1.3 Overview of Afghan Economy

Afghanistan is a landlocked and among the less developed countries located within central Asia. The country has a population of 33.4 million which makes it the 42nd most populous country in the world. The country is bordered by Pakistan in the South and East, Iran in the West, China in the North East, and Uzbekistan, Tajikistan, and Turkmenistan in the North. Its territory covers 652000 square kilometres which makes it the 41st largest country in the world (World Fact book, 2016).

The country has gone through civil war and political disturbances for almost three decades that has had a huge negative impact on its economy. However, since 2002 despite severe security challenges its economy has relatively improved and it has experienced a relatively high growth. The average annual growth rate during the period 2003 until 2016 was recorded at 8.53 percent which was the highest growth rate of its economy throughout its history (WB, 2017).

During the last one decade the country has also moved from a centrally regulated and heavily planned economic system towards an open and free market economy. The constitution of Afghanistan acknowledges the market economy as the economic system of the country and it guarantees the protection and promotion of the private investments in the country (AISA, 2012).

Table: 1.1 Economic profile of Afghanistan

Annual Indicators	2011	2012	2013	2014	2015	2016
GDP (Millions US\$)	19,170,471,325	21,330,882,847	21,610,357,580	21,330,657,481	20,608,089,735	20,235,063,330
GDP (Growth Rate %)	3.2	8.7	10.9	6.5	3.1	1.8
Population size	29,110,000	29,830,000	30,550,000	31,280,000	32,010,000	33,400,000
FDI Inflow (Million US\$)	57,620,844.0	61,525,860.0	39,663,686.0	48,756,005.3	169,086,610.0	99,000,000

Source: UNDATA, 2017

Since 2002, the country has continuously lowered its tariff rate and legal trade barriers to trade and investment and has made the economy as one of the most open economies in the south Asian and central Asian economies (Table;1.2). The country imposed a tax rate of 2.5 percent on imported machinery, only 1 percent tax on imported raw materials, the corporate

tax rate is at 20 percent which is the lowest by the regional standard, and its personal tax rate ranges from 0 to 20 percent (UNESCAP, 2013).

In the last decade the country has also move towards trade integration with the global economies and it has joined a number of economic blocs. The country is now the member of several economic blocs such as the South Asian Association for the Regional Cooperation (SAARC), Economic Cooperation Organization (ECO), Central Asia Regional Economic Cooperation (CAREC), World Trade Organization (WTO), and the South Asian Free Trade Area (SAFTA). During this same period the Afghan government has also signed a number of bilateral agreements and investment treaties with a number of countries around the world, such as the Trade and Investment Framework Agreement (TIFA) and bilateral Investment Incentive Agreement with the United States, bilateral Reciprocal Promotion and Protection of Investments Agreement with Turkey, bilateral Trade and Economic Cooperation Agreement with Turkey and Russia, bilateral Preferential Trade and Investment Agreement with India, and a bilateral Trade and Investment Treaty with Germany (AISA, 2012; WTO, 2014 & 2015).

Table: 1.2 Degree of openness and Tariff rate of Afghanistan in the Region

Countries	Openness	Average Applied Tariff Rate	Maximum Duty Applied	No. of MFN Applied Tariff Lines
Afghanistan	61.7	5.6	40	5207
India	45.8	12.8	246	11360
Iran	43.7	26	400	6649
Pakistan	38.1	13.9	100	6802
Tajikistan	73.1	7.9	332	11176
Turkmenistan	111.9
Uzbekistan	72.9	15.9	787	10985

Source: AISA, 2012; 2013

These recent progress in the economic framework of the country made the country's domestic market more attractive for the foreign investors and it has led to a substantial increase in the inflows of FDI to the country. According to the Afghanistan investment support agency (AISA) the numbers of foreign businesses that have registered during the period 2003 to 2011 in the country are nearly four thousand and the total value of the foreign investments makes almost one third of the total private investments in the country. The sectors that attract most of the foreign investments to the country are services, mining, construction, and agriculture (AISA, 2012).

Table: 1.3 Top Investing Countries in Afghanistan, in terms of Total Value of FDI

	Countries	Total value of FDI (million US Dollar)		Countries	Total value of FDI (million US Dollar)
1.	South Africa	154.4	7.	Iran	67.3
2.	Turkey	150.1	8.	United Kingdom	61.8
3.	United Arab		9.	China	58.2
4.	Emirates	122.7	10.	Netherland	54.9
5.	Canada	111.8	11.	India	22.9
6.	United Sates Pakistan	98.4 70.8	12.		

Source: AISA, 2012

The AISA statistics (table:1.4) shows that in terms of total FDI projects the United States is the top investing country in the country with 305 projects, followed by Turkey with 191 projects, Pakistan, 143. Iran 127. India 78. UK 69. Germany 54. China 49. UAE 21, and France with 20 projects.

Table: 1.4 Top Investing Countries in Afghanistan, in terms of FDI Projects

	Countries	No. of FDI Projects		Countries	No. of FDI Projects
1.	United Sates	305	6.	United Kingdom	69
2.	Turkey	191	7.	Germany	54
3.	Pakistan	143	8.	China	49
4.	Iran	127	9.	United Arab Emirates	21
5.	India	78	10	France	20

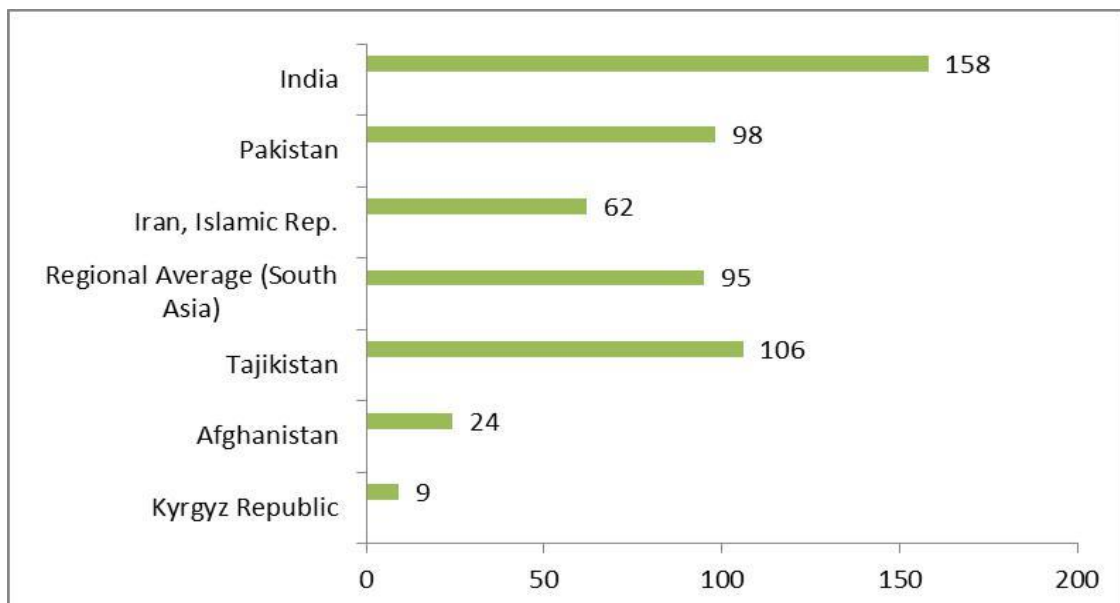
Source: AISA, 2012

The law of private investment of Afghanistan which was issued in 2005 does not discriminate in any sort between the domestic and foreign investments. Provisions made in the law are applied equally to both the domestic investments and foreign investments. The law of private investment of Afghanistan allow hundred percent of foreign ownership of an enterprise in most of the economic sectors and it also allows full profit repatriation out of the country for the foreign firms in the country (AISA, 2012).

In addition, the law of private investment of Afghanistan has also not imposed any types of restriction on currency conversion, remitting, and the transfers of funds that is associated with the investments such as the dividends, interest, return on the capital, lease payment,

royalties and management fees into a freely usable currency at a legal market clearing rate. The private investment law of Afghanistan states that an investor can freely transfer investment dividends or proceeds from the sale of an approved enterprise out of the country. The country does not maintain a dual exchange rate policy, capital controls, currency controls and any other type of restrictions on the free flow of funds out of the country. Access to the foreign exchange for investment is not restricted by any law or regulation of the country. The Afghan government has also put simple and faster procedure for the foreign investors in starting and registering their business in the country. The registration process requires the foreign investors' only 2 to 3 working days to obtain a license from the Afghanistan investment support agency for starting a business in the country and there is no legal requirement for the investors to deposit any initial amount in the bank in order to start a business. According to the recent world bank "Ease of Starting a Business" classification (figure 1.1); the country is ranked at 24 out of 185 global economies due to its simple and faster procedure for the investors (AISA, 2012).

Figure: 1.1 Afghanistan and Regional Economies Rank of Ease of Starting a Business



Source: AISA, 2013

In 2013, a number of incentives have also been offered by the Afghan government intended to further entice private investments to the country. These incentives offered by the Afghan government includes tax holidays of up to 10 years, subsidized land, public loans with 5 to 10 years' maturity, and automatic licenses to artisanal and small scale mining activities (AISA, 2012; World Bank, 2013).

1.4 Justification of the Research

There are several reasons that why the impact of the inflow of FDI on the Afghan economy needs to be empirically investigated. Firstly, there is no empirical evidence in the existing empirical literature regarding the role of the inflow of FDI in the Afghan economy, so this is the first attempt made to empirically investigate and find out that to what extent the inflow of FDI contributes to the Afghan economy.

Secondly, most of the existing empirical studies regarding the role of the inflow of FDI in the recipient economies are cross country studies. The conclusions drawn from these cross country empirical studies may be less relevant at a country level, since in the cross country empirical studies the researchers assumed that all the countries that they included in their study samples have homogenous absorptive capacity along with the economic structure of the countries, the types of the inflow of FDI they receive, and the policies and procedures set for the foreign investors by the recipient countries, however these factors are not similar and are largely different from one country to another. Therefore, the conclusions drawn from the existing empirical studies on the role of the inflow of FDI cannot be generalized and applied to other recipient countries.

Thirdly, the existing empirical studies are largely bivariate (two variables) studies and are based on a single statistical method for the analysis of the data, while in this study the impact of the inflow of FDI is investigated with a number of growth determinant macroeconomic variables through implementing two different statistical methods for the analysis of the data, and therefore this study can provide a better picture of the impact of the inflow of FDI on the recipient economy.

Fourthly, even with the recent economic achievements of Afghanistan that were discussed earlier in this chapter the country's economy is still passing through a critical stage of low level equilibrium trap. It's circumscribed by poverty and stagnation. The country is still one of the poorest countries in the world, so this study aims to find out the role of FDI inflows in the country's economy.

And finally, this study will also fill the gap that exists in the existing empirical literature from the standpoint of one of the least developed and landlocked country i.e. Afghanistan and it will serve as a starting point for the future researchers who may be interested in studying the impact of the inflow of FDI on Afghan economy. In addition, this study can also be a good source of reference for future scholarly research in this area, as well as the findings of this research can be a valuable guide for the Afghan policymakers as it will enable them to develop and initiate long term policies for foreign investments based on the findings of this study.

1.5 Research Aim

The overall aim of this study is to empirically investigate the impact of the inflow of FDI on the Afghan economy.

1.6 Research Objectives

In order to accomplish the above aim of this study we have formulated the following research objectives:

- To conduct a comprehensive literature review on the concept of FDI, classification of FDI, the various market entry modes of FDI, strategic motives of FDI, theories of FDI, theories of economic growth, the potential spill-overs effects of the inflow of FDI on recipient economy, and an assessment of the existing empirical studies on the impact of the inflow of FDI on recipient economy.
- To identify the correlation relationships of the inflow of FDI with the macroeconomic indicators of the country such as exports, imports, gross capital formation, tax revenue, and GDP.
- To identify the types of the causality relationships that exists i.e. unidirectional or bidirectional between the inflows of FDI with the macroeconomic indicators of the study.
- To explain the extent of the causality relationships of the inflow of FDI with the macroeconomic indicators of the study.

1.7 Research Methods for Data Analysis

In order to investigate the impact of the inflow of FDI on the variables that are under consideration two statistical methods for the analysis of the data were applied namely; the Pearson product moment correlation test and the Granger causality testing framework within the vector auto-regression (VAR) model.

In the first step of the data analysis the Pearson product moment correlation test was applied to find out the potential correlation relationships of the inflow of FDI with the variables that are under investigation, and once the correlation relationship between the variables is identified then the Granger causality testing framework within the vector auto-regression (VAR) model was applied.

Since, the vector auto-regression (VAR) model requires the variables to be stationary (without unit roots) as well as the model must be dynamically stable and the residuals must follow a normal distribution with no auto correlation. Therefore, prior to conducting the Granger causality testing framework within the VAR model, in the second step of the data analysis the Augmented Dicky Fuller (ADF) and Philips and Peron (PP) unit roots tests were applied. These two kinds of unit root tests were applied to find out about the nature of the variables

that whether the series of variables under consideration have unit roots or not i.e. stationary or non-stationary.

Once, the nature of the variables was identified through the ADF and PP unit root tests, then in the third step the Lagrange Multiplier (LM) serial correlation test and the AR Roots Graph were applied to verify the absence of serial correlation and to see if the VAR model is dynamically stable, and then finally we applied the Jarque-Bera statistics test which measures the skew-ness and kurtosis of the residuals to see whether the residuals of the time series are normally distributed.

After verifying the nature of the variables through the Augmented Dicky Fuller (ADF) and Philips and Peron (PP) unit root tests and the specifications of the VAR model through the VAR diagnostic tests, subsequently the Johansen test of co-integration was applied. This test was conducted in order to find out if there exist any co-integration relationships between the inflows of FDI and the variables under study.

Once, the co-integration relationship was determined through the Johansen test of co-integration subsequently the Granger Causality test within the VAR model was applied to evaluate the types and directions of the causality relationships of the inflows of FDI with the variables of the study.

In the final step of the data analysis the innovation accounting statistical method which incorporates the Impulse Response Function (IRF) and the Forecast Error Variance Decomposition (FEVD) techniques were employed. These two techniques of the innovation accounting were employed to measure the extent of the causality relationships of the inflow of FDI with the selected variables. The time length specified for these two statistical techniques applied is 20 years.

1.8 Scope and Sources of the Data

1.8.1 Scope of the Data

This research work is based completely on the use of secondary time series data. The time range of the data that is employed in this study is from the year 1991 to 2013, which are 23 annual observations. This time range of the data was chosen for this study due to the availability of the data, since prior to the year 1991 the data on the inflow of FDI and some other macroeconomic variables that are under investigation in this study were not available for some of the years and post 2013 the data for some of the variables that are under investigation in this study was not issued at the time that this research work was conducted.

1.8.2 Sources of the Data

There were many sources that were reporting the data on the variables that are under investigation in this study, but the online sources from which the data was obtained for this study are World Bank (WB), International Monetary Fund (IMF), World Trade Organization (WTO), United Nations Statistics Division (UNSD), and the Afghanistan Investment Support Agency (AISA). These online sources were selected for the data collection as they are more reputable and reliable organizations and they have access to the data on large scale. In addition, the data from these sources are available for free and without any types of restrictions on its use.

1.9 Statistical Packages

The statistical packages that were utilized in analysing the data in this study are the Statistical Package for the Social Sciences (SPSS) and the Econometric Views (E-Views). These two packages were chosen as they are capable in handling large amount of data and can perform the statistical tests that were implemented in this study. The Pearson Product Moment Correlation test of the study was applied through the SPSS statistical package, while the Vector Auto-Regression (VAR) model was estimated and the Augmented Dicky Fuller (ADF) and Philips and Peron (PP) unit root tests, Johansen Co-Integration Test, Granger Causality Test, Impulse Response Function, and Variance Decomposition were conducted through the E-views statistical package.

1.10 Structure of the Thesis

In order to maintain coherence and consistency in the flood of information, this thesis was divided into six main chapters, so that the readers will be provided with a sort of road map that makes them aware of exactly what is included in each of the chapter of this study.

The first chapter of the thesis is the introduction. This chapter presents an outline of the entire study; it highlights the research background, an overview of the Afghan economy, the aim and objectives of the research, the justification for conducting the research, a brief review on the type of the research methods that is adopted for the analysis of the data, the scope and sources used for obtaining the data applied in this study and the reason for choosing these sources for data collection, and the statistical packages that are used for the analysis of data. The baseline of every successful research depends on meticulously reviewing the related literature and the theoretical concepts so; the second chapter of the thesis is the literature review. This chapter is divided into two parts. The first part of this chapter highlights the theoretical literature on FDI which includes: The concept of FDI, Classification of FDI, The

various modes of market entry available for investors, The strategic motives of FDI, Theories of FDI, Theories of economic growth, and the potential spill-over effects of FDI on the recipient economy.

The second part of the chapter presents the empirical literature; this part highlights the existing empirical studies on FDI. It broadly includes the country level and cross sectional level empirical studies on the role of the inflow of FDI in the economy of the recipient countries.

The third chapter of this thesis is the conceptual framework. In this chapter the theoretical relationships of the inflow of FDI with the variables that are under study and the hypotheses that underpin the current study are presented.

The fourth chapter of this thesis is the research methodology. In this chapter an in-depth explanation of the research process of the study is presented. It broadly includes the research paradigms in general and the paradigm adopted in this study, the methodology used for the data collection and analysis and the reason for choosing such a methodology. It also includes the sources from which the data is obtained for this research and the reason for choosing these sources.

The fifth chapter of this thesis is finding and interpretation. In this chapter the overall results obtained from the statistical tests applied namely; the results of the Augmented Dicky Fuller (ADF) and Philip and Peron (PP) unit Root Tests, Pearson Product Moment Correlation Test, Vector Auto-regression model (VAR), VAR Automatic Lag Length Selection Criteria, VAR Diagnostic Tests (LM Serial Correlation Test, AR Roots and Time-Series Graphs, Residual Normality Test) Johansen Test of Co-Integration, Granger Causality test, and the innovation accounting (Impulse Response Function, and Variance Decomposition) are presented.

The sixth and final chapter of the thesis is the general conclusion and discussion of the study. In this chapter the conclusion and discussion of the entire study is presented; highlighting its major findings, policy implication, contribution of the study to the existing empirical literature, limitation of the study, and providing a number of recommendations for further research in this area.

Chapter 2

Literature Review

Chapter Contents

- 2.1 Introduction**
- 2.2 The Concept of FDI**
- 2.3 Classification of FDI**
- 2.4 Modes of Market Entry**
- 2.5 Strategic Motives of FDI**
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- 2.7 Theories of Economic Growth**
- 2.8 Potential Spill over Effects of FDI**
- 2.9 Review of Empirical Studies**
- 2.10 Concluding Remarks**

LITERATURE REVIEW

2.1 Introduction

This chapter of the thesis presents a review of the theoretical and empirical literature on Foreign Direct Investment (FDI). The chapter starts with a comprehensive review of the theoretical literature on FDI, it includes: The concept of FDI, The classification of FDI, The various market entry modes of FDI, The strategic motives of FDI, The theories of FDI and economic growth, and the potential spill-overs effects of the inflow of FDI on the recipient economy. Furthermore, the empirical literature on FDI broadly includes the country level and cross-country level empirical studies on the impact of the inflow of FDI on the recipient economy.

2.2. The Concept of FDI

Foreign direct investment (FDI) is defined as the process whereby residents of one country (the source country) obtain the ownership of the assets for the purpose of controlling the production, distribution and other activities of a firm in another country (the recipient country) (Moosa, 2002).

In another definition it is defined as the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. The lasting interest in the FDI definition indicates the maintenance of a long term relationship of the foreign investor with the enterprise with having a substantial degree of influence or control over the management of the enterprise (World Bank, 2015).

FDI got its importance from the 1960s when the international production began to emerge and gradually become significant. Before the 1960s all types of international investments were considered to be only capital movements between the countries. These movements of capital were initially thought to be mostly determined due to the differences in the interest rates between the countries and were assumed to be stimulated by the rate of return. This suggestion was also supported by the empirical observation that the US firms gain a higher rate of return from their European investments than they gain at home, but in the 1960s through the analysis of the causes and the nature of FDI Stephen Hymer a Canadian economist exposed the deficiency of this approach. He claimed that the differential rate of return hypothesis was not consistent with several observed characteristics of international investments. Firstly, the US combined net inflows of portfolio capital with net outflow of FDI.

Secondly, the flows of FDI in both directions were not unusual. Thirdly many subsidiaries complemented the inflows of FDI with capitals that are mainly borrowed in the domestic markets. He further concluded that FDI is a capital movement which is associated to international operations of firms that their main intention is to maintain control over their business operations in the foreign markets ((Stephen Hymer,1960). This remarkable work of Stephen Hymer gives rise to immense theoretical and empirical literature in the area of FDI and now it is regarded as one of the main sources for a long term economic growth for the recipient countries.

2.3 Classification of FDI

The classification of FDI typically distinguishes the operational view of the investing country (source country) from that of the invested country (recipient country). FDI from the perspective of the invested country is classified into Horizontal FDI, Vertical FDI and Conglomerate FDI, while from the perspective of the recipient country it is classified into Exports Increasing FDI, Imports Substituting FDI, and Government Initiated FDI (Pazienza, 2014). These categories of FDI are further discussed below.

2.3.1 Horizontal FDI

Horizontal FDI which is also termed as market seeking FDI refers to the type of investment that firms undertake outside their home countries by producing the same product and/or providing the same service as they offer in their home countries. Through horizontal FDI the firm establishes an international network of production and distribution facilities within the same stage of their value chain. This type of FDI facilitate firms to take advantage from proximity to the significant resources and also from the close connection with the supplier of parts, services, and technology and thus can avoid the trade costs in serving the customers in different geographical locations as well as it reduces the transportation costs that are associated with shipping the production facilities. In addition, this type of FDI can also provide the firm the geographical diversification of production facilities. The firm can use its geographic diversification to pool the risks of changes in its operating costs as well as it can adjust its capacity utilization in response to changes in the local condition or demand fluctuations (spulber, 2007).

The larger market size of the recipient countries is believed to have a predominant role in attracting the horizontal type of FDI. According to Markusen, (1984) the larger market size provides greater opportunities for the firms to realize effectively the economy of scale, therefore once a country's market grows to a critical threshold multinational firms would carry out their investments in that country. In addition, the level of infrastructure and the availability

of skilled labours in the recipient country are also considered to be some important factors in attracting the horizontal type of foreign investment. Hill, (1998) states that the horizontal form of foreign investments largely involves the transfer of advanced technology; therefore, multinational firms may pursue only those countries that have enough skilled labour and also better infrastructures (Buckley, et. al., 2009).

2.3.2 Vertical FDI

Vertical FDI which is also termed as the efficiency seeking FDI refers to the type of firm's investments, where different stages of the firm's operations are located in different countries from the raw material through production and distribution process. This type of FDI is believed to be largely driven by the overseas cheap labours, raw materials, and other factors of production, and therefore it is more likely that this type of FDI is to be attracted to the countries that have lower labour costs and other input costs of productions compared to the investing countries (Paul, 2008).

The vertical FDI takes two forms which are regarded as the backward vertical FDI and forward vertical FDI. The backward vertical FDI refers to the type of investment that is made in a foreign country in order to produce intermediary materials that are intended to be used as inputs in the home country or in the production processes of any of its subsidiaries. Historically, the backward vertical form of FDI was most common in the extractive industries such as oil refinery, copper mining, tin mining and so on. On the other hand, the forward vertical FDI is the case when a firm markets its homemade products outside their home country or to produce the final outputs in the recipient country by using the home supplied inputs in the production process. The forward vertical FDI is less common than the backward vertical form of FDI (Paul, 2008).

2.3.3 Conglomerate FDI

The type of FDI that have trends from both the vertical and horizontal natures of investment is known as conglomerate FDI. A conglomerate multinational firm is a diversified firm whose plants outputs have traits from both the vertically and horizontally combined investments (spulber, 2007).

2.3.4 Exports Increasing FDI

This type of FDI is mainly stimulated by the investing firm's intention to export new sources of inputs such as raw materials or other intermediate products from the invested country to their home country and/or to other countries where the subsidiaries of the parent company are located. It can also occur if the invested country has more flexible FDI policies for the

multinational firms, and therefore the multinational firms wants to take benefits from it and use it as a base for exporting their products to their neighbouring countries (Mossa, 2002; Pazienza, 2014).

2.3.5 Imports Substituting FDI

Import substituting FDI refers to a situation in which the import of products or services is replaced by the production of those products or service in the recipient country that were previously exported by the foreign firms. This type of FDI mainly arises when there is huge demand for the products in the recipient country and the foreign firms produce the product in the recipient market rather than served it through exports. Other factors that give rise to this type of FDI are the existence of higher transportation costs and/or trade barriers such as quotas and tariffs that are imposed by the government of the recipient country on imports (Mossa, 2002; Pazienza, 2014).

2.3.6 Government Initiated FDI

This type of FDI is a government supported investments which are initiated by the policy makers of the recipient countries through offering various types of incentives to the foreign firms and is more common in the least developed countries. The intention of the governments for foreign investment is to enhance employment in the country, shorten disparities within the country's regions, and to lower the balance of payment deficit of the country (Mossa, 2002; Pazienza, 2014).

2.4 Modes of Market Entry

The mode of entering into a foreign market is one of the most significant strategic decisions in international business. There are a number of modes of entry to deal with the global markets. The notable modes through which a firm establishes its product or service presence in the global markets includes: Exporting, Licensing, Franchising, Greenfield Investment, Cross Border Merger and Acquisition (M&A), Joint Venture, and strategic alliances. These modes of market entry greatly differ from each other in terms of the degree of risk involvement, the degree of control that the investing firm can have over the operation, and the level of resources that are needed for the entry and process of the business (Vaidya, 2006; Albaum and Duerr, 2008).

The selections among these different modes of market entry are also believed to be greatly dependent upon a number of firm level factors in terms of the size of the firm, the level of availability of the internal financial funds of the firm for the foreign investment, the level of experience the firm have in dealing with the global markets, and the strategic orientation of

the firm (Shrader, 2001; Doh et.al, 2004). These different modes of market entry along with their costs, risks, and the level of control that the invested firm can have over the business are further discussed below.

2.4.1 Exporting

The first and easiest strategy that most of the multinational firms commence with in order to expand their business operations and to serve a foreign market is through exporting. This mode of entry is mainly taken by the firms in order to establish and create demands for their products and once the demand for product flourished in their desired markets then they gradually switch on to other modes of entry. There are two methods of exporting which are known as direct exporting and indirect exporting, in indirect exporting the producer uses the services of different sorts of middle man or co-operative organization, in this type of exporting the producer transfer the overall responsibility of the selling activities to some other organization, while in direct exporting the producer holds the overall responsibility of the selling activities. The selling activities are conducted through the dependent organizations that are administratively division of the parent company (Jalan, 2004).

The main advantages of the direct exporting are that the producers can have more control over the export process, can make higher profits, and can establish a closer relationship with their overseas importers and customers. Indirect exporting is mostly preferred by those firms that are just commencing their exporting activities or those firms that their exporting activities are undersized (Jalan, 2004).

The two main advantages of the indirect exporting compared to the direct exporting is that the firm can avoids the costs of building the infrastructure needed for it, which are often substantial, and also can avoid the risk associated with it. However, the main disadvantage that the indirect exports is associated with is the level of control of the producer, since in the indirect exports due to the involvement of the middle man or cooperative organization the producers do not have any direct contacts with the foreign importers and customers which may affect the prospects of the producer to develop an international market. Therefore, those firms that have a permanent interest in the international markets have a strong preference for the direct exporting rather than in the indirect exporting, because they can gain more experience through it and they may have some sort of control over their target markets (Hill and Jones, 2007).

2.4.2 Licensing

Licensing is another mode through which a firm can establish its product or service presence through another firm in a foreign market without being actively involved in its operation

process. This method of market entry is most common for the firms that have distinctive and legally protected intangible assets. The intangible assets of the firm may include its brand name, trademarks, production or service operation process, and product design. The firm that gives the right to the foreign firm to use its intangible assets charges a fee and exercise control over how its intangible assets are being used by the licensee, but does not control the business operation (Scott and Dlabay, 2011).

The license agreements are normally linked to the turnkey projects in which the managerial assistance and training is given by the licensor firm until the full control passes to the licensees. This mode of market entry is considered as the least risky mode of market entry, since it requires very low level of monetary investment as well as it involves no exposure to the risk of expropriation. The license agreements are mostly preferred by those firms that have limited capital for investment or when the restrictions in a foreign market prevent them from other modes of market entry. This mode of market entry is also considered to be one of the quickest and easiest methods of entry into a foreign market (Cateora and Ghauri, 2006; Scott and Dlabay, 2011).

The main disadvantages that are believed to be associated with the licensing agreements includes the lower rate of return to the parent companies compared to other modes of market entry, since through the license agreements the parent company can only charge a fees for the use of its intangible assets from the licensee and has no share in the profit or loss of the licensee business activities. In addition, the licensing agreements also confine the capability of the parent companies to organize their international market strategies where they are necessary in order to survive in the global competition (Hill and Jones, 1998; Chen and Messner, 2009).

2.4.3 Franchising

The franchising agreement which is another form of market entrance enables the parent company to establish its product or service presence through another firm. In this form of market entrance the parent company gives the authority to another independent firm to carry out its business operation in a particular way. Unlike the licensing agreement in franchising the parent company not only grant the right to the franchisee to use its intellectual property, but also grant the right to use the operating system of the parent company. The right that is given to the franchisee can take the form of selling the parent company products or using its trademarks, production or marketing expertise, or the overall business approach of the parent company. In this method of market entry, the parent company can sustain a significant amount of control over the franchisee operation and processes in order to ensure that the franchisee meet the standard of the parent company, similar to licensing agreement in

franchising the franchisee is obliged to pay a fee to the parent company that hold the brand or intellectual property. The payment to the parent company can be in different forms such as an upfront fee, royalties, or occasionally even a monthly or annual fee (Thompson and Martin, 2005; Czinkota and Ronkanin, 2007).

2.4.4 Greenfield Investment

This type of investment takes place when a parent firm set up completely new entity including building, production facilities, distribution channels, human resources and so on in a foreign country. This mode of foreign investment is believed to have several advantages for the invested firms such as the geographical location and construction of the facilities are chosen and build under the management views of the invested firm. The employees of the firm are hired and trained directly in the spirit of the firm and subsequently to the aspects related to the work practice and organizational culture and therefore it is easier for the firm to administer. The implementation of new products and technology works faster and the invested firm can have the overall control on all aspects of the business operation. (Marinescu and Constantin, 2008).

However, the main negative aspects that are believed to be associated with this form of market entry for the invested firms are the higher resource commitment and capabilities which represent a higher risk and uncertainty for the invested firm, particularly if the investment of the firm is in those countries that have higher political risks as well as the history of expropriation. In addition, this mode of market entry is also considered to be a lengthy and more complicated process compared to other modes of entry, since a firm need to establish everything from scratch in its target market and starts its operation and it may require even more time to establishes a position in the domestic market, particularly if the investment of the firm is in those industries where there already exist immense competitions between the firms (Paul, 2011).

However, from the perceptive of the recipient countries this mode of entry of the foreign firms is considered to be more beneficial to the recipient countries' economies than any other modes of foreign investments, since this mode of foreign investments can create employment at a higher rate compared to the domestic firms and other modes of market entry by the foreign firms. Furthermore, this mode of market entry can also increase the production capacity of the domestic firms of the recipient country through providing training for the local workforce and upgrading the technical and management know – how of the domestic firms, by enhancing the marketing effectiveness of the domestic firms, and by facilitating the local market access to new and large foreign markets (Mwilima, 2003; Trakman and Ranieri, 2013).

2.4.5 Merger and Acquisition

Merger and acquisition (M&A) is concerned with the change in ownership of the existing assets. Cross border merger take place when two or more than two firms from different countries come together and they become a new business entity. Whereas, an acquisition arises when a firm gain a significant degree of influence over a foreign entity through obtaining a portion of the firm equity that gives the voting authority to the firm. This mode of market entry is also referred as the brownfield investment, since it is a hybrid mode of entry (Meyer et al., 2001).

Acquisition is distinguished through the amount of equity that the acquirer firm obtain. The firm that obtain 100 percent of the equity of a firm is recognized as the full acquisition, while obtaining from 50 to 59 percent of the equity is recognized as the majority acquisition, and from 10 to 49 percent of the equity is recognized as the minority acquisition. The firm that obtain 100 percent of the equity or the majority of equity results in subsidiaries to the acquirer. While, by obtaining the minority equity of the firm, it becomes an associate for the acquirer (Hofmann, 2013).

The full acquisition dominates most of the cross border M&A. According to the UNCTAD (2000) estimates, there are less than 3 percent of the cross border M&A are mergers and a two third of the cross border M&A accounts for the full acquisition. Furthermore, according to this estimates minority acquisition is most common in the developing countries and the majority of the cross border M&A take places between the firms that are operating within the same industries.

M&A is considered to be preferred over the Greenfield mode of market entry by majority of the investing firms since the M&A is quick to execute and firms can rapidly build its presence in their target market along with a quicker cash-flow compared to the Greenfield investment. In Greenfield investment a firm need to arrange sufficient time to face the complicated process such as the approval from the governmental organizations, installations of equipment's, infrastructure, recruitment and training of the employees and so on. Research on these two mode of market entry finds that through the Greenfield investment it takes approximately from 2 to 3 years for the investors to establishes its presence in their target market, while the process of M&A require only a few months' time (Wang, 2009). Another reason that firms might prefer the M&A mode of entry over the Greenfield investment is to prevail over the organizational indolence's following a period of organic growth (Dunning and Lundan, 2008).

Nevertheless, from the perspective of the recipient countries the Greenfield mode of market entry is believed to be much more preferred by most of the recipient countries compared to

the M&A mode of entry, since the Greenfield investment involves the transfer of capital and advanced technology and thereby it creates employments and accelerate the economic activities at a higher rate in the recipient country compared to the M&A mode of market entry. The M&A mode of market entry involves only the transfer or merging of the ownership of an existing firm which is normally then followed by the layoffs of employees of the organization as well as the slamming off a number of profitable activities in the recipient countries. In addition, those countries that prefer to have some sort of control over their own domestic firms are not in favour of the M&A mode of market entry by foreign firms to their countries (Moosa, 2002).

However, the impact of these two modes of market entry on the recipient country economy are believed to have differences only in the initial phases of the firms' investments, since the Greenfield mode of market entry contributes directly to the stock of capital and employment of the recipient country, whereas the M&A mode of entry represent a change in the ownership of an existing firm of the recipient country and thereby it does not necessarily involve any direct contribution to the stock of capital and employment of the recipient country, but once the initial phases of the entry passed, then the impact of these two modes of foreign investments on the recipient country economy are considered to have no differences and they both can have similar impacts on the recipient country economy (UNCTAD, 2006).

2.4.6 Joint Venture

Joint venture is a commitment of capital funding, facilities and services between two or more than two foreign and domestic parties through forming a new company that is jointly owned by all the parties. The parties involved in joint venture are also termed as co-ventures. The time horizon of a joint venture is normally for a limited period either short term or long term depending upon the length when it is completed. Joint venture is completely governed by the legal agreement that brings it into existence. The risks, tax revenues, operating expenses, and assets which can be either intangible such as technological know-how, patents, and trademarks or tangible such as machinery are directly shared by all the parties that are involved. The parties that are engaged in the joint venture have the responsibility to take care of each other and to act in good faith in matters that are related to the business venture (Charles and Jones, 2011).

This mode of entry is considered to be one of the most advantageous modes of FDI to the recipient country, since it guarantees improvements in the management of the domestic firms as well as due to the facilities and equipment's provided by the foreign co-venture it can increase the workforce productivity and product efficiency of the domestic firm (Hotter, 2010).

Furthermore, this mode of entry is also considered to be more profitable for the foreign firms engaging in joint venture compared to the licensing or franchising agreements as it enables them to utilize their specific assets, while economize their costs of operation in a foreign environment, in addition this mode of market entry can also help the foreign firms to get away from the costs that are associated with the licensing or the franchising agreements (Froot1993).

Furthermore, Doole and Lowe, (2008) believe that through the combination of both tangible and intangible assets of the different firms that are involved in the joint venture agreements, it can benefit all the parties and it can provide a variety of opportunities to each party that is involved that such opportunities might be almost impossible for any of the firm if it takes the project by its own.

However, international joint venture is also considered to be not free from inadequacies. An international joint venture is regarded as a cumbersome organization compared to a single organization. The control of a project in joint venture is divided between the participating parties which always create serious problems. The success and failure of a project is much more dependent on how closely the different parties that are involved in the joint venture agreement work together despite by having different aims and objectives, corporate cultures, and ways of doing things. The action of corporate chemistry is not easy to predict, but it is critical as the joint venture agreements generally give all the parties that are involved an on-going role in the management of a project. When joint venture is equally divided between the parties the deadlock in decision making can take place on a regular basis. The profits resulting from a project in the joint venture are also less than any other modes of market entry as it needs to be shared between all the parties that are involved in the agreement (Carbaugh, 2008).

2.4.7 Strategic Alliance

Contrary to the joint venture where two or more than two firms come together and form a new entity that is jointly owned by all the parties involved, a strategic alliance is a legal agreement by two or more than two parties to share their tangible and/ or intangible assets for a specific project (Zamir et. al, 2014).

In this form of investment, the involved firms do not create a new entity and they retain their independence while contributing towards a shared mutual goal. The strategic alliance is mainly taken by firms for a short term projects and therefore it is considered to be less risky and less permanent than the joint venture. However, similar to the joint venture, the parties that are involved in strategic alliances share the overall risk, taxes, revenue, and the operating expenses of the project. The strategic alliance requires fewer resources and

therefore it is mostly preferred by those firms that have limited resources or information for investment in their target markets. The strategic alliance is considered to be much more advantageous to new or smaller firms, since it benefits the firms to gain efficiency by attaining economies of scale and integration (Zamir et. al, 2014).

Table: 2.1 below provides a summary of the different types of the market entry modes that are available for the investors along with the level of resource commitment, the level of control that the invested firm can have over the operation, their systematic risk and the dissemination of risk of each mode of entry.

Table: 2.1 Modes of Market Entry Available for Investors

Entry Modes	Level of Control	Systematic Risk	Dissemination Risk	Resource Commitment
Exporting	low	low	low	low
Licensing	low	low	high	low
Franchising	low to moderate	low	moderate	low
Greenfield Investment (FDI Mode)	high	high	low	high
Merger & Acquisition (FDI Mode)	high	high	low	high
Minority Joint Venture (FDI Mode)	moderate	low to moderate	low	low to moderate
Majority Joint Venture (FDI Mode)	high	high	low	high
Strategic Alliance	moderate	low	low	low

Source: Author

2.5 Strategic Motives of FDI

The strategic motives of entering into a foreign market are different from one firm to another, since every firm has its own strategic intentions and policies for entering into their target

markets. Dunning (1993, 2000) illustrates the three main strategic motives which he believes are the most important strategic motives of the firms behind the investments. These motives which are further discussed below are (i) market seeking (ii) resource seeking, and (iii) efficiency seeking.

2.5.1 Market Seeking

Market-seeking FDI is normally carried out by the multinational firms in order to serve a particular market through local production and distribution, rather than serving it through exporting from the home country or through a third country. This type of foreign investment is believed to be mainly undertaken by the foreign firms either as their offensive strategy or as their defensive strategy. As their defensive strategy the main intention of the firm behind this type of FDI is to explore and develop new markets. It normally occurs if the imports procedure in the recipient country is too restrictive or when the government of the recipient country imposes or threatens to impose tariffs and non-tariffs trade barriers to imports, while as an offensive strategy the firm intention is to strengthen their existing markets. It occurs when multinational firms set up a foreign affiliate to be close to their customers in order to serve them better (Dunning, 1993; 2000).

2.5.2 Resource Seeking

The resource seeking investors are further categorized by Dunning (2008) into three main groups. These are the natural resources seekers investors, the strategic assets seekers investors, and the technology seekers investors. These three types of resource seeking investor are further defined below.

(i) Natural Resource Seeking

This group of the investors invest in other countries in order to have access to the resources that are not abundantly available in their home countries or are available at a higher price than they can obtain them in other countries. Dunning (2008) further categorized the resource seekers investors into three main groups. The first group of the resource seekers investors are those investors who are looking for the natural resources that are not abundantly available or available at a higher price compared to their home countries. The natural resources for which they invest in can be crude oil, gas, gold, silver, diamonds, metals, and so on (Dunning, 2008).

The second group of the resource seekers investors are compelled by the shortage of labour in their home markets and therefore they invest in those countries where there are either the low-cost or semi-skilled or the skilled labours. The third group of resource seekers investors

are those investors who are looking for managerial and organizational skills. This group of investors mainly invest in the more developed countries. This group of the resource seekers investors usually leads to the collaborative alliances between the countries (Dunning, 2008; 2011).

(ii) Strategic Asset Seeking

The strategic asset seeking form of foreign investment is undertaken when a firm wants to have access to the local distribution systems and managerial practices and expertise of another firm in their target market in order to strengthen their competitive position in the international markets. This form of FDI often occurs through merger or acquisition as the strategic asset seeker investors either acquires the overall or a part of the proprietary assets of another foreign firm in their target markets. The strategic asset seeking FDI mostly concentrate in the information intensive sectors and it largely arises in the well industrialized countries (Dunning 1993, 2000).

(iii) Technology Seeking

The technology seeking form of foreign investment refers to the investments which are largely undertaken by the multinational firms in the areas of research and development and design facilities. The main purpose of a firm behind this type of foreign investment is to tap into existing knowledge stocks and expertise and to become more involved in the development of new technology and standard settings in order to maximize their competitive position in the international markets (Dunning, 1993; 2000).

2.5.3 Efficiency Seeking

This type of FDI takes place when multinational firms seek to minimize their production and administration costs. This type of foreign investment is driven by the need to minimize costs involved with research and implementation of new technologies as well as to internalize supply chains to increase competitiveness through higher efficiency. The efficiency seeking FDI takes two forms.

The first one is conducted by the multinational firms to get benefits from the availability and cost of traditional factor endowments such as the costs of labour and raw material in different parts of the world. The second type takes place in countries that have similar income levels and economic structure with the investing country. The main purpose for undertaking this type of FDI is to receive benefits from the economies of scale and scope, and of differences in consumer preferences as well as from the supply capabilities of the recipient countries (Dunning, 2008).

Table: 2.2 below outline a number of factors that influence the strategy of a firm for involving foreign investment.

Table: 2.2 Factors that Influence the Strategy of International Investments

Efficiency Seeking	Market Seeking	Resource Seeking
<p>Production related costs such as the cost of labour, machinery, material, energy</p> <p>Membership of a regional integration agreement beneficial to the formation of regional corporate networks</p> <p>Freedom to engage in trade in intermediate and final products</p> <p>Availability of specialised clusters such as science and industrial parks, and of specialized factor inputs; opportunities for new initiative by investing firms</p> <p>Investment incentives such as tax breaks, accelerated depreciation, grants, subsidised land, corporate tax rates</p> <p>Existence of agglomerative economies such as export processing zone</p> <p>Opening and liberalisation of markets</p> <p>Cost of natural resources an asset, adjusted for productivity for labour resources. Other input costs such as transport and communication costs to from and within recipient economy</p>	<p>Large & growing market in terms of per capita income.</p> <p>Access to adjacent regional and global markets.</p> <p>Availability of skilled and specialised workforce</p> <p>Presence and competitiveness of related firms</p> <p>Quality of local infrastructure, and institutional competence</p> <p>Macroeconomic and macro organizational policies as pursued by the recipient governments.</p> <p>Existence of agglomerative spatial economies and local service support facilities.</p> <p>Growing importance of promotional activities by regional or local development agencies.</p> <p>Increased need for presence close to users in knowledge intensive sectors</p> <p>Transportation costs</p> <p>Structure markets</p> <p>Access to the distribution channels</p> <p>Tariff and non-tariff trade barriers</p>	<p>Availability, price and quality of natural resources.</p> <p>Recognized international brands</p> <p>Infrastructure to enable resources to be exploited and products arising from them to be exported.</p> <p>Access to different cultures, institutions and systems; different consumer demand and preferences.</p> <p>Local opportunities for improvement quality of resources and the processing and transportation</p> <p>Availability of local partners to jointly promote knowledge and/or capital intensive resource exploitation</p> <p>Government restrictions on FDI and/or capital dividend remissions Investment incentive such as tax holidays.</p> <p>Advanced technology to upgrade once ownership advantages are accessible</p> <p>Physical infrastructure such as road, ports, power, and telecommunication</p> <p>Technological, innovatory and other created assets such as brand names as embodied in</p>

and costs of other intermediated products. An entrepreneurial environment which boosts competitiveness as well as cooperation within and between the firms.	Country specific consumer preferences	individual's firms and clusters The price and availability of synergic assets to the foreign investors. Opportunities offered for exchange of localised tacit knowledge, ideas and interactive learning, access to marketing and management skills Access to local business network is given gaining reputation
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Sources: Dunning (1980, 1996, 1998); Dunning and Narula, (1998)

2.6 Theories of Foreign Direct Investment (FDI)

There are a number of FDI theories that have explained that why investors prefer to invest abroad instead of confining their business operations to their home markets and what enables them to do so. These theories of FDI are classified into three categories which are: (i) Macro level theories (ii) Micro level theories, and (iii) Development theories. The macro- level theories treat FDI as a form of capital flow between the world economies; they explain the motivation of firms behind FDI and the determinants of FDI. On the other hand, the micro level theories of FDI are elaborated from the perspective of multinational firms. These theories explain why multinational firms prefer direct investments than any other market entry modes such as franchising or licensing. The third category which are known as the developing theories of FDI combine elements from both the macro level and micro level theories in explaining FDI (Wojciechowski, 2013; Kilic et.al. 2014). These theories of FDI are as following:

2.6.1 Product Life Cycle Theory

Product life cycle theory was propounded by Raymond Vernon in 1966. This theory explores the relationship between product life cycles and the FDI flows through four stages. These four stages of product life cycle are: (i) Introduction (ii) Growth (iii) Maturing, and (iv) Decline. In Vernon view through each of these four stages as the product of a firm moves on different kinds of trade can take place.

In the first stage (introduction) a firm introduces a new product to the domestic market. In this stage as the demand for the product is not known the firm produces only a limited quantity of the product. At this stage profits are low and only few competitors exist in the market. Exports of the products to the foreign markets either does not exist or exists with only a limited quantity. As the demand for the product increases it will automatically enter to the next stage of the cycle.

In the second stage (growth) the demand for the product grows up both in the domestic and foreign markets. The firm profits increases and the costs of production go down. At this stage the firm starts to set up production facilities in the foreign markets in order to increase its production and meet the increasing demand of the consumers in the foreign markets. In this stage the product becomes known as a clear winner in both the domestic and foreign markets and the competition intensifies in the market, the rival firms enter the markets with their own version of the product with lower price than the firm that initially developed the product.

In the third stage (Maturing) the market for the product stabilises and becomes price sensitive. The intense competitions in the market narrow the profit margin. Instead of the vital role played by research and development in the invention of the product at this stage the labour pay rate and other production costs become vital for cost saving, and as a result firms starts looking to set up production facilities in other countries particularly in the low - cost countries in order to reduce the production cost of the product. Vernon states that, the production of such products in the low - cost countries eventually become import for the inventing country at this stage.

In the fourth and last stage of the product cycle (decline) the product becomes unpopular both in the domestic and foreign markets and is replaced by the new and innovative products. At this stage of the product cycle the less developed countries constitute the only markets for the product.

The product life cycle theory was further extended by Vernon in 1979 and he further added that in the first stage of the product cycle model firms are less concerned about the costs of capital and labour, since the high degree of product differentiation and resulting monopoly of the product exist in the markets, therefore at this stage firm's location decision will be mainly based on those factors that contribute to efficient product development, but as the product develop into the maturing stage competition among the firms intensifies and as a result the firms' main focus becomes on how to minimize the costs of productions, thus, firms set up

their production facilities in those countries where the labour costs and other productions input cost are lower.

However, Tang, et. al., (2012) believe that the product cycle theory is redundant in a number of ways. Firstly, this theory was developed to explain the United States FDI in Europe in the 1960s, but the United States is no longer the only leading investors in the international markets and now Japanese and European investors contribute largely to the world FDI. Secondly, this theory fails to deal with the determinants of FDI and other issues associated with FDI. Thirdly, the time interval among the three stages of a product namely; introduction, growth, maturing and decline decreased significantly and multinational firms are now able to introduce new products both in the domestic markets and foreign markets without any time lag. Moreover, the product cycle theory has also been criticized by Dunning, (1993) who argue that, this theory is biased and it deals entirely with the market-seeking FDI and do not take into account other types of FDI such as the resource seeking FDI as well as the efficiency seeking FDI.

2.6.2 Internalization Theory

Internalization theory of FDI was first proposed by Buckley and Casson, in 1976 and then Hennart in 1982. According to this theory when external markets fails to presents efficiency in supplies, production and distribution or if the external transactions costs are too high in that case multinational firms choose to engage in FDI in order to carry out their operations through internal markets. This process can enable the multinational firms to optimize the efficiency of their production.

This theory holds information, research and knowledge as the intermediate products related to the firms, therefore, through internalization firms seek to make use of their competitive advantages that they possess themselves through internalizing their own external imperfect markets in intermediate products and services with their organizational hierarchical corporate structure (Buckley and Casson, 1976).

Agarwal, (1980) pointed out to a number of benefits that can be gained through internalization by the firms, such as reducing transaction costs, increasing bargaining power, and improving buyer and seller certainty. Rugman (1981) considered the internalization theory as a general theory of FDI, since the internalization process describes most of the motives of the firms involving in FDI.

On the other hand, Jigme (2006) argue that cost is not the only factor that determine the success of the multinational firms, he suggests that multinational firms must also think about

some other factors such as cultural, regulatory and other environmental factors at the time they internalize their operations.

Dunning (2000) considered the internalisation theory very important and included this theory in his eclectic paradigm, but he also argued that the internalization theory is not comprehensive by itself as it explains only part of the FDI and it fails to incorporate other factors behind FDI.

2.6.3 Oligopolistic Reaction Theory

The oligopolistic reaction theory which is also recognized as “follow-the-leader” was proposed by Knickerboker in 1973. According to this theory in oligopolistic industries the action of one player has an impact on the other players, for instance if an oligopolistic firm invests in a foreign market to increase its market share, this action of the firm is immediately followed by its competitor’s firm investment in that market in order to reduce or block the first mover advantage. In Knickerboker view the emergence of the multinational firms are mainly the results of the oligopolistic reaction i.e. defensive strategy that is undertaken by the firms’ market rivals. He further concludes that, the competition between the firms may finally lead to a substantial decrease in the flows of FDI.

However, according to Shin (2003) the value of the Knickerboker theory for future prediction of the inflow of FDI is very limited, because the competition between the industries has increased significantly since the emergence of this theory, but no decrease in the flows of FDI has yet been observed.

On the other hand, Misra and Yadav (2009) argue that, the oligopolistic theory is partial as this theory only explains that why competitors imitate in the oligopolistic industries, but it fails to clarify that what motivates the first firm to engage in FDI instead of exporting or licensing. In addition, this theory also fails to take into account the firms that have different types of investments (Agarwal, 1980).

2.6.4 Monopolistic Advantage Theory

The monopolistic advantage theory of FDI was developed by Stephen Hymer, in 1976. According to this theory, the investments of firms outside of their home countries are generally faced with the foreignness costs. Hymer argue that the foreignness costs are incurred either due to the lack of knowledge of the investing firms about the invested countries’ law, society, language and any other facts that this leads them to incur higher information costs and/or due to the geographical distance between the location of the parent companies with their subsidiary which leads them to pay higher communication and coordination costs. He argues that it is extremely important for the firms to possess some

sorts of monopolistic advantages prior to entering into a foreign market in order to raise above these foreignness costs.

In his view the monopolistic advantages for a firm come from two sources, “the superior knowledge” and “the economy of scales”. The superior knowledge includes managerial skills patents, trademarks, differentiated products, and advanced technology. In addition to the superior knowledge, a firm must also achieve the economy of scale which arises either through the vertical or horizontal FDI. Through the horizontal FDI firms’ increases in their productions can reduce the unit costs of services such as marketing, financing, or technological research as each plant outside the home country entirely produces the same product or offer the same types of service as they do in their home countries. Through the vertical FDI in which each plant produces the components of the final product for which the local production costs are lower, the firm can benefit from the local advantages in the production costs, while achieving maximum economies of scale in the production of a single component.

He believes that these monopolistic advantages can facilitate the multinational firms to operate more profitably and efficiently than the domestic firms of the recipient country. Furthermore, he also argued that the foreign investments are largely undertaken by the multinational firms as their aggressive strategy in order to have monopoly power in the international markets rather than as a strategy aimed to reduce the expenses of their business operations.

2.6.5 Comparative Advantage Theory

The comparative advantage theory of FDI was put forward by Professor Kiyoshi Kojima in 1978 and 1982. This theory holds that outward FDI should be carried out by the firms that are producing intermediate products that require resources and capabilities in which the home country has a comparative advantage over the recipient country, but that creates value added activities that require resources and capabilities in which that country is comparatively disadvantaged. On the contrary the inward FDI should import intermediate products that require resources and capabilities in which the recipient country is disadvantaged, but the use of which requires resources and capabilities in which the recipient country has a comparative advantage.

In his theory Kojima categorized FDI into two types the Trade Oriented FDI which he labelled as the Japanese type of FDI and the Anti-Trade Oriented FDI which he labelled as the American type of FDI.

(i) Trade Oriented FDI (*Japanese type FDI*): Kojima believes that this type of FDI takes place in an industry where the investing country has a comparative disadvantage, while the

recipient country has a comparative advantage. In his view the Japanese type of FDI focuses more on labour intensive and resource based industries in the Asian developing countries in which they have comparative advantage over Japan and thereby generate trade between Japan and the Asian developing countries. He believes that this type of FDI promotes the upgrading of industrial infrastructure as well as increases the international trade between the countries.

(ii) Anti Trade Oriented FDI (*American Type FDI*). In Kojima view the anti-trade oriented type of FDI is concentrated in capital intensive and high technology industries which is undertaken by large oligopolistic firms and distributed in monopolistic or oligopolistic industries. Kojima argues that foreign investments by the United States multi-national firms have been carried out within the oligopolistic, capital intensive and highly technological industries in order to protect their oligopolistic positions in the international markets as well as a response to the barriers that are imposed in the developing countries. In his view the American type of foreign investments are not beneficial for the developing recipient countries and in the long run this type of investments will obliterate the economic development of the developing countries which may lead to trade substitution effects.

However, the theory of Kojima is criticized by many scholars such as Either (1986) who disagree with the claim made by Kojima and he states that most of the multinational firms are operating between the countries that have relatively similar factor endowments. In addition, Petrohilos (1989) states that the applicability of Kojima theory for future outward FDI by the Japanese firms is in suspicion, since the Japanese investors have the tendency to follow the American type of FDI in order to maximise their profits and if they follow the American type of FDI, in that case this theory will be unable to explain the growing outward FDI of the Japanese firms. He further includes that; the Kojima theory lacks the required conditions to be deemed as a theory. Furthermore, Clegg (1987) claims that, the theory of Kojima is not even valid for most of the Japanese type of foreign investments due to the limited assumptions of this theory.

According to Rugman (2002) the theory of Kojima set in the static framework of trade theory which needs perfect markets as well as the assumption of Hecksher-Ohlin world. He further includes that considering technology as a homogenous product over time and ignoring the dynamic nature of the technology cycle is a clear mistake. By referring to the United States investments in other countries, Rugman (2002) states that the United States has comparative advantages not only in the production of technology, but it also has comparative advantages in the invention of new knowledge. Therefore, the United States foreign investments in technology can take place on a regular basis, while subsequent phases of the technology cycles are exploited.

2.6.6 Currency Premium Theory

The currency premium theory of FDI was propounded by Robert Aliber in 1970. According to this theory the main factors in describing the pattern of FDI are capital market relationships, exchange risk, and the market preferences for holding assets denominated in selected currencies. In his view different currency exchange rates among the countries have an affinity for FDI to occur. He believes that multinational firms from the stronger currency areas can borrow at a lower rate and capitalize their earnings in the weaker currency areas at a higher rate than the domestic firms on their investments. In addition, the structural imperfection in the foreign exchange markets also let the multinational firms to make profit in the foreign exchange markets through buying and selling of the assets in an undervalued or overvalued currency.

Buckley (1981) argues that, this theory better explained the multinational firms' activities, but it has slightly clarified the pattern of FDI between the strong and weak currency areas. He claims that if the currency of the recipient country appreciated against the currency of the investing country in that case this theory fails to explain the continuance of the FDI inflows to the recipient country. In addition, this theory doesn't incorporate other motivating factors behind FDI.

Dunning, (1993) states that the currency premium theory gives some interesting capital arbitraging ideas about the timing of FDI as the difference in currency rates allow the multinational firms from arbitraging by buying the assets in undervalued currency and then selling them in an overvalued currency. To this extent this theory can mainly be used to best describe the merger and acquisition and fluctuation of activities about a long term of FDI. In addition, it also provides some reasons as why some countries might move their international investment status over time.

2.6.7 Risk Diversification Theory

The risk diversification theory of FDI which was initially proposed by Grubel in 1968 and then his idea was revisited by a number of scholars such as Levy and Sarnet in 1970, Lessard in 1974 and 1976, Agmon and Lessard in 1977 and finally by Rugman in 1979 and in 1980. This theory of FDI is basically an extension of the portfolio selection theory that was proposed by Tobin in 1958 and Markowitz in 1959.

This theory holds that the risk diversification is one of the most important factors that persuade firms to engage in FDI. In making investment decisions multinational firms not only think about the rate of return from their investments, but they also consider the risk that is involved in the investments, since the return from different markets that a firm invested in are

not likely to be correlated for that purpose the diversification of their investments would decrease the overall risk.

This idea is also supported by a number of scholars such as Rugman (1975) who states that, multinational firms establishes their networks outside their home countries in order to get benefit from product and factor market diversification and reduces variance in their profits. He further includes that, those firms that operate in diversified markets around the world increases their profits with less risk compared to a same sized company that is operating only in its domestic market. Furthermore, Lessard (1976) also support this theory and states that for the safety of its shareholder, risk diversification is a stronger drive behind foreign investment for the multinationals firms rather than opting for maximising the returns from their investments.

This theory is also greatly supported by a number of empirical studies that were carried out by a number of scholars such as Hughes, et. al. (1975), Miller and Pras (1980), and Thompson (1985). The hypothesis of these empirical studies were to confirm that whether firms that operates in diversified markets the variability of their returns were less than, equal to, or greater than compared to the same sized firms that operate only its domestic market. These empirically studies ratified the risk diversification theory and based on their findings these researchers concluded that the firms that operate in diversified markets had higher average returns compared to the same sized firms that operate only in its domestic markets as well as they had lower systematic and unsystematic risks compared to the firms that operate only in a single market.

2.6.8 Uppsala Internationalization Model

The Uppsala internationalization model was developed by Swedish researchers Johnson and Weidersheim Paul in 1975 and Johanson and Vahlne during 1977-1990. This model was developed through the empirical observation of the internationalization process of the Swedish firms at the University of Uppsala. According to this model the internationalization process of firms occurs through different stages. In the first stage their strategy is to invest in the psychically neighbouring countries in which they have superior knowledge about the market and they can enter the market with minimum costs and as soon as the firm get access to better resources and become more experienced then they gradually expand their investments to the more remote countries.

The psychic distance the concept that is used in the Uppsala internationalization model is explained by Johanson and Vahlne as the cost of internalising and obtaining the pertinent information regarding the business environment in other countries such as the risk involved in the investment and the resources that are needed for investing in the foreign markets. This

model also declares that, once the operations of a firm expand to more remote countries and the firms gain more knowledge and experience about those markets the 'Psychic distance' cost decreases.

However, the Uppsala internationalization model received immense criticisms from a number of scholars. Forsgran, (1989) argue that, this model is only applicable in the initial stages of internationalisation as the lack of knowledge and resources are the restricting forces for a firm, but as the firm expands its operations to more countries then such forces are no longer important for internationalization.

Nordstrom (1990) argue that the world has become increasingly homogenous and that the Psychic distance between the countries has become largely diminished. Firms are now able to enter directly to larger foreign markets because of the technological advancement, thus the explanatory value of the Psychic distance of the Uppsala internationalization model is no more convincing.

Lundan and Jones (2001) argue that this model is only applicable to the firms that have some knowledge about internalization and it is not applicable to the smaller firms from the emerging economies that have little or no experience about internationalization. Also Dunning and Lundan (2008) believe that, the Uppsala model is more deterministic and rigid as multinational firms are considering a number of diverse approaches at the time they internalize their business operations.

Furthermore, Cuervo Cazorra (2012) states that, the Uppsala model is ignoring the potential gains of internalization and it emphasize more on the risks while firms internalize their operations. He further includes that, this model needs further extension and a number of factors such as the firm's characteristics and the market attractiveness needs to be included in this model.

2.6.9 Dunning's Eclectic Paradigm

The Dunning's eclectic paradigm which is also referred as the O-L-I framework of FDI was suggested by the British Economist Professor John H. Dunning in a series of publications in 1977, 1988, 1993, 1998, and 2000. This paradigm provides a comprehensive explanation of the tendency of a firm in involving in the foreign investments. According to this paradigm there are three main types of advantages that influence a firm to engage in the foreign investment. These three types of advantages which are further discussed below are; the firm level (O) Ownership Specific Advantages, (L) Location Differences Advantages, and (I) Internalization Advantages.

1. Ownership Specific Advantages

The ownership specific advantages refer to the multinational firms' monopolistic advantages or capabilities that they possess in their home markets that can be transferred into a foreign market. The ownership specific advantages are further categorized into three sets. The first set of ownership advantage incorporates a number of income generating assets. These assets can be their trademarks, patents, superior technology, higher financial capital, marketing expertise, managerial effectiveness, highly qualified human capital, and the economies of scale and scope.

The second set of the firm specific advantages includes the advantages that an established firm may enjoy over a new firm that is operating in a foreign environment. This can be the size of the firm, the monopoly power of the firm, and its better resource capacity. The third set of the firms' specific advantage stems from the multi-nationality. Multi-nationality refers to the knowledge about the international markets that enable the firms to gain advantage from geographic differences in factor endowments or markets. Owning this set of advantages facilitates the multi-national firms to have access to low-cost labour and other inputs of production in different geographical location as well as it enables them to eliminate any political or exchange risk in their investments.

These monopolistic advantages of the multinational firms can lead them to lower marginal cost and higher marginal profitability, which makes it possible for the multinational firms to out-compete their domestic competitors of the recipient country. Dunning (2000) point out to a number of theories that have explained the ownership specific advantages such as the industrial organization theories of Hymer, 1960 and Caves, 1971, 1974, Product life cycle theory of Vernon (1966), and Internalization theory of Buckley and Casson, 1976 and Hennart, 1982.

2. Location Advantages

The location advantages which are also referred as the country specific advantages can be in different forms such as the lower costs of labours and other production input costs, the availability of natural resources, better infrastructure, more advantageous FDI policies of the country, and stable political and financial environment of the country. When multinational firms perceive such advantages in a country they invest in order to exploit their competitive advantages in that country.

3. Internalization Advantages

The third characteristic of the Dunning OLI paradigm explains that, since the cross border market internalisation benefit is higher, firms' wants to exploit a foreign opportunity by themselves rather than giving this right to any external third parties through a contractual agreement or franchise such as licensing, managerial contracting or joint venture. Dunning (1988,1993) pointed out to a number of advantages that can be achieved through the internalization by the foreign firms such as having control on economies of interdependent activities, avoiding search and negotiation costs, evading any governments restrictions such as quotas, tariff, price control etc., protection of marketing and technical know-how, having controls on their supplies and markets outlets, and giving the ability to the firm to engage in practices such as cross subsidization, predatory pricing, transfer pricing as a competitive or as an anti-competitive strategy.

However, the eclectic paradigm of John H. Dunning like other theories of FDI is believed to have many gaps and inconsistency as Li (2003) believes that the eclectic paradigm is a static approach that presents a snapshot in time and it fails to accommodate the constantly changing environment of the international business. Letto- Gillies (1992) consider the eclectic paradigm as taxonomy rather than a theory of FDI as it includes a collection of theories and a large number of variables to explain FDI. Dunning (2000) confirms these drawbacks and he states that the eclectic paradigm is to be largely considered as a systematic framework or paradigm for investigating the determinants of international production than as an analytical theory of multinational firms. In addition, Itaki (1991) states that the ownership advantage in the eclectic paradigm is not clearly defined and this paradigm is more focused on the engineering advantage of a firm which are not necessarily reflected in the more important economic advantage of a firm.

Moreover, Kojima (1982) also criticized the eclectic paradigm of John Dunning and he argued that, the eclectic paradigm was propounded merely to increase the curiosity of private firms in FDI and this paradigm is incapable of dealing with the macroeconomic effects of FDI for the home and recipient countries.

2.6.10 Mathew's (LLL) Model

Mathew (2006) developed a complementary model to the OLI framework of John Dunning and entitled as the LLL model (linkage, leverage, and learning) of multinational firms. Mathew criticizes the OLI paradigm argues that the OLI paradigm of Dunning uses a push oriented concept from the western multinational firms where the firms' internationalization is mainly

driven through some strategic objectives rather through a pull and push method that appears to be the reality for most of the Asian pacific multinational firms. Mathew claims that multinational firms from the emerging markets do not initially have the existing knowledge or assets to internationalize their operations, but they have a higher organizational learning ability.

The first “L” (linkage) of the Mathew’s model is the capability of multinationals firm to link with other firms in the international markets in order to obtain the resources. The second “L” of the model stands for leverage, to leverage such links in order to overcome the resource barriers. And the final “L” (learning) to learn through the linking and leverage process and they become able to build up their own competences.

2.6.11 Investment Development Path

The investment development path framework which is also known as the five stages theory of FDI was developed in a series of publications by Dunning, (1981) and (1993), Dunning and Narula, (1996), and Dunning, (2001). This framework describes the dynamic relationship of inward and outward foreign investments with the level of development of a country through five different stages.

The first stage of the investment development path framework indicates to a situation of a least developed country in which the country doesn’t have the ability to attract FDI due to its poor infrastructure, low skilled labour force, inappropriate institutions, and poor FDI policies of the government as well as low demand for the high quality products because of its low per capita income. The only location advantage that the country has at this stage is the possession of its natural resources and/or cheap labour. Multinational firms at this stage prefer to carry out their business operations through exports and imports to the country rather than investing.

At the second stage of investment development path the inward FDI of the recipient country starts rising due to the country’s location advantages. The location advantages of the recipient country can be in terms of the natural resources, the lower costs of labour and any other production inputs cost or it can be due to any flexibility of the FDI policies of the recipient country. At this stage the outward FDI of the country either does not exist or exists at a very lower level, because the domestic firms of the recipient country in this stage do not possess the ownership specific advantages that enable them to invest outside their home country.

At the third stage when the country's domestic firms become more efficient and competitive with the foreign firms' and possess some sort of ownership specific advantages the outward FDI of the country starts growing. In this stage of the investment development path the investments are believed to be mainly driven by the skilled labours and the innovatory capacity of the country rather than the lower cost of labour and natural resources of the country. In this stage the investments in the recipient country are mostly carried out by the foreign firms in the forms of the Greenfield investments and/or through the cross border Merger and Acquisitions.

As the country moves along the investment development path and enters to the fourth stage of investment development path the competition between the domestic firms and foreign firms intensifies. In this stage the labour pay rate and other production input costs increases in the country and as a result domestic firms' starts setting up their business operations in the low cost countries in order to minimize their costs. Thus, the outward FDI of the recipient country starts to increase.

At the fifth and final stage of the investment development path framework the level of inflow and outflow of FDI of the countries almost becomes equally balanced. In this stage the investments are mostly made in the form of strategic asset seeking and efficiency seeking and therefore the investors are looking for investing in more developed countries. The governments of the recipient countries at this stage still play an active role in order to sustain a well-organized market. The countries that fall in this stage of the investment development path framework are those countries which are more industrialised such as the United States and the United Kingdom.

2.6.12 Unconventional & Imbalance Theory

The unconventional and imbalance theory of FDI was proposed by Moon and Roehl in 2001. According to this theory the existing theories on FDI only deals with the downward FDI where the investing firm is from the more developed country and the invested country is from the less developed country. The major concern of these theories is to recognize a certain type of ownership advantage that provides a firm a competitive edge in undertaking production in a foreign country.

They argue that these theories fail to explain the wide range of FDI activities observed in the recent years including upward FDI where the investment from the moderately developed or least developed countries takes place in the more developed countries. They described this type of investment as unconventional FDI and strategic investment. They believe that the strategic investments are made by the multinational firms in order to weaken their

competitor's position in the international markets and/or to build new assets to reinforce their own resources for potential competition and are not based on the ownership advantages of the firms.

They state that there are cases where firms from the less developed countries have invested in the more developed countries in order to overcome their own shortcomings that they have such as the lacks of advanced technology, management know how or to establish their own networks rather than exploiting their ownership advantage. An example of such firms can be the Korean firms when they first invested in the Silicon Valley they did not have significant ownership advantages compared to the other foreign firms who invested from the more developed countries. Thus, they believe that the role of ownership disadvantage is equally important as the ownership advantages in explaining the motives of foreign investments by the multinational firms.

2.6.13 Spring Board Perspective of the MNCs

The springboard perspective theory of FDI was proposed by Luo and Tung in 2007. This theory of FDI describes the internationalization of the multinational firms from the perspective of the emerging markets. This theory suggests that multinational firms of the emerging markets use international expansion as a springboard in order to obtain strategic resources in the international markets as well as to minimize their institutional and market restriction that they face within their domestic markets. This theory describes seven motives of the multinational firms from the emerging markets behind internationalization. These motives are as following.

1. To get access to the advanced technology and expertise in advanced markets in order to complement their strength.
2. To expand their business operations and/or to gain reputation in the international markets.
3. To bypass strict trade barriers such as quota restrictions, special tariff penalties and anti-dumping penalties.
4. To seize opportunities in other developing markets in order to leverage their cost effective manufacturing capabilities.
5. To get away from the irregularities that exists in their home countries such as poor law enforcements, inefficient markets, and political instability.
6. To gain advantages from the high income countries.
7. To gain financial and non-financial treatment by their home or recipient countries governments.

2.7 Concluding Remarks

Although the existing theories of FDI highlighted some important aspects of the FDI, particularly these theories of FDI answered to the questions on how, where, when, and why the multinational firms prefer to invest outside their home markets and what enabled them to do so, but these theories of FDI failed to explain the potential costs and benefits of the inflow of FDI from the standpoint of the recipient economies. Therefore, in order to understand how the inflow of FDI impact the economic growth of the recipient economies it is important to discuss its potential costs and benefits on the recipient economy from the perspective of the economic growth theories.

2.8 Theories of Economic Growth

The theories on economic growths have existed for several years and they provide a theoretical opportunity for understanding the role that savings and investments perform in the development of the economies. The two well-known theories among the economic growth theories that described the influence of the inflow of FDI on the economic growth of the recipient countries are the Neo-Classical Growth theory which is also referred as the Exogenous Growth Theory and the New Growth Theory which is also referred as the Endogenous Growth Theory. According to these two economic growth theories the influence of the inflow of FDI on the economic growth of the recipient countries can take place both directly and indirectly. The direct influence of the inflow of FDI on economic growth is suggested through the Neoclassical Growth Theory, while its indirect impact on economic growth is suggested through the Endogenous Growth Theory. These two theories are further discussed below.

2.8.1 Neoclassical Growth Theory

The neoclassical growth theory or exogenous growth theory was proposed by Robert Solow and Trevor Swan in 1956. In this theory FDI is considered as an addition to recipient country stock of capital. This theory postulates that a continuous rise in the capital investment can only have a short run impact on the economic growth of a country assuming that the level of technology and the amount of labour of the country remain constant, since the ratio of the capital to the labour goes up, but in the long run the marginal product of additional units of capital might reduce because of the economic law of diminishing marginal return and thereby all the growth of the country because of the capital accumulation eventually comes to an end. This theory suggests that the long term economic growth of a country is determined through the exogenous factors such as the technological progress of the country which is determined

through the scientific process and is independent and outside the economic system of the country.

In general, this theory argues that capital investment will only have a long term positive impact on the economic growth of the country if there are continuous improvement in the pace of technology of the country, otherwise the effects of diminishing marginal return would finally causes the economic growth of the country to cease at some point in future, since the on-going production of the country reaches to a state of equilibrium (Sahoo, et.al, 2014).

This theory of economic growth is considered to have many limitations. The main limitation of this theory is that, it fails to take into account entrepreneurship and externalities from the foreign investments which are catalyst for the economic growth, and also this theory fails to explain why and how technological progress in a country arises. The limitations of the neoclassical growth theory give rise to the advent of the endogenous theory of economic growth (Ho et. al., 2007).

2.8.2 Endogenous Growth Theory

In the mid-1980s, Paul Romer and Robert Lucas challenged the neoclassical view of economic growth and introduced the endogenous growth theory. This theory holds that the economic growth of a country is mainly influenced by the factors that are internal to the economic system of a country and it is not determined by the external forces as was claimed in the neoclassical growth theory.

This theory suggests three factors as significant contributors to the long term economic growth of a country which are innovation, investment in human capital and knowledge, as these factors facilitate to develop the latest technology that make production more efficient and the domestic firms more competitive. In addition, this theory also considers that the positive spill-overs and externalities that can be exerted from the foreign investments in different forms as the main elements of a long term economic growth for the recipient countries (Lensink and Morrissey, 2001).

This theory of economic growth is different from the neoclassical growth theory in four aspects. Firstly, this theory predicts the internal factors of the economic system of a country to predict and analyse the long term economic growth of the country, Secondly, this theory discards the assumption of diminishing marginal return, thirdly it integrates scale economies and fourthly, it also focuses on the idea of spill-over effects that can be exerted in different form from the inflow of FDI it as the main element for the long term economic growth of the

country (Todara, 1997). Next we discuss the potential spill-over effects of FDI on the recipient country economy.

2.9 The Potential Spill-Over Effects of FDI

The main mechanisms through which the inflow of FDI is considered to exert positive spill-overs on recipient country economy are divided into five. These are through the transfer of advanced technology and know-how to the recipient country, by enhancing competition among the firms in the recipient markets, by formation of the human resources, by firm's development and restructuring, and by integrating the recipient country economy with the global economies.

However, some of these mechanisms are also believed to bring in some adverse effects to the recipient country (Zhang, et. al., 2010; Gorg and Greenway, 2001, OECD, 2002). These mechanisms through which the FDI inflows can affect the recipient economy are further discussed below.

2.9.1 Transfer of Advanced Technology and Know-How

FDI is regarded as one of the most important sources of transmission and diffusion of advanced technology and know-how across borders. The transfer of technology and know-how of multinational firms is considered as a significant channel for producing positive spill over in the recipient countries, particularly in the least developed countries. The transfer and diffusion of technology of multinational firms work through four interrelated channels: horizontal linkage, vertical linkage, internationalization of research and development, and migration of skilled labour.

(1) Horizontal linkages; local firms of the recipient country in the same industry may adopt technologies through imitation, or may improve their own technology competing due to the competition from multinational firms.

(2) Vertical linkages; the multinational firms may transfer advanced technologies to the supplier's intermediate products or to the purchasers of their own product in the recipient country;

(3) Internationalization of Research and Development; the research and development activities of the multinational firms when located in a foreign country may contribute to the creation of local knowledge generation capacity arising from partially the good characteristics associated with these activities.

(4) Migration of Skilled Labours; the employees who are trained or were previously employed by the multinational firms may transfer their knowledge when switching employers or setting up their own business.

Among these four channels the vertical linkage particularly the backward linkage with the local suppliers in the developing countries is considered to be strongest and more consistent channel for positive externalities (OECD, 2002).

However, there are also some arguments against the technologies that are transferred by the multinational firms to their invested countries as Seid, (1988) argues that multinational firms not always transfer advanced technology to the recipient countries particularly to the least developed countries, but instead they transfer the obsolete technologies that are harmful to the environment. In addition, Liang, (2006) claims that multinational firms are transferring their businesses to those countries that have either flexible environmental regulations or are less stringent with their enforcement where they can carry out production of those goods that are pollutant to the environment which as a result may have negative effects on the recipient country environment.

On the other hand, Vissak and Roolaht, (2005) claim that the technologies transferred by the multinational firms can also have negative impact on the recipient countries. They believe that the transfer of technology can decline the curiosity of local firms in the production of new technology and as a result it may retard innovation of the local firms which will have negative consequences on the recipient country economy and the country will eternally maintain its dependency on multinational firms.

2.9.2 Competition

The presence of multination firms in the recipient country also greatly assist in economic development through spurring competition in the domestic market and thereby leading eventually to higher productivity, lower prices and more efficient resource allocation. It also tends to stimulate capital investments by firms in plants, equipment, and research and development as they struggle to gain an edge over their rivals. The positive spill-over effects of FDI on competition in the domestic market may be particularly important in the cases of service sectors such as telecommunication, retailing and financial services, where exporting is not an option because the services has to be produced where it is delivered (Lim 2001; Blomstrom, 2002; Fan, 2003).

However, the increase in competition that can be created by the multinational firms in the domestic market is also said to have negative consequences on the recipient country. Agosin and Mayer, (2000) and Ram and Zhang, (2002) argue that the increase in competition can

force local firms particularly smaller firms of the recipient country that cannot compete with the multinational firms to shut down their business operations (crowding out effects) because multinational firms have access to more advanced technologies and larger financial resources compared to domestic firms.

Nevertheless, Harrison and McMillan, (2003) believe that if the domestic firms are replaced by more efficient multinational or domestic firms then it doesn't have to be problematic for the recipient country, but in case if it leads to increased market concentration then the risk of monopoly rents along with deterioration of resource allocation which can be then challenging for the recipient country.

2.9.3 Formation of Human Resources

FDI is also believed to have a pivotal role in formation of human capital of recipient countries both through demanding and supplying of skills. Since, multinational firms are more skill intensive than the local firms of the recipient countries, therefore by entering to the market of the recipient country the demand for skilled worker will increase which as a result may create incentives for the overall investments in human capital. On the other hand, multinational firms might affect the supply side of skills by providing training to the local workforce of the recipient country which can range from the on the job training, seminars or even investment in formal education (Schutter, et.al. 2013).

The spill-over that results from the employees training and general investment in education can be either horizontal or vertical. Horizontal spill-overs can occur through externalities or through the employees turn over. When multinational firms support industrial or regional skill development institutions, it is expected that skills will spill-over to the domestic firms that receive training at the multinational firms supported institution. Another important form of horizontal spill-over consists of employees who move to the domestic firms after having been employed and trained by the multinational firm. On the other hand, vertical spill-over effects though human capital formation may be more immediate, for instance when training is provided by the multinational firm to its local suppliers such training and learning by downstream suppliers and upstream purchases may result in immediate productivity gains for these companies (Schutter, et.al. 2013).

However, there are also some arguments that the entry of multinational firms to the recipient markets can also bring about adverse knowledge spill-over effects on the domestic firms. Sylwester, (2005) and Gallagher and Zarsky, (2007) state that due to the economic power that multinational firms have they are able to offer higher salaries and better benefit packages

to the highly skilled workers of the recipient country compared to the domestic firms that this may make it difficult for the domestic firms of the recipient country to attract and retain the highly skilled workers.

2.9.4 Firms Restructuring and Development

Through its direct and indirect effects FDI can also contribute in restructuring and development of the recipient country firms. The direct effects of FDI can happen when a foreign investor acquires or takes control of a firm in the recipient country, and then changes the way the firm operated its business. The changes may affect any aspect of the acquired firm operation such as bringing changes in the operations production technology, marketing strategies, product offerings, supplier relationships, corporate governance and so on. On the other hand, the indirect effects can happen when a foreign firm existence, whether it is through competition or demonstration effects persuades the domestic firms of the recipient country to carry out similar restructuring.

The effects of FDI on firms restructuring and development are considered to be not similar and it largely differs according to the mode of entry, the direct restructuring effects arises when an existing firm of the recipient country is acquired by a foreign firm, whereas the indirect effects on the other hand may spread over irrespective of the mode of FDI entry, but it may depend on the degree to which FDI takes place in sectors where domestic firms are active.

As regards to its direct effects, another important distinction relates to the driving forces behind restructuring and, ultimately behind the acquisition of an enterprise, prospective investor may be motivated by a number of factors when choosing targets for acquisition, however the focus on the potential for boosting corporate earnings through one of three channels: interactions from integrating the firm into multinational firm overall strategy; achieving cost reductions; or developing new activities. All of these goals relate to enterprise restructuring; all of them have the potential to increase the productivity in the recipient economy and are not mutually exclusive.

However, the second type – achieving cost reductions- tends to attract the most attention and spur the public debate in developing countries. Cost saving strategies which are also referred as defensive restructuring may involve the reduction of employment, the closing of factories and a reduction of the range of products and services brought to the domestic markets. While the application of such measures to boost profitability is almost always economically justified, it may breed considerable resentment among interest groups and policy makers in the recipient countries (OECD, 2000).

On the other hand, the defensive restructuring of companies that are perceived to be profitable and well run routinely leads to accusation of disdain for the national interests of the recipient country, particularly when introduced by major foreign owned companies. Such arguments overlook the value in alternative use of resources freed through restructuring. Recipient country reactions to defensive restructuring tend to differ. In case if the domestic firms of the recipient country are considered to be in financial distress, in that case the investors from other countries particularly from the more developed countries are considered as a welcome source of recapitalization and managerial expertise. Most cases of FDI backed privatisation that fall into this category are the moderately developed and less developed countries (OECD, 2000).

2.9.5 Integration into Global Economy

FDI is also viewed as a facilitator in connecting the domestic market of the recipient country to the well-developed international markets as well as transforms the recipient country economy into global economy. According to Blomstrom and Kokko (1998) since the multinational firms have vast knowledge and experience in different areas such as marketing, establishment of international networks and also creation and development of international lobbies, they can enable the local firms of the recipient countries to learn from them and integrate into the global markets.

Barry, (2000) believes that the integration of the recipient economy into the global economy can have significant positive effects on the economic growth of the country, since the country economy becomes more open to the global markets and can reap the potential benefits of global production and distribution networks. In addition, it can facilitate the local firms to get access to new sources of skills and knowledge that can help them to be more efficient and competitive.

There are some concerns that the integration of some countries particularly, the least developed countries with the global economies can have adverse effects, since these countries can become the centre for global exports and thus they may remain dependent on foreign products and services and thereby they may have a huge trade deficit. In addition, they may also suffer from any economic crisis that occurred in the developed countries (Mercinger, 2003; Vissak and Roolaht, (2005). However, according to the OECD, (2003) report the integration into to the global economies of the least developed countries facilitated by FDI has much more benefits than the potential adverse effects that are claimed to be associated with the integration.

2.9 Review of the empirical literature

The impact of the inflow of FDI on the recipient country economy is investigated in a number of empirical studies. However, the findings of these empirical studies are found to be largely incompatible. In some of these existing empirical studies the inflow of FDI is found to have a constructive role in the economy of the recipient countries, while in others it is found to have negative or no role. In this study these empirical studies are divided into two main groups; the first group includes the empirical studies that investigated the impact of the inflow of FDI at a country level, and the second group includes the studies that investigated its role at the cross country level. The findings of these studies and the types of research methods applied are as following.

2.9.2 Country Level Studies

Sharma (2000) investigated the impact of the inflow of FDI on exports performance of India for the period 1970 to 1998 in a simultaneous equation framework. The findings of this study revealed that the inflow of FDI has no significant positive impact on the exports performance of India.

Hongskul (2000) investigated the impact of the inflow of FDI on domestic investment, exports and imports for Thailand. This study was conducted through the vector error correction model (VECM). The time range of the data employed in this study is from 1965 to 1995. In this study Hongskul found significant positive impact of the inflow of FDI on domestic investment and imports, but not any impact on exports.

Kim and Seo (2003) examined the dynamic relationships between the inflow of FDI and GDP for South Korea. This study was conducted through employing quarterly data ranging from 1985 to 1999. This study was analysed within the vector auto regression (VAR) model. In this study they found that the inflow of FDI has some positive impact on GDP, but its impact is not significant.

Fedderke and Romm (2004) assessed the impact and determinants of FDI for South Africa by observing the period 1960 to 2002. The study was conducted through the Error Correction Model (ECM). In this study they concluded that the inflow of FDI has positive impact on the GDP of the country, but in the short run it has substitution effect on the domestic investment of the country.

Vu (2008) investigated the impact of FDI on economic growth for Vietnam by observing the period 1990 to 2002. The study was conducted through the generalised least square estimation method. In this study Vu found that the inflow of FDI has significant and positive effect on labour productivity and GDP, but the effect is not equally distributed among different economic sectors.

Falki (2009) investigated the impact of the inflow of FDI on GDP for Pakistan. The range of data that Falki used in her study was from 1980 to 2006. In this study the regression analysis method was employed. In this study Falki found negative and statistically insignificant relationship between the inflows of FDI and GDP.

Yaqub, et.al. (2013) examined the relationship between the inflow of FDI and economic growth for Nigeria. The time period of data used in this study was from 1980 to 2006. This study was conducted through the Granger causality testing framework. In this study they concluded that there is no causality relationship between the inflows of FDI and the GDP of the country.

Gu (2010) examined the relationship between FDI and GDP for Nepal. The time period of data used in this study was from 1980 to 2006. This study was conducted through the Granger causality framework. In this study Gu found a long run unidirectional (one way) causality relationship between the inflow of FDI and GDP in which the direction of causality runs from the inflow of FDI to GDP.

Sarbapriya (2012) investigated the relationship between the inflow of FDI and GDP for India. The time period of data used in study was from 1990 to 2010. This study was performed through the Granger causality framework. In this study Sarbapriya found unidirectional relationship between the inflow of FDI and GDP in which the direction of causality runs from GDP to the inflow of FDI.

Khaliq and Noy (2007) examined the relationship between the inflow of FDI and GDP for Indonesia. This study was performed through the augmented production function specification and regression methods. The time period of data used in this empirical study is from 1997 to 2006. In this study they concluded that on aggregate level of the inflow of FDI has a positive impact on GDP, but through analysing its impact for different economic sectors of the economy, the estimation results for each sector of the economy was different. In some sectors the inflow of FDI was found to have positive effects, while in others negative or even no impact.

Alguacil, et.al (2002) examined the relationship between the inflow of FDI, domestic income, and exports for Mexico through the Granger causality framework for the period 1980 to 1999. The findings of this empirical study show that the inflow of FDI has positive impact on the exports performance of the country.

Min, (2001) investigated the relationship between the inflow of FDI and exports for Malaysia. The study was conducted through the Granger causality framework. The findings of this empirical study revealed the existence of a unidirectional causality relationship between the inflow of FDI and exports in which the direction causality runs from the inflow of FDI to exports.

Alguacil and Orts (2002) examined the relationship between the inflow of FDI and exports through the Granger causality framework for Spain. In this study they employed the quarterly data for the period 1970 to 1992. The finding of this study revealed the existence of a long run causality relationship between the inflow of FDI and exports in which the direction of causality runs from the inflow of FDI to exports.

Liu et.al, (2002) examined the causal links between trade, the inflow of FDI and growth for China through the Granger causality framework. In this study they found bidirectional causality relationship between the inflow of FDI, growth and exports, but a one-way causality relationship between the inflow of FDI and imports.

Van Loo, (1997) investigated the relationship between the inflow of FDI and gross capital formation for Canada through applying the accelerator investment model. The finding of this study show that the inflow of FDI increases the gross capital formation through its direct effects, but its total impact is smaller due to the indirect negative effects on the gross capital formation.

2.9.3 Cross-Country Level Studies

De Mello (1999) investigated the impact of inflow of FDI on capital accumulation, output, and total factor productivity growth for 32 countries (15 OECD and 17 non-OECD countries). The data employed in this study was from 1970 to 1990. In this study De Mello concluded that the inflow of FDI is expected to enhance the long run growth of the recipient countries through technological upgrading and knowledge spill-over effects, but the extent to which FDI is growth enhancing is also largely dependent on the degree of substitution and complementary effects between domestic investment and FDI.

Carkovic and Levine (2002) investigated the FDI and economic growth relationship through a sample of 72 developed and developing countries. The time period of data they employed in this study was is 1960 to 1995. The study was performed through the Generalised Method of Moments (GMM) estimator. In this study they concluded that the inflow of FDI did not exert an independent influence on economic growth particularly the exogenous component of FDI did not exert a significant positive impact on economic growth, even allowing for the financial development, level of education, level of economic development, and trade openness of the recipient countries.

Saltz, (1992) examined the impact of FDI on GDP by covering the period 1970 to 1980 for the less developed countries. The results obtained from the empirical tests that were employed in this study also revealed that there is negative relationship between the inflows of FDI and GDP.

Choe (2003) investigated the impact of FDI on economic growth through a sample of 80 countries. The time range of data used in this study is from 1971 to 1995. The study was performed through the Granger causality framework. In this study Choe concluded that there is little evidence to prove that the inflow of FDI has positive effects on enhancing the economic growth of the recipient countries.

Borensztein et. al. (1998) examined the role of inflow of FDI in the process of technology diffusion and economic growth through a sample of 69 developing countries. The time period of data used in this study was from 1970 to 1989. In this study they concluded that the inflow of FDI contributes more than domestic investment to the economic growth of the recipient countries, but the magnitude of the FDI effects is largely dependent on the stock of human capital and a sufficient absorptive capability of advanced technologies available in the recipient countries.

Bengoa and Sanchez Robles, (2003) examined the correlation relationship between the inflow of FDI, economic freedom, and the recipient country economic growth through using the panel data analysis for a sample of 18 Latin America countries. The time range of data used in this study is from 1970 to 1999. In this study they concluded that the inflow of FDI has a strong positive impact on enhancing the economic growth rate of the recipient countries, but the magnitude of the impact for a long term economic growth is also much more dependent on the absorptive capacity of the recipient countries, in terms of human capital, sufficient infrastructure, economic stability, and also liberalized markets of the recipient country.

Barrell and Pain, (1999) investigated the spill-over effects of FDI by US multinationals in four European countries. In this study they concluded that the inflow of FDI can have positive effects on the recipient country economic performance only in cases if there are transfers of technology and knowledge through FDI.

Campos and Kinoshita (2002) examined the effects of FDI on economic growth for 25 central and Eastern European and former Soviet Union transition economies by covering the period 1990 to 1998. In this study they concluded that the inflow of FDI had a significant positive effect on the GDP of the selected countries.

Johnson (2006) investigated the relationship between FDI and economic growth for a sample of 90 developed and developing countries for the period 1980 to 2002. The analysis was performed with cross sectional and panel data analysis. In his study Johnson concluded that the inflow of FDI enhances economic growth in developed countries, but it doesn't have any effects in developing countries.

Wang (2002) examined the relationship between the inflow of FDI and GDP by using a sample of 12 Asian economies by covering the period 1987 to 1997. In this study Wang

concluded that aggregate FDI significantly positively affect economic growth, but by studying its effects on different sectors of the economy Wang found that only FDI in manufacturing sector has a significant positive impact.

Nyatepe-Coo (1998) examined the impact of the inflow of FDI on economic growth by covering the period 1963 to 1992 through a sample of 12 countries from south-eastern Asia, Sub – Saharan Africa and Latin American countries. In this study Nyatepe-Coo concluded that the inflow of FDI stimulate the economic growth in these 12 countries.

Hansen and Rand (2006) studied the impact of the inflow of FDI on economic growth by covering the period 1970 – 2000 for a sample of 31 countries. The countries that were included in his sample were 10 African, 11 from Latin America and 10 Asian countries. In this empirical study they found strong causal link between FDI and economic growth which runs from the inflow of FDI to economic growth.

Duttary, et. al. (2008) investigated the relationship between FDI and economic growth by covering the period 1970 to 1996 through a sample of 66 developing countries. The countries that he incorporated in his sample were 12 Asian countries, 30 African, 21 South American, and Caribbean countries, and 3 other Island countries. In this empirical study he concluded FDI has positive effects on all the countries that were in his sample, but its impact is much more significant for the South American countries compared to the rest of the countries that he covered in his sample.

Apargis, et. al., (2006) investigated the relationship of the inflow of FDI with the GDI by using a panel data set of 27 transition economies. The time period of the data they covered in this empirical study was from 1991 to 2004. In this study they utilized the panel co-integration test and the ordinary least square (OLS) method. The findings of this study showed that the inflow of FDI does not have a significant positive impact on the GDP on the countries in their study sample.

Jyun-Yi, et. al., (2008) examined the relationship between the inflow of FDI and GDP for a sample of 62 countries by covering the period 1975 to 2000. The study was conducted through the threshold regression analysis. In this study they concluded that the inflow of FDI has a significant impact on the GDP, but its impact is significant only if the recipient country has a better level of initial GDP and human capital.

Vacaflares, (2006) examined the relationship between the inflow of FDI and tax revenue for the Latin American countries for the period 1980 to 2002. The study was estimated through the dynamic panel model. In this study he concluded that the inflow of FDI has a positive impact on the tax revenue of the country.

Bosworth and Collin, (1999) investigate the relationship between the inflow of FDI and gross capital formation on a sample of fifty-eight countries for the period 1978 to 1995. In this study

they distinguished between the different types of inflow, the FDI inflow, portfolio investments and other financial capital inflows. The finding of this study revealed that an increase of a dollar in capital inflow is associated with an increase by fifty cents in domestic investments while a dollar increase in the inflow of FDI increases the gross capital formation with the same amount, but the portfolio investment has no little or no impact on the level of capital formation of the counties in their study sample.

Keho, (2013) investigated the causality relationship between the inflow of FDI, exports and economic growth for 12 sub Saharan countries over the period 1970 to 2013. The study was conducted through the Granger causality framework. The findings of this study revealed the existence of bidirectional causality relationship between the inflows of FDI and GDP and the existence of unidirectional causality relationship running from GDP to exports in Ghana, the existence of bidirectional causality relationships between the inflow of FDI and exports in Benin, the existence of unidirectional causality relationship between the inflow of FDI and exports in Kenya, the existence of bidirectional causality between the inflow of FDI and GDP in Cameroon and South Africa, and the existence of bidirectional relationship between the inflow of FDI and GDP and exports in Congo.

Gropp and Costial, (2002) investigated the relationship between the inflow of FDI and the tax revenue for the OECD countries. In this study they concluded that there is little evidence to prove that there is strong relationship between the inflow of FDI and tax revenue for the countries of their study sample.

Table: 2.3: below presents a summary of the above empirical evidence on the role of the inflow of FDI in the recipient economies.

Table: 2.3; FDI and the recipient economy- summary of the results of empirical studies

Authors	Data	Sample	Variables	Results	Concluding Remarks
Kim and Seo	Time series	Korea (1975 to 1999)	FDI,GDP	Positive	Positive but insignificant
Fedderke&Romm	Time series	South Africa (1960 to 2002)	FDI,GDP,DI	Positive	Positive effects on GDP, but short run substitution effects on Domestic Invest.
Vu	Time series	Vietnam (1990 to 2002)	FDI,GDP,LP	Positive	Positive but the effect is not equally distributed among different economic sectors.
Falki	Time series	Pakistan (1980 to 2006)	FDI,GDP	Negative	
Yaqub et.al.	Time series	Nigeria (1980 to 2006)	FDI,GDP	Negative	
Qingliang	Time series	Nepal	FDI,GDP	Negative	

Gu		(1980 to 2006)			
Sarbapriya	Time series	India (1990 to 2012)	FDI,GDP	Negative	
Khaliq and Noy	Time series	Indonesia (1997 to 2006)	FDI,GDP	Positive	Positive but the effect is not equally distributed among different economic sectors.
Black and Pain	Time Series	UK (1990 to 1999)	FDI, Exports	Positive	
Alguacil et.al.	Time Series	Mexico (1980 to 1999)	FDI, Exports	Positive	
Min	Time Series	Malaysia	FDI, Exports	Positive	
Alguacil and Ort	Time Series	Spain (1970 to 1992)	FDI, Exports	Positive	
Van Loo	Time Series	Canada (1957 to 1971)	FDI, GCF	Positive	Positive through its direct impact, but the overall impact negative
Vacaflares	Cross Sectional	58 Latin American countries. (1980 to 2002)	FDI,Tax revenue	Positive	
Gropp and Costial	Cross Sectional	OECD countries	FDI, Tax revenue		No strong relationship between FDI and tax revenue
De Mello	Cross sectional	32 countries (1970 to 1990)	FDI,OP,LP	Positive	
Kaho	Cross Sectional	12 Countries (1970 to 2013)	FDI,GDP, Exports	Positive & Negative	Mixed Results across countries.
Borensztein et. al.	Cross sectional	69 countries (1970 to1989)			FDI contributes to the economic growth when sufficient absorptive capability of advanced technology is available
Bengoa and Sanchez Robles	Panel data	16 countries (1970 to 1999)	FDI,GDP	Positive	The magnitude of FDI effect is dependent on absorptive capacity of the recipient countries in terms of human capital, sufficient infrastructure, economic stability, and liberalized markets.
Barrel and Pain	Cross Sectional	4 countries (1981 to1992)	FDI,GDP	Positive	Positive effects if there is transfer of advanced technology and knowledge
Campos and Kinoshita	Cross sectional	25 countries (1990 to1998)	FDI,GDP	Positive	

Johnson	Cross sectional	90 countries (1980 to 2002)	FDI, GDP	Positive	FDI inflows enhance economic growth in developed countries, but it doesn't have any effect in developing countries.
Wang	Cross Sectional	12 countries (1987 to 1997)	FDI, GDP	Positive	Positive but the effect is not equally distributed among different economic sectors.
Nyatepe-Coo	Cross sectional	12 Countries (1963 to 1992)	FDI, GDP	Positive	
Hansen and Rand	Cross sectional	31 countries (1970 to 2000)	FDI, GDP	Positive	
Duttary, et. al	Cross sectional	45 countries (1970 to 1996)	FDI, GDP	Mixed results	
Apargis, et. al.	Cross sectional	27 countries (1991 to 2004)	FDI, GDP	Negative	FDI can only contribute to economic growth, if the recipient country has a better level of initial GDP and human capital.

2.10 Concluding Remarks

This chapter of the thesis assessed the existing theoretical and empirical literature associated with FDI. The review of the theoretical literature highlighted some important aspects of FDI, such as the concept of FDI, classification of FDI, the different modes of FDI, strategic motives of FDI, theories of FDI and economic growth, and the potential spill over effects of FDI on recipient economies.

On the other side, the review of the empirical literature highlighted a number of existing empirical studies on the relationship or direction of causality between the inflow of FDI and the recipient country economy. The findings of these empirical studies are found to be largely incompatible. In some of these empirical studies the inflow of FDI is found to have positive impact on the economies of the recipient economies, while in others it is found to have negative or no relationship with the recipient economies. The presence of such divergence of these existing empirical studies is believed to be due to a number of statistical issues that needs to be addressed here.

Firstly, most of these empirical studies are cross countries time series studies in which the data is obtained from both the developed and developing countries over a time period. In these empirical studies the researchers assumed that all the countries that they included in their study samples have homogenous absorptive capacity along with the economic structure of the countries, the types of the FDI inflow they receive and the policies and procedures set

for the foreign investors by these recipient countries, given that these factors are not similar and they are largely different from country to country. Therefore, the findings of these empirical studies cannot be generalised and their findings applied to other recipient countries economy.

Secondly, in the country level empirical studies the impact of the inflow of FDI is largely evaluated only over a single macroeconomic variable of the recipient country. In these studies, the researchers did not take into account the impact of the inflow of FDI on other key growth determinants macroeconomic variables of the recipient country. Therefore, these studies are of limited implication on the exact positive or negative impact of the inflow of FDI on overall economy of the recipient country.

Thirdly, some of these existing empirical studies also suffers from various statistical issues such as prior to analysis of the data in the vector auto-regression (VAR) model the researchers did not properly examine the nature of the variables that whether the variables of the study have unit roots or not i.e. stationary or non-stationary as well as the model is not tested that whether it is dynamically stable and the residuals follow a normal distribution with no auto correlation.

Therefore, by considering the diverse conclusions and the statistical issues of the existing empirical literature on the nature of relationship between the inflow of FDI and the recipient country economy, as well as the lack of empirical evidence for a small and landlocked country i.e. Afghanistan entice us to carry out a comprehensive and in-depth analysis to investigate the impact of the inflow of FDI on a number of key growth determinant macroeconomic variables through which the inflow of FDI can contributes to the economy, so this study can provide a better picture on the role of the inflow of FDI in the recipient economy as well as it fills the gap in the existing empirical literature from the standpoint of one of the least developed and landlocked country Afghanistan.

The next chapter of the thesis presents the conceptual framework of the study. In this chapter we discussed the theoretical relationships of the inflow of FDI with the variables that are under investigation and also proposed a number of hypotheses that underpin the current study.

Chapter 3

Conceptual Framework

Chapter Contents

- 3.1 Introduction**
- 3.2 Conceptual Framework**
 - 3.2.1 The Effects of FDI on exports**
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CONCEPTUAL FRAMEWORK & HYPOTHESES

3.1 Introduction

The previous chapter of the thesis highlighted the review of the theoretical and empirical literature on Foreign Direct Investment (FDI). It also highlighted the limitations of the existing empirical studies and the contribution of this study to the existing empirical literature. This chapter of the thesis presents the conceptual framework and the hypotheses that underpin the current study.

3.2 Conceptual Framework

As was discussed in the previous chapter of the thesis that within the context of the exogenous economic growth theory the impact of the inflow of FDI on the recipient country economy is constrained by diminishing returns, and therefore, it can only affect the recipient country economy in the short run and it rules out the inflow of FDI as a source for long run economic growth for the recipient countries. However, in the context of the endogenous economic growth theory due to the positive effects exerted through the inflow of FDI in the forms of new ideas, diffusion of technology, raising productivity, enhancement of the human resources, spurring competition in the domestic market and so on, it is considered as one of the main and important component for a long term economic growth of the recipient countries. Nevertheless, the extent to which the inflow of FDI contributes to the economic development of the recipient countries is claimed to be largely dependent on recipient country specific characteristics in terms of its trading system, human capital, FDI policies, its institutions and infrastructure, its economic and technological conditions, and the level of openness of its economy with the global economies. Therefore, the current study aims to find out what role the inflow of FDI plays in the economy of Afghanistan. In this study the impact of the inflow of FDI will be investigated with a number of macroeconomic variables. The variables are exports, imports, revenue, gross capital formation, and gross domestic product. These variables are chosen for this study as they are particularly important indicators of an economy and also these variables are theoretically believed to have close relationships with the inflow of FDI. The interdependence of the inflow of FDI with these variables is further discussed below.

3.2.1 FDI and Exports

The inflow of FDI is believed to have positive effects on the exports performance of the recipient country both directly and indirectly. The indirect effects of the inflow of FDI on exports performance of the recipient country is thought to occur through different mechanisms

such as by augmenting the domestic capital for exports of the recipient country, providing training for the local workforce and upgrading the technical and management know – how of the domestic firms, by enhancing the marketing effectiveness of the domestic firms, and by facilitating local market access to new and large foreign markets (Anwara and Nguyen, 2010; UNCTAD, 2003).

However, the direct effects of FDI on exports performance of the recipient country are considered to be largely dependent on the types of the inflow of FDI to the recipient country. The horizontal FDI or market seeking FDI which is primarily oriented to the recipient country market can affect the recipient country export performance only in the short run through an increase in the exports of intermediate products and capital goods, but its impact in the long run turns out to exports reduction so called the substitutions effects of the FDI. On the other hand, the second type of FDI which is known as the Vertical FDI or the efficiency seeking FDI can boost the exports performance of the recipient countries in intermediate products (components and parts) that are needed for assembling. This intra-firm trade of FDI is termed as complementary effects of FDI on exports. The vertical type of FDI is considered to be largely hosted in the developing countries, particularly in those industries that are labour intensive industries such as the home electronics, textiles, and garments (Kenneth, et. al, 2010).

Zhang, (2006) believes that the inflow of FDI with no doubt has positive effects on the exports performance of the recipient countries, but it doesn't accrue automatically. To what degree the recipient countries get the most from the inflow of FDI to boost its exports performance is largely dependent on their policies and bargaining power relative to the multinational firms. He further state that the recipient countries that have weak industries and poor policies for the multinational firms, the inflow of FDI may have only a short run positive spill-over effects on their exports performance, but in the long run the inflow of FDI can have exports reduction effects "substitution effects".

The existing empirical evidence so far on the relationship between the inflow of FDI and exports performance of the recipient countries has concluded contradictory results. The existing cross countries empirical studies such as the studies of Sharma, (2000), Horst, (1972), Jeon, (1992), found negative relationship between the inflow of FDI and Exports performance. While, in the country level empirical studies such as the study O Sullivan, (1993) for Ireland, Cabriel, (1995) for Portugal, Blacke and Pain, (1994) for the United Kingdom, Zhang and Song, (2000) and Clegg and Wang (2002), for China, Alguacil and Orts (2002) for Spain, Min (2001) for Malaysia, and Alguacil et.al. (2002) for Mexico have concluded that the inflow of FDI has positive impact on the exports performance of the recipient countries.

Pain and Wakelin (1997) state that the relationship between FDI and exports performance of the recipient country can be different from one country to another, since each country has its own FDI policies along with the types of FDI they receive, so the existing empirical evidence cannot portray a general conclusion on its positive or negative effects on exports performance of the recipient country.

Due to the inconsistency in the existence empirical literatures regarding the impact of the FDI inflows on exports performance of the recipient countries, the first null and alternative hypotheses that underpin the current study in context of Afghanistan are formulated as following:

Null Hypothesis (1): The inflow of FDI increases the level of exports of Afghanistan.

Alt. Hypothesis (1): The inflow of FDI decreases the level of exports of Afghanistan.

3.2.2 FDI and Imports

The inflow of FDI is believed to have a significant impact on the level of imports of the recipient countries both at the initial phase and operation phase of the investment. In the initial phase of foreign investment, the imports of machineries, installation facilities and other tangible and intangible assets by the foreign firms is considered to increase the level of imports for the recipient countries. However, during the operation phase its impact is considered to be largely dependent upon the required raw materials and other inputs of productions. The recipient countries that have the required raw material and other inputs of productions in that case the inflow of FDI is considered to have significant negative impact on the level of imports of the recipient countries, since the products that were previously imported by the recipient countries would be produced domestically by the foreign investors. On the contrary, if the required raw materials and other inputs of productions that are not available or available at a higher cost compared to other countries, in that case the foreign firms may imports them and thereby this may increase the level of the imports for the recipient countries (Jayakumar et.al. 2014).

However, the existing empirical evidence on whether the inflow of FDI increases or decreases the level of imports of the recipient countries is quite limited. There are very few empirical studies that assessed the impact of the inflow of FDI on the imports performance of the recipient countries. The results obtained from these empirical studies are largely contradictory. The study of Algucil and Orts, (2003) for Spain shows that the inflow of FDI has significant positive impact on the level of imports for Spain, but the results of the empirical studies conducted by Liu et al., (2000) for China and Pacheco-Lopez, (2005) for Mexico indicate that the inflow of FDI has reinforcing effects on the level of imports of the recipient

countries which means that with the increase in the level of the inflow of FDI the level of imports of the recipient country increases and with its decrease the level of imports decreases and vice versa.

As the findings of the existing empirical studies on the nature of relationship between the inflow of FDI and the level of imports of the recipient country are incompatible, therefore in order to find out whether the inflow of FDI increases or decreases the level of imports of Afghanistan the second null and alternative hypotheses of the study are formulated in the following way.

Null Hypothesis (2): The inflow of FDI increases the level of imports of Afghanistan.

Alt.Hypothesis (2): The inflow of FDI decreases the level of imports of Afghanistan.

3.2.3 FDI and Gross Capital Formation

Gross capital formation (GCF) which is also known as the gross domestic investment refers to the total investment or addition to the physical stocks of capital in the economy of a country in a specified period of time (Adewumi, 2006). The inflow of FDI is believed to have positive impact on the GCF of the recipient countries. Since, it is regarded as an important source of introducing advanced technologies and investible capital that is lacking in the recipient countries.

However, the empirical evidence on whether the inflow of FDI contributes positively or negatively to the GCF of the recipient countries is equivocal. Lipsy (2000) and Kim and Seo (2003) in their empirical studies concluded that there is little evidence to prove that the inflow of FDI has positive impact on GCF of the sample of the recipient countries that were included in their research work, while Van Loo (1977) De Mello (1999), Bosworth, et.al. (1999), Hejazi (2002), and Razin (2002) based on their research findings concluded in their empirical studies that the inflow of FDI has significant positive impact on the GCF of the r countries that were included in their studies.

On the other hand, Agosin and Mayer, (2000) argue that the impact of the inflow of FDI on the GCF of the recipient countries may well vary from country to country, since its impact is largely dependent upon the policies of the recipient countries for foreign investments and the types of the foreign investments they receive. They further state that the strength of enterprises of the recipient country also influences the impact of the inflow of FDI on GCF. They believe that it is likely that the inflow of FDI to have complementary role if the foreign investment is in carried out in the under developed sector of the recipient economy, while the

opposite can occur if the investment is undertaken in the developed sector of the recipient economy.

Since, there is lack of consensus in the existing empirical and theoretical literature regarding the relationship of FDI inflows with the GCF of the recipient countries, so the third null and alternative hypotheses of the study in the context of Afghanistan are formulated in the following way.

Null Hypothesis (3): FDI has positive impact on capital formation of Afghanistan.

Alt. Hypothesis (3): FDI has negative impact on capital formation of Afghanistan.

3.2.4 FDI and Tax revenue

FDI is said to have a positive impact on tax revenue of the recipient countries both directly and indirectly. The direct effect of FDI on tax revenue arises when it increases the level of employment and production of the recipient country and thereby increases the domestic taxes on income and goods and services. Whereas, its indirect impact can be in a number forms; (1) It can increase the tax revenue through the taxes on international trade if the product that is produced in the recipient country is sold overseas or if the invested firm imports its production inputs that are used in the production process from overseas, (2) Through the taxation on income and goods and services if it fosters greater activity in domestic firms participating in the production chain, and (3) overall taxes if higher or better incomes arising from the previous points find their way back into the economy (multiplier effect); (4) It increases the tax revenues through the formalization of the recipient economy. Since greater foreign investments increase production in the formal sector, it also formalizes the production of domestic firms supplying the production inputs to the MNCs, thus contributing to the collection of tax revenues, and (5) It also strengthens the tax compliance of the domestic firms by exposing them to the best business practices and corporate governance of the MNCs (Kenneth, et. al, 2010).

However, there are also concerns that the intensive use of the tax incentives that are offered by the recipient governments in order to attract FDI can distort the potential positive impact of FDI on the tax revenue, but Bond and Samuelson (1986) argue that the tax incentives may reduce the tax revenue of the recipient countries in the earlier period of investments, but it can increase the tax revenue in the long run, since foreign firms would not pull out of the invested countries once the tax holiday period comes to an end. In addition, they believe that the greater economic activity brought about by FDI can have a long run positive impact on the tax revenue of the recipient countries.

The empirical evidence on the impact of FDI inflows on the tax revenue of the recipient countries is scant; there are only few empirical studies in this area with contradictory conclusions such as the study of Braunstein and Epstein (2004) who found negative impact of the FDI inflows on the tax revenue for China, while Vacaflares (2006) found positive impact of the FDI inflows on the tax revenue for the Latin American countries, but Gropp and Costial (2002) in their study found weak relationships between the inflows of FDI and the tax revenue through a sample of the OECD countries.

However, Lin and Saggi, (2005) & Nguyen et al., (2013) state that the degree to which the inflow of FDI contributes to the tax revenue of the recipient countries is largely dependent upon certain factors such as the degree of positive technological spill-overs effects emanated from the inflow of FDI, the demand creation for inputs and locally input sourcing by the foreign firms that create additional demand for inputs, and the level of competition it creates in the domestic market.

The existing theoretical and empirical literature on the relationship between the inflow of FDI and tax revenue indicates that the impact of the inflow of FDI on recipient economy differ across the countries, therefore to find out whether the inflow of FDI has positive or negative impact on tax revenue of Afghanistan the fourth null and alternative hypotheses of the study are formulated as following.

Null Hypothesis (4): FDI has positive impact on the tax revenue of Afghanistan.

Alt. Hypothesis (4): FDI has negative impact on the tax revenue of Afghanistan.

3.2.5 FDI and Gross Domestic Product

Gross domestic product (GDP) refers to the monetary value of all goods and services that are produced in a country within a specified period of time. The GDP is the most important measure of a nation economy and its growth indicates improvements in the standard of living of the people in a country (Abbas, et.al, 2011).

The inflow of FDI involves the transfer of numerous tangible and intangible assets to the recipient country such as advanced technology, capital, and management know-how, and therefore, it is theoretical believed to have a significant positive impact on the GDP of the recipient countries.

However, the empirical evidence on its impact on the GDP of the recipient country is relatively ambiguous. The cross country empirical studies largely concluded that the inflow of FDI has significant positive impact on GDP of the recipient countries such as the study of Saltz, (1992), Borensztein et. al. (1998), Nyatepe-Coo (1998), Barrell and Pain, (1999), De Mello (1999), Carkovic and Levine (2002), Campos and Kinoshita (2002), Wang (2002), Choe

(2003), Bengoa and Sanchez Robles, (2003) Johnson (2006), Apargis, et. al. (2006), Hansen and Rand (2006), Duttary, et. al. (2008), and Jyun-Yi, et. al. (2008), but, the findings of the country level empirical studies are contradictory. The study of Kim and Seo (2003) for Korea, Feddereke & Romm (2004) for South Africa, and Vu (2008) for Vietnam have concluded that the inflow FDI has positive impact on GDP of the countries included in their study, but the studies of Falki (2009) for Pakistan, Yaqub et. al. (2013) for Nigeria, Sarbapriya (2012) for India, and Khaliq and Noy (2007) for Indonesia has concluded that the inflow of FDI has negative impact on GDP for these countries.

There are also some strong arguments in the theoretical literature that the impact of the inflow of FDI on GDP of the recipient country is dependent upon the absorptive capacity of the recipient countries; in terms of human capital, sufficient infrastructure, economic stability, liberalized markets, and initial level of the GDP of the recipient country, and therefore, its impact on the recipient economy may differ from one country to another (Bengoa and Sanchez Robles, 2003; Apargis, et. al., 2006).

As, there is lack of consensus in the existing empirical literature on whether the inflows of FDI has positive or negative impact on GDP of the recipient countries, therefore to examine its impact in the context of Afghanistan the fifth null and alternative hypotheses of the study are as following.

Null Hypothesis (5): The inflow of FDI has positive impact on GDP of Afghanistan.

Alt. Hypothesis (5): The inflow of FDI has negative impact on GDP of Afghanistan.

3.3 Control Variable

In addition to the independent and the dependent variables of the study the yearly inflation rate of the country was also included as the control variable. The inclusions of this variables is of a great importance, because the rate of inflation is believed to be an important factor in influencing the inflow of FDI to a recipient country as well as an important factor in overall economic activities of a country. A high rate of inflation in a country is considered to distort the economic activities and leads to lesser inflow of foreign capital, while a low and stable rate of inflation of a country acts as a sign of internal economic stability and economic growth of the country (Khan and Mitra, 2014). This is because a low and stable rate of the inflation in a country reduces the risk of uncertainty and as a result it boosts the confidence of the people and businesses for making their investment decisions. On the contrary, the high rate of inflation in a country is also considered to signify that the central bank of the country is unable to set appropriate monetary and fiscal policies. In addition, a high rate of inflation is also

considered to have negative impacts on the capital preservation of foreign investment as well as it affects the overall profitability of foreign investors, since the higher prices leads to more costs and less profits for the investors and in this ways it also reduces the level of inflow of FDI to a country (Aijaz, Siddiqui, and Aumeboonsuke, 2014).

Since, the rate of inflation has close links with the level inflow of FDI as well as the overall economic activities of a country; therefore, the rate of inflation is controlled in this study in order to avoid spurious results.

Figure: 3.1 below present the conceptualized relationship between the variables of the study. In this study, the inflow of foreign direct investment (FDI) is the independent variable and exports, imports, gross capital formation, tax revenue, and the gross domestic product are the dependent variables of the study. In addition, the variable that is controlled for is the inflation.

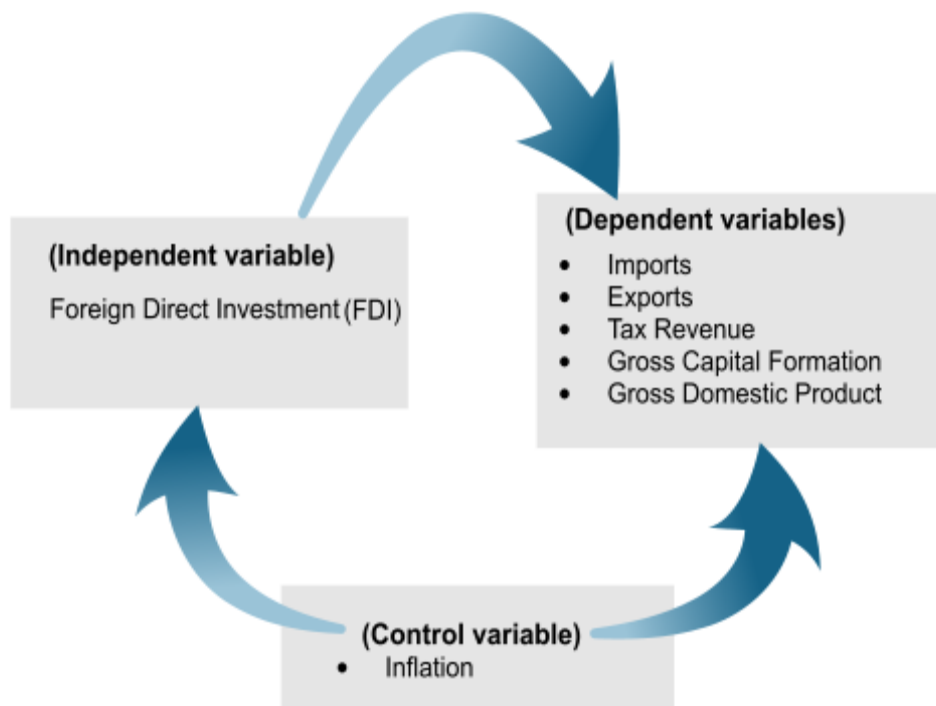


Figure: 3.1. Conceptual Framework

Source: Author

3.4 Concluding Remarks

This chapter of the thesis presented the inter-relationship of the inflow of FDI with the variables that are under investigation from the theoretical perspective. It also discussed the findings of some of the existing empirical studies regarding the relationship of the inflow of FDI with the variables that are under investigation and proposed the hypotheses that underpin the current research work.

The next chapter of the thesis is the research methodology. In this chapter we present an in-depth explanation of the research methods adopted for this study. It broadly includes a detailed explanations of the various research paradigms available in general and the paradigm adopted for this research work, the methodology used for the collection of data and analysis of the data and the reason that why chosen these methods were deemed more appropriate for this study.

Furthermore, the next chapter also highlights the various sources from which the data is retrieved for this research work and the reason why these data sources were chosen for the data retrieval.

Chapter 4

Methodology

Chapter Contents

- 4.1. Introduction**
- 4.2 Research Paradigm**
- 4.3 Research Reasoning**
- 4.4 Paradigm of this study**
- 4.5 Hypothesis**
- 4.6. Method of Data Collection**
- 4.7 Sources of Data**
- 4.8 Method of Data Adopted in this study**
- 4.9. Method of Data Analysis**

RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter of the thesis presented the conceptual framework for the study. It also presented the hypotheses that are examined in chapter 5. This chapter of thesis presents an in-depth explanation of the research process and its appropriateness for this study. It broadly includes the research paradigm adopted in this study, the methodology applied for the data collection and analysis and the reason for choosing such a methodology. It also includes the sources from which the data is obtained for this research as well as the reason for using these sources.

4.2 Research Paradigm

The research paradigm is defined as a philosophical framework that guides how a scientific research should be conducted (Guba and Lincoln, 1994). According to Cresswell, (2009) the research paradigm held by the researcher leads the researchers towards the choice of qualitative, quantitative or mixed approach in their research. The notable research paradigms which are further discussed below are Positivism, Post Positivism, Interpretivism, Social Constructivism, and Realism.

4.2.1 Positivism

The positivism research paradigm which is also known as the scientific paradigm is concerned with facts and empirical data, with a social reality that can be observed, measured as well as quantified and through which generally applicable laws can be derived. The researchers who adopt the positivist paradigm in their study are independent in their research and their research is purely associated with the idea of objectivism. The independency of the researchers in this philosophical approach means that the researchers have minimum interaction with their research participants, while they are conducting the research. In other words, studies of this philosophical paradigm are purely based on facts and consider the world to be external and objective (Bryman and Bell; 2003; Saunders, et.al. 2006; Wilson, 2010). The Positivism research studies are closely associated with the quantitative research method and are mostly based on the deductive reasoning, and therefore they are intended at testing the theory through formulating hypotheses. The hypotheses formulated are then either proved or disproved through the results the researchers obtained from the empirical tests (Crowther and Lancaster 2008).

4.2.2 Post Positivism

Post Positivism which is described as a milder form of the positivism research paradigm follows the similar principles as positivism paradigm, but it allows for more interaction between the researcher and his/her research participants. In addition, to the quantitative research method in this research paradigm the researchers can also practice the qualitative research approach as well as they can adopt both the qualitative and quantitative research methods, particularly by those researchers who lend themselves to more structured analysis. This research paradigm is the modified scientific method for the social sciences. It aims to produce objective and generalizable knowledge about the social patterns, seeking to affirm the presence of universal properties/laws in relationships amongst the predefined variables (Willis, 2007).

4.2.3 Interpretivism

The interpretive philosophy which is also termed as the anti-positivism philosophy opposes the assumption of the positivism philosophy that the methods of natural sciences apply to the social sciences. Instead this research philosophy insists that there are fundamental differences between the objects that natural scientists study and the reasoning human beings that social scientists study. People actively interpret the world around them and do so within a specific social cultural context. The understanding of social world therefore requires knowing it from the perspective of the people who are directly involved in the social process (Burrell and Morgan, 1979).

This research paradigm is greatly associated with the philosophical position of idealism, and is used to cluster together different philosophical approaches, including social constructivism, phenomenology which is a philosophy that is concerned with the question of how individuals make sense of the world around them, and hermeneutics which is concerned with interpreting human actions (Collins, 2010).

Interpretivists consider the world as too complex, and therefore they believe that simple paradigms such as the positivism or post positivism are not appropriate to study its phenomena. They believe that the reality is not objective, but it is constructed by human beings and consequently truth and knowledge do not exist per se, but only as the results of discussions and common agreements. The intention of the interpretive philosophers is not at generating laws, but they are gaining intuitions in order to explain and describe the world around them (Goles and Hirschheim, 2000; Richardson and Coulthard, 2005; Saunders et al., 2006).

In contrary to the positivism research paradigm where the researchers can only adopt the quantitative research method and the research outcomes are derived from the statistical

analysis, the Interpretivism research paradigm allow the researchers to implement a range of the research methods that seek to describe, translate and otherwise come to terms with meanings (Corbin and Strauss, 2008).

4.2.4 Social Constructivism

Similar to the Interpretivism research paradigm, the social constructivism paradigm which is also referred as the constructionism research paradigm opposes the objectivist standpoint of the positivism and post positivism. This research paradigm is described as a set of beliefs about the ways in which most of the world phenomena if not all is constructed and they are constantly designed through the social activities and human intervention (Wilson and Coaks, 2014).

The social constructivists argue that all knowledge and reality is dependent of the social actors that are being constructed through the interaction between themselves and their environment, which is developed and communicated primarily within a social context. It recognizes the existence of a mutual and interdependent relationship between the objects in the world and the social consciousness. It postulates that there is no essential meaning to be found within objects or the world that exists independently of consciousness. The social constructivists argue that all things depend upon humans to create meanings about them (Collin, 2010).

4.2.5 Realism

Realism is another branch of the epistemological position which is similar to positivism and it assumes a scientific investigation to the creation of knowledge. The essence of this philosophical research approach is that what the senses show us as reality is the truth. It focuses on the belief that really exists in the environment. In this sense, this philosophy contradicts the philosophical position of idealism the theory that asserts that reality as we can know it is fundamentally mental, mentally constructed or otherwise immaterial (Johnson and Christensen, 2010).

There are three types of realism approaches that have been recognized which are known as the naïve, the scientific, and the critical realism. The naïve realism which is also known as the direct realism or the common sense realism is a philosophy of mind it holds that the senses provide us with the direct awareness of the external world. The scientific realism considers that the scientific method can tap true representations of the world. In critical realism the individual argues about their experiences about a particular situation. Critical realist see reality as external and independent which they believe is not accessible through the observations (Madill, Jordan and Shirley 2000).

Table: 4.1 below outline the main distinguishing characteristics of the above discussed research paradigms.

Table: 4.1 Research Paradigms and their distinguishing characteristics

	Positivism	Post Positivism	Interpretivism	Social Constructionism	Realism
Epistemology	Objectivist	Objectivist	Objectivist	Subjectivist	Subjectivist
Ontology	Direct Realist	Direct Realist	Idealist	Idealist	Depth Realist
Emphasis of research	Explanation in terms of universal laws	Explanation in Terms of universal laws	Understanding lived experience and shared culture	Understanding the process of social construction	Explanation in terms of causal mechanisms
Typical Research Approach	Deductive	Deductive	Inductive	Inductive	Abductive or inductive
Dominant research methods	Quantitative with qualitative research in a subordinate role	Quantitative/Qualitative	Qualitative	Qualitative	Qualitative quantitative

Source: Collin, 2010

4.3 Research Reasoning (Deductive/Inductive)

There are two types of research reasoning which are known as the inductive and the deductive reasoning. The inductive reasoning which owes more to the interpretivist research paradigm is associated with the analysis of qualitative data. In this research approach the aim of the researcher is generally centred at exploring a new phenomenon or examining previously researched phenomenon from a different angle. This research approach is also known as the bottom up approach, since the direction of inference in this research approach starts from the specific observation or a set of observations to the development of theory (Goddard and Melville, 2004).

On the other hand, a deductive research reasoning which owes more to the positivism research paradigm is associated with the quantitative data analysis. In this approach the researcher is concerned with formulating hypotheses based on the existing theory or theories and then designing the research plan in order to test the hypothesis or set of hypotheses. The directions of inference in the deductive research reasoning initiate from the general theory or theories to the specific observations (Babe, 2010, Wilson, 2010 and 2014; Bryman and Bell, 2007 and 2015).

Robson, (2002) and Collin, (2010) illustrated the process of the deductive research approach through five sequential stages. These five sequential stages of the deductive approach are as following.

- (1) Deducting a hypothesis or set of hypotheses about two or more concepts or variables from the theory.
- (2) Expressing the hypothesis in operational terms that how the concepts or variables are to be measured.
- (3) Testing the operational hypothesis of the study through the statistical tests.
- (4) Examining the specific outcome of the inquiry, at this stage the researcher will either tend to approve the theory on which the research is based on or suggest the need for its modification.
- (5) If necessary, modifying the theory in light of the research finding.

Table: 4.2 below outlines the main differences between the deductive and the inductive research reasoning.

Table: 4.2 Main Differences between the Deductive & Inductive Research Reasoning

DEDUCTION	INDUCTION
More Scientific Principles	Gives an understanding of the meaning people attach to various context
Move from theory to data	Gives an understanding of the research context
Emphasis on quantitative data	Emphasis on qualitative data
A highly structural approach	A more flexible structure to permit changes of emphasis as the research continues
The researcher is separate from the research process	The researcher is part of rather than separate from the research process
Need to generalise results by selecting sample of a sufficient size	Less need to generalize results
The need to explain causal relationships between variables	

Source: Collin, 2010

4.4 Paradigm of the Study

Since, the overall aim of this study is based upon observable measurable facts which exists externally and is not related to the researcher; therefore, this study would be measured through the objective methods rather than inferred subjectively through the researcher personal opinion, emotion and judgement. Due to the objective nature of the study the positivist research paradigm in this study was adopted, since credible data could only be derived through the quantitative analysis of phenomena observed (Saunders, et al, 2007). As, the positivist research paradigm is associated with the deductive reasoning approach intended at testing the theory or theories through formulating hypotheses which are then either proved or disproved through the results the researchers obtained from the empirical tests; therefore, in this study a set of hypotheses were formulated and tested through the analytical tests.

Furthermore, the research work was entirely conducted through the use of secondary annual time series data. The time range chosen and employed for this research was from 1991 to 2013, which are 23 annual observations. This time range of the data was chosen due to the availability of the data, since prior to the year 1991 the data on the inflow of FDI and some of the variables that are under investigation in this study were not available for some years and post 2013, the data for some of the variables was not issued at the time this research work was conducted.

4.5 Hypothesis

A statistical hypothesis is defined as an assumption, speculation or statement about an unknown population parameter value. There are two types of hypotheses that always go together in statistics. The first one is known as the null hypothesis which is presented by the symbol (H_0) or occasionally it is presented as (H_n). The null hypothesis is initially assumed to be true, although it may be true or false decided by the researcher based on the results obtained from the test. The second one is known as the alternative hypothesis which is also acknowledged as the maintained hypothesis in statistics and is presented by the symbol (H_1) or occasionally it is presented as (H_a). The alternative hypothesis of the test is concluded to be true if the null hypothesis of the test is rejected by the researcher (Brooks, 2008; Sharma, 2007).

The decision rules for deciding on whether to reject or accept the null hypothesis of the test is based upon the confidence interval method or through the test of significance method. These two methods predicate that the variables under consideration have some likelihood and that the hypothesis testing incorporate statements or assumption about the value of the parameter of such distribution (Gujarati, 1995).

4.5.1 Hypotheses of the Current Study

As was discussed in the previous chapter the hypotheses that underpin the current study are as following.

- (1) Ho: The inflow of FDI increases the level of exports.
- (2) Ho: The inflow of FDI increases the level of imports.
- (3) Ho: The inflow of FDI has positive impact on capital formation.
- (4) Ho: The inflow of FDI has positive impact on the tax revenue.
- (5) Ho: The inflow of FDI has positive impact on GDP.

4.6 Methods of Data Collection

The method of data collection is an important aspect of a research. The use of incorrect method can impact the results of the entire study and ultimately leads the researchers to invalid and spurious results. According to Walliman, (2011) for a research to give good description of reliability and validity an accurate method of data collection and the sources from which the data is obtained is vital for overall credibility of the research. There are generally two types of data collection methods; the quantitative and the qualitative data methods.

4.6.1 Quantitative Data

The quantitative data method involves the collection of any information that can be measured and written down with numbers. The method of data analysis in this research approach is conducted through the statistical tests and the research emphasizes is on a deductive reasoning to test a theory or theories through formulating and testing the hypothesis. The quantitative research from the philosophical perspective takes an objective position (Bryman and Bell, 2007).

4.6.2 Qualitative Data

The qualitative data method involves the collection of any information that is not expressed in numbers such as words, images and so on. In this research approach the researcher emphasizes is more on generating the hypotheses from the data collection rather than testing the hypotheses from the existing theory or theories. The qualitative research from the philosophical perspective takes a subjective position and its finding is often interpretive (Bryman and Bell, 2007).

4.7 Sources of Data

There are mainly two sources through which the data for a research can be obtained. These two main sources for data collection are classified as the primary source and the secondary source.

4.7.1 Primary Source

The source of data is considered to be primary when the data comes from the original sources and are collected for a particular purpose of a study. This includes the data collected by the organizations, government agencies, business establishments and individuals who carry original data or who have first-hand information relevant to a given problem (Asaad, 2008).

4.7.2 Secondary Source

The source of data is considered to be secondary when it is initially collected by someone other than the user for a different purpose. The secondary source of data are readily available data and can be retrieved for a research from a number of sources such as the electronic databases of government departments and organizations, libraries, business journals, and financial statements (Asaad, 2008).

Table: 4.3 present a summary of the main differences between the qualitative and quantitative research data and approaches.

Table: 4.3 Summary of the Difference between Quantitative and Qualitative Research

Type of Knowledge	Quantitative	Qualitative
Aim	Objective	Subjective
Characteristics	Generalizable and Testing	Exploratory and Observational
	Fixed and Controlled	Flexible
	Independent and Dependent Variables	Contextual Portrayal
	Pre and Post Measurement of Change	Dynamic, Continuous views of changes.
Sampling	Random	Purposeful
Data Collection	Structured	Semi-Structured or unstructured
Nature of Data	Number, Statistics	Narratives, Quotations, Descriptions
	Replication	Value uniqueness, Particularity

Type of Data Analysis	Identify Statistical Relationships	Identify Features, Patterns, Themes
Final Report	Statistical Report with Correlations, Comparison of Means, and Statistical Significance of the Findings.	Narrative Report with Contextual Description and Direct Quotations from the Research Participants.

Source: Johnson & Christensen, 2008

4.8 Methods of Data Adopted

The purpose of this study is to empirically investigate the impact of the inflow of FDI on a number of macroeconomic variables through testing a set of hypotheses; therefore, the quantitative data approach is implemented for this research. There are a number of data collection methods that can be utilized for collecting the quantitative data for a research which includes the secondary sources, various forms of surveys, face to face or telephone interviews, and through the questionnaires (Saunders, et.al, 2009). In this study we collected the data from the secondary sources. As this method of data collection is believed to offer a number of benefits to the researchers. Firstly, the secondary data collection method saves the time, efforts and money of the researchers, since the secondary data is largely available either for free or relatively with lower price compared to the primary data collection method from a large number of sources such as the public libraries, research institutions, governments publications, scholarly journals, and from the online databases, so the researchers can obtain the data either for free or with minimum costs compared to the primary data collection method.

Secondly, the data from secondary sources is also regarded as a high quality data for a research compared to the data collected through the primary collection method, particularly if the data is collected by the governments or international agencies officials, and thirdly, the analysis and interpretation of the data collected from the secondary sources is also considered to be much more straightforward and yield far more accurate results compared to the data collected through the primary collection method by the researcher over interviews or questionnaires (Bryman and Bell 2007; Saunders et al., 2009; Henn et al., 2009; Neelankavil, 2015).

On the other hand, there are also a number of disadvantages that are also said to be associated with employing the data from the secondary sources for a research, firstly the data might be initially collected for a different aim and objective rather than the aim and objective of the current research, therefore the findings of the research might not be reliable (Churchill, 1995). Secondly, the lack of accessibility of the researchers to the most recent data is another issue related to the secondary data collection method implemented in a research, since there is always a time lag between the collection and the publication of the data from the sources.

Thirdly, there may also be a number of errors hidden in data from the secondary sources or the problems of potential bias which the researcher may not know about it, and therefore the researcher may not be able to validate the accuracy of the data, and finally the data might be available from many secondary sources and it can be difficult for the researchers to compare the validity of the different sources that reports the data (Saunders et.al, 2009; Henn et.al, 2009).

However, even with the above mentioned limitations that are considered to be associated with implementing the secondary data collection method in a research, we deemed the use of the secondary data collection method more appropriate for this sort of research work, since this research is based completely upon the macroeconomic variables, that only the official sources such as the governments and international organizations have the capability to gather such data on a large scale. Furthermore, this method of data collection was also preferred rather than the primary data as the secondary source of data saves time, efforts and money of the researcher and also it is considered to be free from any ethical and legal issues, since the data is available on daily basis from the online databases without any sort of restrictions or fee.

4.8.1 Scope of the Data

This research work is based completely on the use of secondary time series data. The time range of the data that is employed in this study is from the year 1991 to 2013, which are 23 annual observations. This range of the data for the study was chosen because of the availability of the data, since prior to the year 1991 the data on FDI and the macroeconomic variables that are employed were not available and post the year 2013 the data was not issued at the time this study was conducted; hence, only from the year 1991 to 2013 was covered. In addition, any data that was missing for some years were addressed through the interpolation method by using the related time series as suggested by (Pollarad and Alber, 1989). Furthermore, all the variables of the study are measured in the US dollars at the constant prices.

4.8.2 Validity and Reliability of Data

There are many online sources that report the data for the macro economic variables that are under consideration in this study, but the online sources from which the data was obtained for this study are World Bank (WB), International Monetary Fund (IMF), World Trade Organization (WTO), United Nations Statistics Division (UNSD), and the Afghanistan Investment Support Agency (AISA).

These sources were selected for the data collection in this study as they are more reputable international organizations and have access to data on macroeconomic variables on large scale. In addition, the data from these sources are also generally considered to have a pre-established degree of validity and reliability which need not to be re-examined by the researcher.

However, there might be some hidden errors or other problems associated with the data obtained from these sources, since the data on these sources is collected by others for other purposes than the researcher for this study, but due to the nature of this study which is completely based upon the macroeconomic variables that only the official sources such as the governments departments and international organizations have the capability to gather such data on large scale and was not feasible for the researcher to collect the data by his own. Therefore, the data from these sources were deemed more appropriate for conducting this study.

In addition, the data obtained from these sources also saved time, since it is available online on daily basis without any cost and without any types of restrictions on its use and is also free from any ethical issues.

4.9 Variables of the Study

The variables used in this study are foreign direct Investment (FDI), gross domestic product, gross capital formation, exports, imports, and tax revenue. The inflow of FDI is the independent variable of the study and exports, imports, gross capital formation, tax revenue, and the gross domestic product are the dependent variables. The definition of these variables and the sources used for data collection and how these variables are measured is presented below.

4.9.1 Gross Domestic Product

Gross domestic product (GDP) refers to the monetary value of all goods and services that are produced in a country within a specified period of time. The GDP is the most important measure of a nation economy and its growth indicates improvements in the standard of living of the people in a country (Abbas, et.al, 2011).

4.9.2 Foreign Direct Investment

Foreign direct investment (FDI) is defined as the process whereby residents of one country (the source country) obtain the ownership of the assets for the purpose of controlling the production, distribution and other activities of a firm in another country i.e. the recipient country (Moosa 2002).

In another definition it is defined as the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. The lasting interest in the FDI definition indicates the maintenance of a long term relationship of the foreign investor with the enterprise with having a substantial degree of influence or control over the management of the enterprise (World Bank, 2015).

4.9.3 Gross Capital Formation

Gross capital formation also known as the gross domestic investment refers to the total investment or addition to the physical stocks of capital in the economy of a country in a specified period of time (Adewumi, 2006).

4.9.4 Tax Revenue

Tax revenue is defined as a compulsory contribution to the state revenues by governments on income and profits, social security contributions, taxes on goods and services, payroll taxes, taxes on the ownership and transfer of property, and other taxes (UN, 1998).

4.9.5 Exports

Export is a function of international trade whereby goods produced in one country are shipped to another country for future sale or trade. Exports are considered a crucial component of a country's economy, as the sale of such goods adds to the producing nation gross output (UN, 1998).

4.9.6 Imports

Import is a function of international trade whereby goods and services of one country add to the stock of material resources of another country by entering its economic territory (UN, 1998).

Table: 4.4 Variables of the Study

VARIABLES.	SOURCES	MEASUREMENT
Foreign Direct Investment	World Trade Organization, World Investment Reports & Afghanistan Investment Support Agency.	(US \$ million, constant/ Annual Data)
Exports	United Nations Statistics Division & World Trade Organization.	(US \$ million, constant/ Annual Data)
Imports	United Nations Statistics Division & World Trade Organization.	(US \$ million, constant/ Annual Data)

Tax Revenue	World Bank	(US \$ million, constant/ Annual Data)
Gross Capital Formation	United Nations Statistics Division & International Monetary Fund	(US \$ million, constant/ Annual Data)
Gross Domestic Product	United Nations Statistics Division & International Monetary Fund	(US \$ million, constant/ Annual Data)

Source: Author.

4.10 Methods of Data Analysis

In order to achieve the aim of the study two analytical methods for the analysis of the data namely; the Pearson Product Moment Correlation test and the Granger causality testing framework within the Vector Auto-Regression (VAR) model were implemented. In the first step of the data analysis the Pearson Product Moment Correlation test was applied to evaluate the existence of any correlation relationship of the variables that are under investigation, and once the correlation relationship of the variables was assessed then we conducted the Granger causality testing framework within the VAR model to examine the existence of any causality relationship of the inflow of FDI with the variables that are under investigation.

As a valid VAR model requires the variables to be stationary (without unit roots) as well as the model must be dynamically stable which requires that all the roots of the companion matrix are less than one in absolute value and are inside the circle, as well as the residuals must be free from serial correlation, and must be normally distributed. Therefore, before the estimation of the VAR model the Augmented Dicky Fuller (ADF) and the Philips and Peron (PP) unit roots tests within the three specifications of the test namely; with intercept, with intercept and trend, and by excluding the intercept and trend specifications were applied in order to examine the nature of the variables that whether the variables are stationary (without unit roots), the Lagrange Multiplier (LM) Serial Correlation test was employed to evaluate for the absence of serial correlation, the AR Roots Graph was applied to confirm the dynamic stability of the VAR model, and the Residual Normality Jarque Bera test was employed to find out that whether the sample data have the skewness and kurtosis matching a normal distribution.

After examining the nature of the variables and ensuring that the VAR model met the required conditions then the Johansen test of co-integration was applied to examine the existence of any co-integrating relationship between the inflows of FDI with the variables under

consideration in this study. Once the co-integration relationship of the inflow of FDI with the variables was confirmed then we applied the Granger causality test to find out the types and the directions of the causality relationships that exists between the inflow of FDI and the selected variables.

In the final step of the analysis the innovation accounting method which incorporates the impulse response function and variance decomposition was applied. This method was applied in order to measure the strength of the causality relationships for over a 20 years' horizon. Each of these statistical tests applied in this study are further discussed in the remaining of this chapter.

4.11 Vector Auto Regression (VAR) Model

Vector auto-regression (VAR) is an analytical model popularized by Sims in the 1980. The VAR model is widely used in statistics in order to capture the interdependencies between or among a set of time series. The VAR model is considered to be the most flexible and easy to use model in statistics. The VAR model is mostly used for analysing the dynamic behaviour of financial and economic time series as well as for the forecasting. In this model the variables are treated symmetrically by including for each variable an equation explaining its evolution based on its own lags and the lags of all other variables in the model (Brooks, 2008). For a set of n time series variables, $y_t = (y_{1t}, y_{2t}, y_{3t}, \dots, y_{nt})$ a VAR model of order p can take the following form.

$$y_t = A_0 + A_1 y_{t-1} + A_2 y_{t-2} + A_3 y_{t-3} + \dots + A_p y_{t-p} + e_t \quad (4.1)$$

In the above equation p is the number of lags, y_t is an $(n.1)$ vector containing each of the 'n' variables included in the VAR. A_0 is an $(n.1)$ vector of intercept terms. A_i is an $(n.n)$ matrix of coefficients. e_t is an $(n.1)$ vector of error terms.

Two variables VAR can take the following form;

$$(1) \quad y_{1t} = a_{10} + a_{11} y_{1t-1} + a_{12} y_{2t-2} + e_{1t} \quad (4.2)$$

$$(2) \quad y_{2t} = a_{20} + a_{21} y_{1t-1} + a_{22} y_{2t-2} + e_{2t} \quad (4.3)$$

In matrix form the above two variables VAR equation can take the following form;

$$\begin{bmatrix} y_{1t} \\ y_{2t} \end{bmatrix} = \begin{bmatrix} a_{10} \\ a_{20} \end{bmatrix} + \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \begin{bmatrix} y_{1t-1} \\ y_{2t-2} \end{bmatrix} + \begin{bmatrix} e_{1t} \\ e_{2t} \end{bmatrix} \quad (4.4)$$

And in its standard form (unstructured VAR) it takes the following form;

$$y_t = A_0 + A_1 y_{t-1} + e_t \quad (4.5)$$

4.11.1 Estimation of the VAR model

As was discussed earlier in this chapter that a valid VAR model requires the variables to be in the form of stationary (without unit roots) as well as the model must be dynamically stable which requires that all the roots of the companion matrix are less than one in absolute value and are inside the circle, as well as the residuals must be free from serial correlation, and must be normally distributed. In addition, the lag length in the VAR model plays an important role and great care must be taken in determining the optimum lag length for the model in order to avoid any spurious results generated. Therefore, before the estimation of the VAR model and applying the Johansen co-integration test, Granger causality test, the impulse response function and variance decomposition the Augmented Dicky Fuller (ADF) and the Philips and Peron (PP) unit roots tests within the three specifications of the test namely; with intercept, with intercept and trend, and by excluding the intercept and trend specifications were applied to examine the nature of the variables that whether the variables met the stationary (without unit roots) criteria, secondly the optimum lag length selection criterion of the VAR model was employed to determine the optimum lag length for each of the time series in the model, thirdly the Lagrange Multiplier (LM) Serial Correlation test was employed to evaluate for the absence of serial correlation in the model, fourthly the AR Roots Graph was applied to confirm the dynamic stability of the VAR model, and finally the Residual Normality Jarque Bera test was employed to find out that whether the sample data have the skewness and kurtosis matching a normal distribution. These tests that were applied are further discussed below.

4.12 Unit Root Test and Order of Integration

In economic and financial time series analysis, if a time series that its statistical properties such as its mean, variance, and covariance do not change over the passage of time and they stay constant throughout a time horizon then such a time series is considered to be without the unit roots or the stationary time series. On the contrary, if a time series that its mean, variance, and covariance are time dependent and they change over the time horizon then such a time series is considered to have the unit roots or the non-stationary time series (Watsham and Parramore, 1997).

The use of data that contain unit roots i.e. not-stationary in time series analysis in the VAR model is considered to generate unreliable and spurious results which lead the researcher to poor forecasting and understanding (Gujarati, 1995). In the terminology of time series analysis, if a series that does not contain unit root such series is said to be integrated of order zero or in short $I(0)$, but if the time series needs the differenced operation in order to remove the unit roots and achieve stationarity then such a time series is said to be integrated to order one or in short $I(1)$, but if a time series requires to be differenced to n times in order to remove unit roots and achieve the stationarity then such a time series is said to be integrated of order n or for short as $I(n)$ Wang, (2009).

As the variables that are under investigation in this study are macroeconomic time series variables, therefore prior to conducting the statistical tests through the VAR model it was extremely important to conduct the unit roots test in the first step for each of the time series to find out the nature of the variables that whether the variables suffer from the unit root or not. If the variables of the study are found to have unit roots (non-stationary) in that case it must be transform them into stationary variables i.e. to make them $I(1)$ variables through the differencing method and then used them in the VAR model. Since, the use of stationary variables in empirical analysis leads the researchers to spurious regression. Therefore, it was extremely important to examine the nature of variables prior to conducting the statistical tests in the VAR model in order to avoid the problem of spurious regression and achieve consistent and reliable results.

There are a number of tests that are used for testing the nature of the variables in time series analysis, but in this study for the purpose of examining the nature of our variables we employed the Augmented Dicky Fuller (ADF) and Philips and Peron (PP) unit root tests, since these two tests are believed to be more compatible with both large and small study samples. These two tests are discussed below.

4.12.1 Augmented Dicky Fuller (ADF) Test

The Augmented Dicky Fuller (ADF) unit root test is widely used for testing the nature of the variables in time series analysis. The null hypothesis of this test that the variables have unit roots (non-stationary) at the levels of the time series is estimated from three specification of the test. The three specification of the test are with constant, with constant and trend, and without constant and trend. These three specifications of the test take the following forms of equations.

1. with constant;

$$y_t = a + \rho y_{t-1} + \varepsilon_t \quad (4.2)$$

2. with constant and trend;

$$y_t = a + \rho y_{t-1} + \beta t + \varepsilon_t \quad (4.3)$$

3. without constant and trend;

$$y_t = \rho y_{t-1} + \varepsilon_t \quad (4.4)$$

In the above equations y_t is the time series, a is the time intercept, t is the time trend, and ε_t is the residual term.

However, if the time series is found to have unit roots and needs the differenced operations in order to remove the unit roots and achieve stationarity, in that case the null hypothesis of the ADF test of the above three equations 4.1, 4.2, and 4.3 transforms into the following equations under the differencing operation by subtracting y_{t-1} from both sides of the equations.

4. With constant;

$$\Delta y_t = a + \delta y_{t-1} + \varepsilon_t \quad (4.5)$$

5. with constant and trend;

$$\Delta y_t = a + \delta y_{t-1} + \beta t + \varepsilon_t \quad (4.6)$$

6. without constant and trend;

$$\Delta y_t = \delta y_{t-1} + \varepsilon_t \quad (4.7)$$

The Dicky Fuller unit root test assumes that the error term (ε_t) is not correlated, but if the error term (ε_t) is correlated then the extended Dicky fuller test can be applied. The Dicky fuller test is augmenting by adding the lagged values and the above three equations take the following form.

$$\Delta y_t = a + \beta t + \delta y_{t-1} + \sum_{i=1}^p \gamma_i \Delta y_{t-i} + \varepsilon_t \quad (4.8)$$

4.12.2 Philips and Peron (PP) Test

The ADF unit root test is considered to have lower power particularly when the researcher is dealing with the smaller samples', therefore it was important to cross check the results obtained from the ADF unit root test, and employ the Philips and Peron (1988) unit root test. The PP test believed to be similar to the ADF test in most aspects, but it differs from the ADF

unit root test in dealing with the serial correlation and heteroscedasticity in the errors especially where the ADF unit root test uses a parametric auto-regression to estimate the autoregressive moving average structure in the test regression, but the PP test disregard any serial correlation in the test regression. The PP unit root test takes the following form of equation.

$$\Delta Y_t = \alpha_0 + \beta_0 Y_t - 1 + \epsilon_t \quad (4.9)$$

In the above equation Δ is the first difference operator, Y_t is the time series, t is the time trend, and ϵ_t is the residual term.

In this study both the Augmented Dicky Fuller (ADF) and Philips and Peron (PP) unit root tests were carried out both at the levels and at the first differences of the variables within all the three specification of the ADF and PP test namely; intercept, intercept and trend, and with no intercept and no trend. Since, the lag length is extremely important in conducting the unit root testing as Gujarati (1995) states that employing very few lags may cause the null hypothesis of the test to be rejected, whilst employing too many lags may decrease the power of the test as too many lags cause losses in degree of freedom of the test. Thus, the appropriate lag should be applied in order to ensure that the error term is serially uncorrelated. Therefore, to avoid these problems the maximum lag length of three was determined for the ADF test through the Akaike and Schwarz information criterion and for the PP test the lag length was determined through the Bartlett Kernal (Newey-West Bandwidth) criterion.

Once, the optimum lag for the ADF and PP tests were determined then the null hypothesis of the test that the series is non-stationary (has unit root) of the test was checked against the alternative hypothesis that the series is stationary (has no unit roots) for all the three specification of the test. The decision rule for whether to reject or accept the null hypothesis of the ADF test was decided upon the computed ADF and PP test statistics as well as the P. value of the test. If the computed ADF and PP test statistics were greater than the critical values of 1, 5, or 10 percent of the test and the P. values confirmed that the obtained results are statistically significant at the 1, 5, or 10 percent level of significance, in that case the null hypothesis of the ADF and PP tests that the series has unit root were not rejected. On the contrary if the ADF and PP test statistics were less than the 1, 5, and 10 percent critical values of the ADF and PP test as well as the P. value confirmed that the obtained result is more than the 1, 5, and 10 percent level of significance in that case the null hypothesis of the tests were rejected.

4.13 Optimum Lag Length for the VAR model

The results of the vector auto-regression (VAR) model are considered to be highly sensitive with the number of lags applied in the model because by using too large lag length the model become over parameterized, whilst by using too small lag length the model become miss-specify (Enders, 2003).

Therefore, to avoid these problems and chose the optimum lag length to be applied for the model, we employed the automatic lag length selection criterion in the VAR model. The automatic lag length selection criterion of the VAR model recommends the optimum lag length for the model through four different lag length criteria. These are the Akaike Information Criteria (AIC), the Hannon-Quinn information criteria (HQ), the Schwarz Information Criteria (SIC) which is also known as the Bayesian Information Criteria (BIC), and the Final Prediction Error (FPE) criteria. These criteria are mathematically formulated in the following way.

(1) Akaike information Criterion (AIC)

$$AIC(p) = \ln \left| \tilde{\Sigma}(p) \right| + \frac{2}{\hat{T}} pM^2 \quad (4.10)$$

(2) Schwarts Information Criterion (SIC)

$$SBC(p) = \ln \left| \tilde{\Sigma}(p) \right| + \frac{\ln(\hat{T})}{\hat{T}} pM^2 \quad (4.11)$$

(3) Hannan-Quinn Information Criteria (HQIC)

$$HQ(p) = \ln \left| \tilde{\Sigma}(p) \right| + \frac{2\ln(\ln(\hat{T}))}{\hat{T}} pM^2 \quad (4.12)$$

(4) The Final Prediction Error (FPE)

$$FPE(p) = \left| \tilde{\Sigma}(p) \right| + \left(\frac{\hat{T} + Mp + 1}{\hat{T} - Mp - 1} \right)^M$$

(4.13)

In the above equations $\ln |\tilde{\Sigma}(p)|$ is the logarithm of the determinant of the estimated noise covariance matrix (prediction error) for a VAR model of order p fit to the M-channel data, where $\hat{T} = TN$ is the total number of data point used to fit the model (T samples per trial * N trials)

4.14 VAR Diagnostic Tests

Once the optimum lag length for each pair of the series in the vector auto-regression (VAR) model is determined then it is also important to check whether the assumptions of the VAR model are met. Since, a valid VAR model requires that the model must be dynamically stable, which means that the system must return to its long run equilibrium in spite of any shocks caused by disturbances, that this criterion of a stable VAR model requires the entire companion matrix to be less than one and inside the circle. The second criterion for a valid VAR model is that the residuals must follow a normal distribution with no serial correlation no arch and no heteroscedasticity, and the third criterion for a valid VAR model is that the residuals must be normally distributed. Therefore, to evaluate whether the VAR model met the required criterion we employed a number of VAR diagnostic tests namely: Lagrange Multiplier Serial Correlation Test, AR Roots Graphs, and Residual Normality test. These tests are further explained below.

4.14.1 Lagrange Multiplier (LM) Test

The existence of serial correlation in the residuals means that the assumption $E(\epsilon_i \epsilon_j) = 0$ is violated, therefore it is important to ensure that there is no serial correlation in the residual, otherwise the standard error are not valid. The test that is normally used for assessing the absence or presence of serial correlation is the Lagrange Multiplier (LM) test. This test is asymptotically distributed as chi-squared with 4 degrees of freedom. The null hypothesis of the LM test is that there is no serial correlation up to lag order p , where p is a pre-specified integer. This test is calculated by using the auxiliary regression. The test statistic is computed by an auxiliary regression in the following way.

First, suppose we have estimated the regression;

$$y_t = X_t \beta + \epsilon_t \quad (4.14)$$

Where \hat{b} are the estimated coefficients and ϵ are the errors. The test statistic for lag order p is based on the auxiliary regression for the residuals: $e = y - X\hat{\beta}$

$$e_t = X_t\gamma + \left(\sum_{s=1}^p \alpha_s e_{t-s} \right) + v_t \quad (4.15)$$

The decision rule for whether to accept or reject the null hypothesis of the Lagrange Multiplier (LM) serial correlation test is decided upon the computed P. value of the test, if the computed P. value of the test is greater than the 1 and 5 percent levels of significance, then we cannot reject the null hypothesis of the test and can conclude that the residuals are free from the presence of serial correlation. On the contrary, if the computed P. value of the test is less than the 1 and 5 percent levels of significance, in that case we reject the null hypothesis of the test and we can conclude that the time series of the study suffers from the problem of serial correlation.

4.14.2 AR Roots Graph

The dynamical stability of the VAR model is normally evaluated through the inverse roots of AR characteristics polynomial. The estimated VAR model is considered to be stable if the obtained results of the inverse roots of AR characteristics polynomial show that all modulus are less than in absolute value and lie inside the unit circle. The stability of VAR model implicates that the results of the statistical tests conducted within the model are consistent and accurate, conversely if the estimated results of the inverse roots of AR characteristics polynomial show that all the modulus lie outside the unit circle in that case the VAR model is considered to be non-stable and the acquired results of the statistical tests within the VAR model are not valid (Lutkepohl, 1991).

4.14.3 Residual Normality Test

The Jarque-Bera test is a statistical test that is widely used in time series analysis for examining that whether the sample data have the skewness and kurtosis matching a normal distribution. This test asymptotically has a chi-squared distribution with two degree of freedom one for skewness and one for kurtosis, so the statistic can be used to assess that the data are from a normal distribution. The null hypothesis of the test is that the residual is normally distributed. The decision rule for whether to accept or reject the null hypothesis of the test is based upon the P. value of the test, if the P. value of the test is more than the 1 and 5 percent

level of significance, in that case the null hypothesis that residual is normally distributed cannot be rejected. On the contrary, if the P. value of the test less than the 1 and 5 percent level of significance, then we can reject the null hypotheses and can conclude that the residual are not normally distributed (Brooks, 2010). The Jarque Bera test is algebraically formulated in the following way.

$$JB = \frac{n-k+1}{6} \left(s^2 + \frac{1}{4} (c - 3)^2 \right) \quad (4.16)$$

In the above equation n is the number of observations of the sample, c is the sample kurtosis s is the sample skewness, and k is the number of regressors.

Once, the nature of the variables was determined through the ADF and PP unit root tests and the VAR diagnostic tests confirmed that the model is of good fit for the analysis subsequently we employed the Johansen co-integration test, Granger Causality test, Impulse Response Function, and the Forecast Error Variance Decomposition within the vector auto-regression (VAR) model.

4.15 Co-Integration Relationship

In time series analysis if two or more than two pairs of the time series have unit roots i.e. non-stationary and are integrated of order one (*abbreviated form as I (1),*) but some linear combination of these time series are stationary then such time series are considered to have co-integration relationships between them. The existence of co-integration relationships between or among a set of variables in time series analysis is interpreted as the existence of long run equilibrium relationships between or among the time series (Wang, (2009). There are a number of statistical tests that have been developed for investigating the co-integration relationships between or among the time series. The widely used ones of these tests are the two steps test of Engle-Granger (1987), and the three steps test of Engle and Yoo (1989), and the test that is based on the maximum likelihood of Johansen (1988,1989) and Johansen and Juselius (1992). These tests used for identifying the co-integration relationship are discussed below.

4.15.1 Engle-Granger two steps approach

The first co-integration test was proposed by Engle-Granger (1987). This two steps test is based on ordinary least square method. In this test the null hypothesis of no co-integration relationship between a pair of the time series is estimated by the coefficient of a statistic

relationship through the ordinary least square (OLS) method and then applying the unit root test to the residuals to determine if they are stationary or non-stationary. If the residuals are found to be stationary, in that case the null hypothesis of no co-integration relationship of the test can be rejected.

In the first step of the Engle-Granger test the co-integrating equation is run through the ordinary least square method to discover the parameter value, while no conclusion can be performed on the coefficient. Consider the co-integrating relationships for bivariate (two variables) case with the form:

$$y_t = \beta x_t + u_t \quad (4.14)$$

The error term should be stationary $I(0)$ if the variable y_t and x_t are to be co-integrated, however the error term still be non-stationary if they are not co-integrated. Therefore, it is important to examine the residuals of equation (4.14) to check for the stationarity. The Dicky Fuller (DF) or the Augmented Dicky Fuller (ADF) unit root test can be carried out on \hat{u}_t using the regression of the form.

$$\Delta \hat{u}_t = \phi \hat{u}_{t-1} + v_t \quad (4.15)$$

With v_t an iid error term

Since, the test is carried out on the residuals of an estimated model rather than on the raw data; therefore, the critical values of the DF and ADF unit root test cannot be used. Instead the critical values that are tabulated by Engle-Granger can be applied. In case if the residual is found to be stationary, that is $I(0)$ then the time series is considered to be stationary and can proceed to the second step of the model, but if the residual is found to be non-stationary, that is $I(1)$ in that case the model requires to be estimated from the first differences of the residuals rather than at the levels.

In the second step the first step residuals of the model are used as one variable in the error correction model.

$$\Delta y_t = \beta_1 \Delta x_t + \beta_2 (\hat{u}_{t-1}) + v_t \quad (4.16)$$

Where $\hat{u}_{t-1} = y_{t-1} - \beta x_{t-1}$. The stationary, linear combination of non-stationary variables are is also recognized as the co-integrating vector. In our case the $1 - \hat{t}$ is the co-integrating vector.

The Engle-Granger (1987) two steps approach for evaluating the co-integration relationships between a pair of the time series is evidently easy to perform. But this approach for identifying the co-integrating relationship is considered to suffer from a number of limitations. The main limitations of this test are outlined below.

1. This test of co-integration identifies only a single co-integration relationship between a pair of the time series, although there might be more than one co-integration relationship them, but this test does not have the power to detect them.
2. In finite samples this test has the lack of power at the first phase for testing the unit roots and in the second phase for testing the co-integration relationship.
3. In this test there could be simultaneous equation bias, since in this single equation approach the researchers are forced to treat the non-stationary variables unevenly and to specify one variable as the dependent variable and the other variable as the independent variable of the study, although the causality relationships between a set of variables can be running in both directions simultaneously.
4. This approach is not convincing when the researcher wants to perform any hypothesis tests about the actual co-integration relationships defined in the long run regression equation (Brooks, 2002, and 2008).

4.15.2 Engle and Yoo three steps approach

In order to overcome the inadequacy of the Engle-Granger two steps test of co-integration, Engle and Yoo in 1989 included the third step to the Engle-Granger test. However, the third step of Engle and Yoo makes the consistent estimates of the co-integrating vector asymptotically efficient, and makes the distribution of the estimator of the co-integration vector standard, but this test still suffers from all of the remaining limitations of the Engle-Granger two steps approach (Brooks, 2008).

Since, the Engle-Granger (1987) two steps and the Engle and Yoo (1989) three steps approaches for identifying the co-integration relationship between the pair of time series suffer from a number of serious limitations, therefore, to evaluate the co-integration relationships between the variables which are under consideration in this study we implemented the Johansen (1988, 1989) co-integration test.

The Johansen,(1988, 1989) test of co-integration was chosen for this study as it is considered to be more superior compared to the Engle- Granger (1987) two steps and the Engle and Yoo (1989) three steps approaches, because the Johansen, (1988, 1989) test for identifying the co-integration relationship between the variables provides multi variable framework where more than one co-integration relationships between or among the time series can be identified as well as this test is free from the limitations that both the Engle-

Granger two steps and Engle and Yoo three steps approaches suffers from them (Chakraborty and Basu, 2002).

4.15.3 Johansen co-integration test

The Johansen (1988, 1989) and Johansen and Juselius (1992) approach of co-integration is based on the maximum likelihood estimation. In this approach of co-integration there are two types of test statistics that determine the number of co-integration vectors between or among the time series which are known as the “Trace statistic” and the “Maximum Eigenvalue Statistic”. The trace statistic is a joint test where the null hypothesis of the test is verified against the relative alternative hypothesis. The null hypothesis of the test is that the number of co-integration vector between or among the time series is less than or equal to (r) where $r = 0, 1, 2, 3, 4, 5, \dots, n$, while the alternative hypothesis of the test is that there are more than r co-integration equations between or among the time series that are claimed in the null hypothesis of the test.

The trace statistic of the Johansen co-integration approach is formulated in the following way.

$$LR_{tr} = -T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i) \quad (4.14)$$

Where LR_{tr} is the test statistic of the log likelihood ratio. T represents the number of observations, $\hat{\lambda}_i$ is the i^{th} largest canonical correlation.

On the other hand, the Maximum Eigen value statistics follows the similar testing sequence as the trace statistics with similar null hypothesis, but it considers one eigenvalue at a time. The null hypothesis of the maximum eigenvalue statistics that $r = 0$ is tested against the largest eigenvalue. If this null hypothesis of the test is rejected, the null hypothesis that $r = 1$ is tested against the second largest eigenvalue and so on. In this approach the value of r is continuously increased until the null hypothesis of the test can no longer be rejected (Brooks, 2008).

The maximum Eigen value statistics of the Johansen co-integration approach is formulated in the following way.

$$LR_{\max} = -T \ln(1 - \hat{\lambda}_r + 1) \quad (4.15)$$

In the above equation LR_{\max} is the test statistic of the log likelihood ratio. T represents the number of observations, and $\hat{\lambda}_i$ is the i^{th} largest canonical correlation.

In this approach the decision rule for whether to accept or reject the null hypothesis of the test is based upon the co-integrating rank of both the Trace and the Maximum Eigenvalue statistics. The trace and maximum eigenvalue statistics of the test is compared against the corresponding critical values of 1 and 5 percent of the test. If the values of these test statistics are found to be more than the critical values of 1 or 5 percent of the test then it is recommended that the researcher can reject the null hypothesis of no co-integration relationship between the time series, while if the values of the trace and the maximum eigenvalue statistics are found to be less than the critical values of 1 or 5 percent of the tests then the null hypothesis of no co-integration relationship between the time series cannot be rejected.

The outcome of the results produced by both the Trace and maximum eigenvalue test statistics are normally similar, but in case if there is any contradiction between the outcomes of these two test statistics then it is widely recommended in the literature that the researcher must rely on the outcome produced by the maximum eigenvalue statistics of the test, since the results of this test statistics is believed to be more consistent, particularly if the researcher is dealing with the smaller samples (Banerjee et. al, 1993; Dutta and Ahmad, 1997; Odhiambo, 2005).

4.16 Granger Causality Test

Once, the co-integration relationships between the pairs of time series are confirmed then we also need to investigate the causality relationships between them, since the co-integration test only discover the linear relationship between the time series that whether the non-stationary time series are co-integrated or not and it doesn't identify the possible causality relationships between the time series.

According to Granger and Newbold (1974) if two or more than two time series are found to have co-integration relationships between or among them in that case there must exists causality relationships between the variables which can be either a unidirectional (one-way) causality relationship or a bidirectional (two-ways) causality relationship. Therefore, to examine the existence of causality relationships of the inflow of FDI with the variables that are under consideration in this study we employed the Granger causality test within the VAR model.

The Granger causality test is widely used in the empirical studies for testing the existence and direction of causality relationships between the time series. According to Granger (1969), the

concept of causality is based upon a simple logic that a variable (y) is caused by variable (x), if variable (y) can be better predicted from past values of variable (y) and variable (x) from the past values of variable (y) alone.

There are three types of causality relationships that can be determined through the Granger causality test.

- (i) Unidirectional (one-way) causality relationship in which the direction of causality is either from variable (x) to variable (y) or from the variable (y) to variable (x)
- (ii) Bidirectional (two-ways) causality relationships in which both of the variable (x) and variable (y) have reinforcing effects on each other i.e. variable (x) has causal impact on variable (y) and variable (y) has causal impact on variable (x).
- (iii) The existence of no causality relationships between the variable (x) and the variables (y).

The Granger causality test is formulated in the following equations.

$$X_t = \sum_{i=1}^n \alpha_i Y_{t-i} + \sum_{j=1}^n \beta_j X_{t-j} + \mu_{1t} \quad (4.16)$$

$$Y_t = \sum_{i=1}^m \lambda_i Y_{t-i} + \sum_{j=1}^m \delta_j X_{t-j} + \mu_{2t} \quad (4.17)$$

Where the error term μ_1 and μ_2 are assumed to be uncorrelated in the equations.

The decision rule for accepting or rejecting the null hypothesis of no causality from variable (x) to (y) or from variable (y) to (x) is decided upon the computed P. value of the Granger causality test, if the computed P. value of the test is more the 1, 5, and 10 percent level of significance then the null hypothesis of no causality from either variable (x) to variable (y) or from variable (y) to variable (x) can be rejected, but if the null hypotheses of no causality for one of the variable is rejected then in that case we can conclude that there exists a unidirectional(one-way) causality relationship between the variables which can be either from variable (x) if the null hypotheses of variable (y) is rejected or from variable (y) if null hypotheses of variable (x) of no causality relationship is rejected. In addition, if the null hypothesis of no causality relationship of the test for both of the variables (x) and variable (y) is rejected in that case we can conclude that there exists a bidirectional (two-ways) causality relationship between the two variables which means that both of the variables have causal impact on each other.

4.17 Innovation Accounting

Once, the causality relationships between the variables was examined then it was also important to find out the extent of the relationships beyond the data sample, since, the Granger causality test only detect the existence or non-existence of the causality relationship between the time series within the sample period and it does not identify the extend of the causality effects between the variables beyond the selected data sample period, therefore we further extended our analysis and applied the innovation accounting analytical method which incorporates the Impulse Response Functions and the Forecast Error Variance Decomposition. These two methods were applied to evaluate extend of the relationship over a twenty years' time horizon. These two methods of the innovation accounting are further discussed below.

4.17.1 Impulse Response Function

The impulse response function is widely used to detect extend of the relationship between the variables. This method of the VAR model provides a practical vision to interpret the behaviour of the time series in response to a unit shock which is normally one standard deviation positive shock from one endogenous variable to the other endogenous variable over a time horizon. There are two types of impulse response approaches that have been widely used in the empirical studies to provide the pattern of the time series. These two impulse response approaches are known as the orthogonalised method of impulse response function which is developed by Sims in the 1980s and the generalized method of impulse response function which is developed by Koop, Potter, and Pearson in 1996.

In this study we have employed the generalized method of impulse response function, since the orthogonalised method of impulse response function is sensitive to the ordering of the variables in the VAR model as different order of variables in the VAR model produces different results which can be problematic and the theoretical and empirical literature provide little guidance as how the variables should be ordered in the orthogonalised method (Lutkepohl and Reamers, 1992).

However, the generalized method of the impulse response function is considered to be more robust method, since it is independent of the ordering of the variables in the VAR model. The generalized impulse response function combines the historical behaviour of the correlation with the various shocks which results unique impulse responses that are independent to the ordering of the variables (Akoto, 2012). In a two variable VAR the impulse response function is presented as following;

$$y_t = A_1 y_{t-1} + \epsilon_t$$

$$A_1 = \begin{bmatrix} 0.5 & 0.3 \\ 0.0 & 0.2 \end{bmatrix} \quad (4.14)$$

Where expressed in terms of the elements of matrix and vectors as

$$\begin{bmatrix} y_{1t} \\ y_{2t} \end{bmatrix} = \begin{bmatrix} 0.5 & 0.3 \\ 0.0 & 0.2 \end{bmatrix} \begin{bmatrix} y_{1t-1} \\ y_{2t-2} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{bmatrix} \quad (4.15)$$

The effect of time $t = 0, 1, 2, \dots$ of a unit shock $y_{1t} = 0$

$$y_0 = \begin{bmatrix} \varepsilon_{10t} \\ \varepsilon_{20t} \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \end{bmatrix}$$

$$y_1 = A_1 y_0 = \begin{bmatrix} 0.5 & 0.3 \\ 0.0 & 0.2 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} = \begin{bmatrix} 0.5 \\ 0 \end{bmatrix} \quad (4.16)$$

$$y_2 = A_1 y_1 = \begin{bmatrix} 0.5 & 0.3 \\ 0.0 & 0.2 \end{bmatrix} \begin{bmatrix} 0.5 \\ 0 \end{bmatrix} = \begin{bmatrix} 0.25 \\ 0 \end{bmatrix} \quad (4.17)$$

The effect of a unit shock to $y_{2t} = 0$

$$y_0 = \begin{bmatrix} \varepsilon_{10t} \\ \varepsilon_{20t} \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$$

$$y_1 = A_1 y_0 = \begin{bmatrix} 0.5 & 0.3 \\ 0.0 & 0.2 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 0.3 \\ 0.2 \end{bmatrix} \quad (4.18)$$

$$y_2 = A_1 y_1 = \begin{bmatrix} 0.5 & 0.3 \\ 0.0 & 0.2 \end{bmatrix} \begin{bmatrix} 0.3 \\ 0.2 \end{bmatrix} = \begin{bmatrix} 0.21 \\ 0.04 \end{bmatrix} \quad (4.19)$$

4.17.2 Forecast Error Variance Decomposition

The Forecast error variance decomposition is an alternative method to the impulse response function in the VAR model. Since, the impulse response function in the VAR model traces the effect of a shock (one standard deviation positive shock) from one endogenous variable to the other endogenous variable. The variance decomposition in the VAR model separates the variation in an endogenous variable into the component shock. Thus, the variance decomposition in the VAR model gives us information about the relative importance of each random innovation in affecting the variables over a specified time horizon. More specifically

the variance decomposition indicates the percentage of short and long term impact of one variable over another variable over a specified time horizon. Similar, to the impulse response function the variance decomposition is also sensitive to the ordering of the variables in the VAR model as different orders of variables generate different results. Hence, in this study we employed the generalized method for the variance decomposition in the VAR model as this approach is independent to the order of the variables in the model and the error in forecasting.

4.18 Concluding Remarks

This chapter of thesis presented an in-depth explanation of the research process and its appropriateness for this research work. The chapter started with a comprehensive explanation of the various researches philosophical considerations in general and described the positivism research paradigm as a more appropriate paradigm for the current study. Since, the overall aim of this study is based upon observable measurable fact which exists externally and is not related to the researcher; therefore, this study needs to be measured through the objective methods rather than inferred subjectively through the researcher personal opinion, emotions and judgements.

In this chapter we also explained the various data collection methods that are available in general and described the quantitative data collection method through the secondary sources a more appropriate approach for conducting this research, since this research is based completely upon the macroeconomic variables that only the official sources such as the governments and international organizations have the capability to gather such data on a large scale.

In addition, the various statistical tests that are implemented for analysis of the data were also thoroughly explained and also we clarified the reasons that why these statistical tests were deemed more appropriate for the analysis of the data in this study. Furthermore, in this chapter the scope and sources from which the data is obtained for this research work was also explained as well as described the reasons that why these sources for the data collection were chosen.

The next chapter of the thesis is the findings and interpretation. In this chapter we present the results that are obtained from the various statistical tests that were discussed in the present chapter of the study.

Chapter 5

Findings & Interpretation

Chapter Contents

- 5.1 Introduction**
- 5.2 Results of Pearson Correlation Test**
- 5.2 Results of Unit Root Test**
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- 5.4 Results of Diagnostic Tests**
- 5.5 Results of Co-Integration Test**
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FINDINGS & INTERPRETATION

5.1 Introduction

This chapter of the thesis presents the results obtained from the various statistical tests that were employed in this study. The chapter starts with the results obtained from the Pearson Product Moment Correlation Coefficient test followed by the results obtained from the Granger causality testing framework which includes the results of the augmented Dickey Fuller (ADF) and Philips and Peron (PP) unit root tests, automatic lag length selection criteria, Lagrange multiplier (LM) serial correlation test, inverse roots graph, residual normality test, Johansen co-integration test, Granger causality test, impulse response function, and variance decompositions.

5.2 Results of Pearson Product Moment Correlation Test

The results obtained from the Pearson product moment correlation test which are presented in table 5.1 indicates the value of correlation coefficient (R) of 0.738 of FDI with exports, 0.615 with imports and 0.537 with the GCF. These values of the test lie between the value of 0.5 and 1. This indicates the presence of a strong positive correlation relationship of FDI with exports, imports, and GCF respectively. This means that with the increase in the level of inflows of FDI, the level of exports, imports, and GCF increases and with its decrease the level of exports, imports, and GCF decreases and vice versa. In other words, FDI moves in the same direction with these variables. In addition, the computed *p*. values of the test are also 0.000, 0.002, and 0.008. These *p*. values of the test are less than the 1 percent, hence; the correlation relationship of FDI with these variables are statistically significant at the 1 percent level.

On the other hand, the value of correlation coefficient of FDI with GDP, and tax revenue are 0.413. This value of the test is less than 0.5. This indicates the existence of a moderate correlation relationship of the inflow of FDI with GDP, and tax revenue. Furthermore, the computed *p*. values of the test for these variables are 0.45 which is less than 1 percent, therefore the correlation relationship of FDI with these variables are statistically significant at the 1 percent significance level.

Table: 5.1 Results of Pearson Product Moment Correlation Test

		FDI	Exports
FDI	Pearson Correlation	1	.738**
	Sig. (2-tailed)		.000
	N	23	23
Exports	Pearson Correlation	.738**	1

	Sig. (2-tailed)	.000	
**. Correlation is significant at the 0.01 level (2-tailed).			
		FDI	Imports
FDI	Pearson Correlation	1	.615**
	Sig. (2-tailed)		.002
Imports	Pearson Correlation	.615**	1
	Sig. (2-tailed)	.002	
**. Correlation is significant at the 0.01 level (2-tailed).			
		FDI	GCF
FDI	Pearson Correlation	1	.537**
	Sig. (2-tailed)		.008
GCF	Pearson Correlation	.537**	1
	Sig. (2-tailed)	.008	
**. Correlation is significant at the 0.01 level (2-tailed).			
		FDI	GDP
FDI	Pearson Correlation	1	0.413
	Sig. (2-tailed)		.045
GDP	Pearson Correlation	.413	1
	Sig. (2-tailed)	.045	
*. Correlation is significant at the 0.05 level (2-tailed).			
		FDI	Tax Revenue
FDI	Pearson Correlation	1	0.413
	Sig. (2-tailed)		.045
Tax Revenue	Pearson Correlation	0.413	1
	Sig. (2-tailed)	.045	
**. Correlation is significant at the 0.01 level (2-tailed).			

H0: There is no correlation relationship between of FDI with the variables. **H1:** There is correlation relationship of FDI with the variables

5.3 Concluding Remarks

The obtained results of the Pearson Product Moment Correlation Coefficient test revealed that the inflow of FDI has statistically significant strong positive correlation relationship with Exports, Imports, and Gross Capital Formation, , but it has a statistically significant moderate positive correlation relationship with the tax revenue and Gross Domestic Product (GDP).

Nevertheless, these results of the Pearson Product Moment Correlation test only indicate the strength and direction of the correlation between the variables that are under investigation and it does not provide us about the existence or absence of the causality relationships between them.

Therefore, this analysis is further extended and the causality testing framework within the vector auto-regression (VAR) model was applied in order to find out about the existence or absence of causality relationship between the variables that are under study. As was discussed in the previous chapter that before the estimation the VAR model and carrying out the Johansen Co-Integration Test, Granger Causality Test, Impulse Response Function, and Variance Decomposition it is extremely important to apply the unit root tests and the VAR diagnostic tests in order to ensure the VAR model conditions are met, since a valid VAR model requires that the variables must be stationary i.e. without unit roots, as well as the model must be dynamically stable which requires that all the roots of the companion matrix are less than one in absolute value and are inside the circle, as well as the residuals must be free from serial correlation and must be normally distributed. So, in this study the Augmented Dicky Fuller (ADF) and the Philips and Peron (PP) unit roots within the three specifications of the test namely; with intercept, with intercept and trend, and by excluding the intercept and trend were employed in order to examine the nature of the variables that whether the variables are stationary (without unit roots) or not, after that the Lagrange Multiplier (LM) Serial Correlation test was employed to evaluate for the absence of serial correlation, then the AR Roots Graph was applied to confirm the dynamic stability of the VAR model, and finally the Residual Normality Jarque Bera test statistic was employed to assess whether the sample data have the skewness and kurtosis matching a normal distribution. The results of these tests and their interpretation are as following.

5.4 Results of Unit Root Tests

5.4.1 Augmented Dicky Fuller Test (with Intercept only)

The results obtained from the Augmented Dicky Fuller (ADF) unit root test with only the intercept specification which is presented in table: 5.2 below indicates that all our variables have unit roots (non-stationary) at the levels, since the computed ADF test statistics and the *p*. values of the test are more than the critical values of 1, 5, and 10 percent. Therefore, the null hypothesis of the test that the variables have unit roots at levels cannot be rejected at all the critical values of the test.

However, after taking the first difference of variables the ADF test statistics and *p*. values become for FDI (-5.142421) and (0.0006), imports (-6.257101) and (0.0002), GCF (-3.511012) and (0.0187), GDP (-4.214631) and (0.0039), and Tax revenue (0.0047) and (-4.130472). These ADF

test statistics and *p*. values are less than the 1, 5, and 10 percent critical values. Thus, the null hypothesis for FDI, imports, GCF, GDP, and Tax revenue can be rejected at all the critical values of the test as these variables achieve stationarity after the first difference, but for the exports the null hypothesis of the test can only be rejected at the 10 percent critical value, since the computed ADF test statistics and *p*. value for exports which are (-2.706510) and (0.0896) are only less than the 10 percent critical value, but more than the 1 and 5 percent critical values.

Table: 5.2: Augmented Dicky Fuller Test (ADF) Results with Intercept only

Variables & Test Critical Values	Variables at levels		Variables at First Difference	
FDI	Test Statistic:-1.077169	P.value: 0.7047	Test Statistic: -5.142421	P.value: 0.0006
1%	-3.788030		-3.808546	
5%	-3.012363		-3.020686	
10%	-2.646119		-2.650413	
Exports	Test Statistic: -1.563556	P.value: 0.4836	Test Statistic: -2.706510	P.value: 0.0896
1%	-3.769597		-3.788030	
5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	
Imports	Test Statistic:-1.667187	P.value:0.4317	Test Statistic: -5.625631	P.value:0.0002
1%	-3.808546		-3.808546	
5%	-3.020686		-3.020686	
10%	-2.650413		-2.650413	
GCF	Test Statistic: 0.441245	P.value: 0.9801	Test Statistic: -3.511012	P.value: 0.0187
1%	-3.769597		-3.808546	
5%	-3.004861		-3.020686	
10%	-2.642242		-2.650413	
GDP	Test Statistic: 0.840294	P.value :0.9924	Test Statistic: -4.214631	P.value: 0.0039
1%	-3.769597		-3.788030	
5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	
Tax revenue	Test Statistic: -1.167338	P.value:0.6693	Test Statistic:-4.130472	P.value:0.0047
1%	-3.769597		-3.788030	
5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	

Notes: A maximum lag order of 3 was selected using the Akaike information criterion.

Ho: The variables have unit roots. **H1:** The variables don't have unit roots

5.4.2 Augmented Dicky Fuller Test (with Intercept & Trend)

The results obtained from the ADF test by including the intercept and trend specifications which is presented in table: 5.3 also indicates that all our variables have unit roots (non-

stationary) at the levels and needs to be differenced, since the computed ADF test statistic and P. values of the test for all the variables are more than 1, 5, and 10 percent critical values. Therefore, the null hypothesis of the test that the variables have unit roots at the levels cannot be rejected.

However, after taking the first difference of the variables the ADF test statistics and *p*. values become for the inflow of FDI (-5.067406) and (0.0033), imports (-5.995531) and (0.0005), GDP (-4.976906) and (0.0036), and Tax revenue (4.543399) and (0.0086). These *p*. values and ADF tests statistics of the test are less than 1, 5, and 10 percent critical values. Thus, the null hypothesis of the test can be rejected for the inflow of FDI, imports, GDP, and tax revenue at all the critical values, but for the exports and GCF the null hypothesis can only be rejected at the 10 percent critical value, since the *p*. value and the ADF test statistics for exports after the first difference become (0.0793) and (-3.392776) and for the GCF (0.0745) and (-3.438126). These *p*. values and ADF test statistic of the ADF test are only less than the 10 percent critical value and therefore the null hypothesis can only be rejected at the 10 percent critical value.

Table: 5.3: Augmented Dicky Fuller (ADF) Test with Intercept & Trend

Variables & Test Critical Values	Variables at Levels		Variables at First Difference	
FDI	Test Statistic: -2.103761	P.value: 0.5143	Test Statistic:- 5.067406	P.value: 0.0033
1%	-4.467895		-4.498307	
5%	-3.644963		-3.658446	
10%	-3.261452		-3.268973	
Exports	Test Statistic: 2.289628	P.value: 1.0000	Test Statistic: -3.392776	P.value: 0.0793
1%	-4.498307		-4.467895	
5%	-3.658446		-3.644963	
10%	-3.268973		-3.261452	
Imports	Test Statistic: -2.986343	P.value: 0.1577	Test Statistic: -5.995531	P.value: 0.0005
1%	-4.440739		-4.498307	
5%	-3.632896		-3.658446	
10%	-3.254671		-3.268973	
GCF	Test Statistic: -2.940620	P.value: 0.1707	Test Statistic : -3.438126	P.value: 0.0745
1%	-4.467895		-4.498307	
5%	-3.644963		-3.658446	
10%	-3.261452		-3.268973	
GDP	Test Statistic: -2.406444	P.value: 0.3664	Test Statistic:-4.976906	P.value: 0.0036
1%	-4.440739		-4.467895	
5%	-3.632896		-3.644963	
10%	-3.254671		-3.261452	
Tax revenue	Test Statistic: -0.852813	P.value:0.9441	Test Statistic:-4.543399	P.value:0.0086
1%	-4.440739		-4.467895	
5%	-3.632896		-3.644963	
10%	-3.254671		-3.261452	

Notes: A maximum lag order of 3 was selected using the Akaike information criterion.

Ho: The variables have unit roots. **H1:** The variables don't have unit roots

5.4.3 Augmented Dicky Fuller Test (No Intercept & Trend)

The results obtained from the ADF test by excluding the intercept and trend specifications which is reported in table: 5.4 below also suggests that the variables contain unit roots (non-stationary) at the levels and the null hypothesis of the test cannot be rejected, since the computed ADF statistic and *p*. values of the test are greater than the 1, 5, and 10 percent critical values.

However, after differencing the variables once the ADF test statistics and the *p*. values become for FDI (-4.947409) and (0.0000), exports (-2.923625) and (0.0056), imports (-4.528775) and (0.0001), GCF (-2.899242) and (0.0059), tax revenue (4.209942) and (0.0002), and GDP (-3.510103) and (0.0013). These *p*. values and the ADF test statistics of the test after taking the first difference of the variables are less than the critical values of 1, 5, and 10 percent of the test, therefore the null hypothesis of the test that the variables have unit roots can be rejected at all the critical values of the test, since the variables achieve stationarity at the first difference.

Table: 5.4: Augmented Dicky Fuller (ADF) Test with no Intercept & Trend

Variables & Test Critical Values	Variables at Levels		Variables at First Difference	
FDI	Test Statistic: 0.191609	P.value:0.7318	Test Statistic:-4.947409	P.value: 0.0000
1%	-2.679735		-2.685718	
5%	-1.958088		-1.959071	
10%	-1.607830		-1.607456	
Exports	Test Statistic:0.040234	P.value:0.6851	Test Statistic:-2.923625	P.value: 0.0056
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	
Imports	Test Statistic: 2.840170	P.value: 0.9979	Test Statistic: -4.528775	P.value:0.0001
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	
GCF	Test Statistic:2.170006	P.value: 0.9903	Test Statistic :-2.899242	P.value: 0.0059
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	
GDP	Test Statistic: 2.398084	P.value:0.9941	Test Statistic: -3.510103	P.value: 0.0013
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	
Tax revenue	Test Statistic:0.269377	P.value:0.7549	Test Statistic:-4.209942	P.value:0.0002
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	

Notes: A maximum lag order of 3 was selected using the Akaike information criterion.

Ho: The variables have unit roots.**H1:** The variables don't have unit roots

5.4.4 Philips & Peron Test (with Intercept only)

Similar, to the obtained results from the ADF test, the results of the PP test with only the intercept specification which is presented in table: 5.5 also indicates that the variables have unit roots at their levels, since the computed p . values of all the variables are more than 1,5, and 10 percent critical values of the test. In addition, the values of the PP. test statistics for the variables are also more than the critical values of 1, 5, and 10 percent which further proves the existence of the unit roots. Therefore, the null hypothesis of the test cannot be rejected.

However, after taking the first difference of the variables the test statistics and the p . values becomes for FDI (4.165524) and (0.0083), exports (2.706510) and (0.0896), imports (-10.72698) and (0.0000) and, GCF (-3.188480) and (0.0352), tax revenue (4.110921) and (0.0050), GDP (-4.200249) and (0.0041). These test statistics and p . values of the test demonstrate that the null hypothesis of the test can be rejected for FDI, imports, tax revenue, and GDP at all critical values, since both the PP test statistics and p . values becomes less than the critical values of 1, 5, and 10 percent at first difference, but for the GCF the null hypothesis can only be rejected at the 5 and 10 percent critical values and for the exports only at the 10 percent critical value, since the test statistics and the p . value for the GCF is less than the 5 and 10 percent critical values at first difference, while for exports it is only less than the 10 percent critical value.

Table: 5.5 Philips and Peron Test with Intercept only

Variables & Test Critical Values	Variables at Levels		Variables at First Difference	
FDI	Test Statistic: -1.404595	P.value:0.5497	Test Statistic:-4.165524	P.value: 0.0083
1%	-4.004425		-4.057910	
5%	-3.098896		-3.119910	
10%	-2.690439		-2.701103	
Exports	Test Statistic:-1.554709	P.value:0.4880	Test Statistic:-2.706510	P.value: 0.0896
1%	-3.769597		-3.788030	
5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	
Imports	Test Statistic: -1.766654	P.value: 0.3860	Test Statistic: -10.72698	P.value:0.0000
1%	-3.769597		-3.788030	
5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	
GCF	Test Statistic:0.441245	P.value: 0.9801	Test Statistic :-3.188480	P.value: 0.0352
1%	-3.769597		-3.788030	
5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	
GDP	Test Statistic: 1.086989	P.value:0.9960	Test Statistic: -4.200249	P.value: 0.0041
1%	-3.769597		-3.788030	
5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	
Tax revenue	Test Statistic:-1.167338	P.value:0.6693	Test Statistic:-4.110921	P.value:0.0050
1%	-3.769597		-3.788030	

5%	-3.004861		-3.012363	
10%	-2.642242		-2.646119	

Notes: The lag length was determined through the Bartlett Kernal (Newey-West Bandwidth).

Ho: The variables have unit roots. **H1:** The variables don't have unit roots.

5.4.5 Philips & Peron Test (with Intercept & Trend)

The results of Philips and Peron (PP) test with the intercept and trend specification which is presented in table 5.6 also indicates the existence of unit roots at the levels for all the variables, since the computed PP. test statistics and *p*. values are more than the 1, 5, and 10 percent critical values of the test. Therefore, the null hypothesis of the test cannot be rejected. However, after taking the first difference of the variables the test statistics and *p*. values becomes for FDI (-5.462014) and (0.0044), exports (-3.034167) and (0.1468), imports (-14.52635) and (0.0000), GCF (-3.335798) and (0.0878), tax revenue (4.651117) and (0.0031), GDP (-5.144636) and (0.0069). These values of values of the test demonstrate that the null hypothesis of the test can be rejected for FDI, imports, tax revenue, and GDP at all the critical values, since these variables achieve stationarity as the test statistics and *p*. values become less than the critical values of 1, 5, and 10 percent, but for the GCF and exports the null hypothesis of the test can only be rejected at the critical value of 10 percent, since the test statistics and the *p*. values for GCF and exports are only less than the 10 percent critical values of the test.

Table: 5.6 Philips and Peron Test with Intercept and Trend

Variables & Test Critical Values	Variables at Levels		Variables at First Difference	
FDI	Test Statistic: -1.676616	P.value:0.7070	Test Statistic:-5.462014	P.value: 0.0044
1%	-4.800080		-4.886426	
5%	-3.791172		-3.828975	
10%	-3.342253		-3.362984	
Exports	Test Statistic:6.451819	P.value:1.0000	Test Statistic:-3.284167	P.value: 0.0868
1%	-4.440739		-4.467895	
5%	-3.632896		-3.644963	
10%	-3.254671		-3.261452	
Imports	Test Statistic: -2.922106	P.value: 0.1749	Test Statistic: -14.52635	P.value:0.0000
1%	-4.440739		-4.467895	
5%	-3.632896		-3.644963	
10%	-3.254671		-3.261452	
GCF	Test Statistic:-2.307877	P.value: 0.4129	Test Statistic : -3.335798	P.value: 0.0878
1%	-4.440739		-4.467895	
5%	-3.632896		-3.644963	
10%	-3.254671		-3.261452	
GDP	Test Statistic: -4.251312	P.value:0.0147	Test Statistic: -5.144636	P.value: 0.0025
1%	-4.440739		-4.467895	
5%	-3.632896		-3.644963	
10%	-3.254671		-3.261452	

Tax revenue	Test Statistic:-0.717764	P.value:0.9586	Test Statistic:-4.651117	P.value:0.0069
1%	-4.440739		-4.467895	
5%	-3.632896		-3.644963	
10%	-3.254671		-3.261452	

Notes: The lag length was determined through the Bartlett Kernal (Newey-West Bandwidth).

Ho: The variables have unit roots. **H1:** The variables don't have unit roots

5.4.6 Philips & Peron Test (No Intercept and Trend)

The results of Philips and Peron (PP) test by excluding the intercept and trend specification which is presented in table 5.7 also indicates the existence of the unit roots at the levels for all the variables, since the computed test statistics and *p*. values are more than the critical values of 1, 5, and 10 percent of the test. Thus, the null hypothesis of the test cannot be rejected at the levels of the variables.

However, after taking the first difference of the variables the test statistics and the *p*. values which can be seen at the fourth and fifth column of table: 5.12 becomes for FDI (-4.028527) and (0.0007), exports (-2.923625) and (0.0056), imports (-4.528434) and (0.0001), GCF (-2.862365) and (0.0065), tax revenue (4.195103) and (0.0002), and for the GDP (-3.502091) and (0.0013). These values which are obtained after taking the first difference of the variables indicates that the null hypothesis of the test can be rejected for all the variables, since both the PP test statistics and the *p*. values of the test become less than the critical values of 1,5, and 10 percent.

Table: 5.7 Philips and Peron Test with no Intercept and Trend

Variables & Test Critical Values	Variables at Levels		Variables at First Difference	
FDI	Test Statistic: 0.281666	P.value:0.7531	Test Statistic:-4.028527	P.value: 0.0007
1%	-2.740613		-2.754993	
5%	-1.968430		-1.970978	
10%	-1.604392		-1.603693	
Exports	Test Statistic:0.041397	P.value:0.6854	Test Statistic:-2.923625	P.value: 0.0056
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	
Imports	Test Statistic: 5.551658	P.value: 1.0000	Test Statistic: -4.528434	P.value:0.0001
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	
GCF	Test Statistic:2.170006	P.value: 0.9903	Test Statistic :-2.862365	P.value: 0.0065
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		1.607830	
GDP	Test Statistic: 2.372051	P.value:0.9937	Test Statistic: -3.502091	P.value: 0.0013
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	

Tax revenue	Test Statistic: 0.278022	P.value:0.7574	Test Statistic:-4.195103	P.value:0.0002
1%	-2.674290		-2.679735	
5%	-1.957204		-1.958088	
10%	-1.608175		-1.607830	

Notes: The lag length was determined through the Bartlett Kernal (Newy-West Bandwidth).**Ho:** The variables have unit roots.**H1:** The variables don't have unit roots

5.5 Concluding Remarks

The results of the unit root tests within all the three specifications namely; with Intercept, with Intercept and Trend, and by excluding the intercept and trend of the Augmented Dicky Fuller and Philips and Peron unit roots test revealed that all the variables of the study have unit roots (non-stationary) at their levels. However, after taking the first difference the variables become stationary, so at the first difference the variables are appropriate to be used in the vector auto-regression (VAR) model, since all the variables after the first difference become stationary and are in the same order and thereby met the criteria of the vector auto-regression model.

5.6 Optimum Lag Length

After evaluating the nature of variables through the Augmented Dicky Fuller (ADF) and Philips and Peron (PP) unit root tests then it was also important to determine the optimum lag length for the model, since the VAR model is highly sensitive with the number of lags applied and as was discussed in the previous chapter that applying a large lag length over parameterize the model, while applying a small lag length miss-specifies the VAR model. Therefore, in this study the optimum lag length for each pair of the time series in the VAR model was determined through the Automatic Lag Length Selection Criteria. Table 5.8 below presents the recommended optimum lag lengths of the five different lag length criteria for each pair of the time series.

Table: 5.8 VAR Lag Selection Criteria for the Time Series

Lag Length & Time Series	LOGL	LR	FPE	AIC	SC	HQ
FDI-GDP						
0	-20.18736	NA	0.138472	3.697893	3.778711	3.667972
1	7.025396	40.81914	0.002953	-0.170899	0.071554	-0.260664
2	15.68149	9.361690	0.001646	-0.841617	-0.437528	-0.991225
3	20.68149	4.693157	0.001576*	-1.113582*	-0.547857*	-1.323033*
FDI-Exports						
0	-13.58926	NA*	0.046108	2.598210	2.679028*	2.568288
1	-8.886748	7.053767	0.041879*	2.481125*	2.723578	2.391360*
2	-7.543645	1.566953	0.071085	2.923941	3.328030	2.774333
3	-4.469030	2.562179	0.104255	3.077172	3.643896	2.868720
FDI-Imports						
0	-13.18483	NA	0.043102	2.530805	2.611623	2.500883

1	1.648755	22.25037	0.007234	0.725208	0.967661	0.635443
2	9.366362	9.003875	0.004244	0.105606	0.509695	-0.044002
3	22.84933	11.23581*	0.001098*	-1.474889*	-0.909164*	-1.684340*
FDI-GCF						
0	-21.57724	NA	0.174568	3.929539	4.010357	3.899618
1	2.490012	36.10087*	0.006288	0.584998	0.827451	0.495233
2	9.895051	8.639213	0.003886	0.017491	0.421580	-0.132117
3	17.46591	6.309046	0.002694*	-0.577651*	-0.011927*	-0.787102*
FDI-Tax revenue						
0	-23.99685	NA	0.261278	4.332808	4.413625	4.302886
1	-10.70717	19.93452*	0.056723	2.784528	3.026981	2.694763
2	-5.177044	6.451809	0.047916	2.529507	2.933596	2.379899
3	0.349876	4.605766	0.046697*	2.275021*	2.840745*	2.065569*

* indicates the lag order recommended by the criterion.LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error. AIC: Akaike information criterion. SC: Schwarz information criterion. HQ: Hannan-Quinn information criterion.

5.7 Results of VAR Diagnostic Tests

5.7.1 Lagrange Multiplier Serial Correlation Test

The results obtained from the Lagrange Serial Correlation (LM) test which are presented in tables: 5.9 below indicates that there is no serial correlation at the lag order 1, 2, 3, 4, and 5 respectively for each pair of the time series in the VAR model, since the computed p . values of the test which is presented in the third column of table: 5.14 for all pairs of the time series are more than the 1 and 5 percent level of significance. Therefore, the null hypothesis of no serial correlation of the test cannot be rejected at the 1 and 5 percent level and it can be concluded that all of the time series are free from the issue of serial correlation up to the lag order of 5.

Table: 5.9 Lagrange Multiplier (LM) Serial Correlation Test

Time Series & Lag Length	LM Statistics	P.Values	Time Series & Lag Length	LM Statistics	P.Values
FDI-GDP			FDI-Imports		
1	1.711846	0.7886	1	2.254153	0.6891
2	1.331040	0.8561	2	8.867657	0.6045
3	6.811274	0.1462	3	3.375736	0.4970
4	0.521857	0.9713	4	0.793768	0.9393
5	2.024612	0.7312	5	0.472813	0.9761
FDI-Exports			FDI-GCF		
1	3.126560	0.5369	1	8.614229	0.0715
2	2.781366	0.5951	2	5.507736	0.2391
3	1.262785	0.8677	3	2.647543	0.6184
4	0.952119	0.9170	4	6.841083	0.1445
5	1.650916	0.7996	5	1.669515	0.7962
			FDI-Tax revenue		
1	1.423717	0.8401	4	2.758668	0.5990
2	2.723609	0.6051	5	0.618100	0.9610
3	5.542999	0.2360			

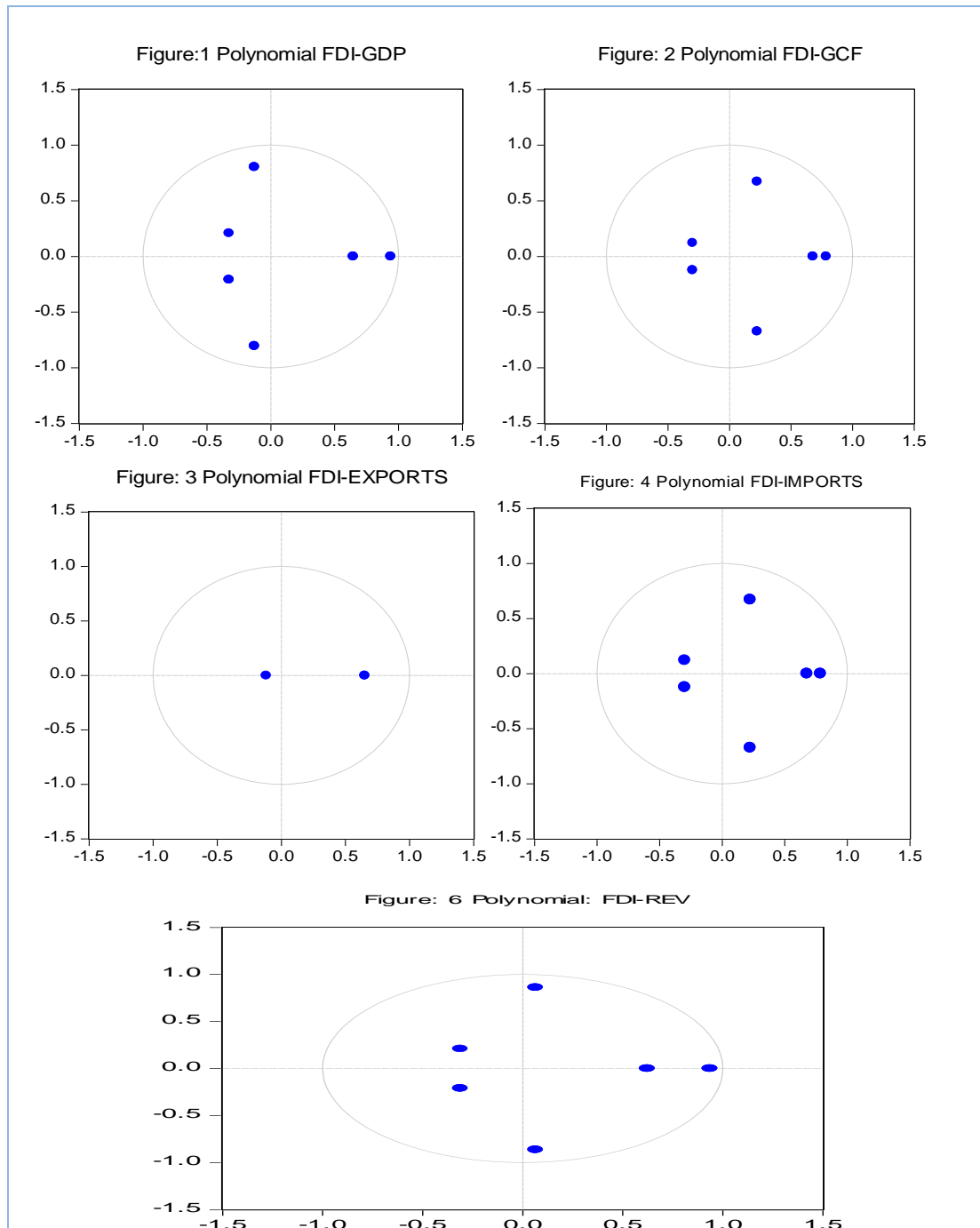
Probs: From chi-square with 4 df.

Null hypothesis: There is no serial Correlation between the variables.

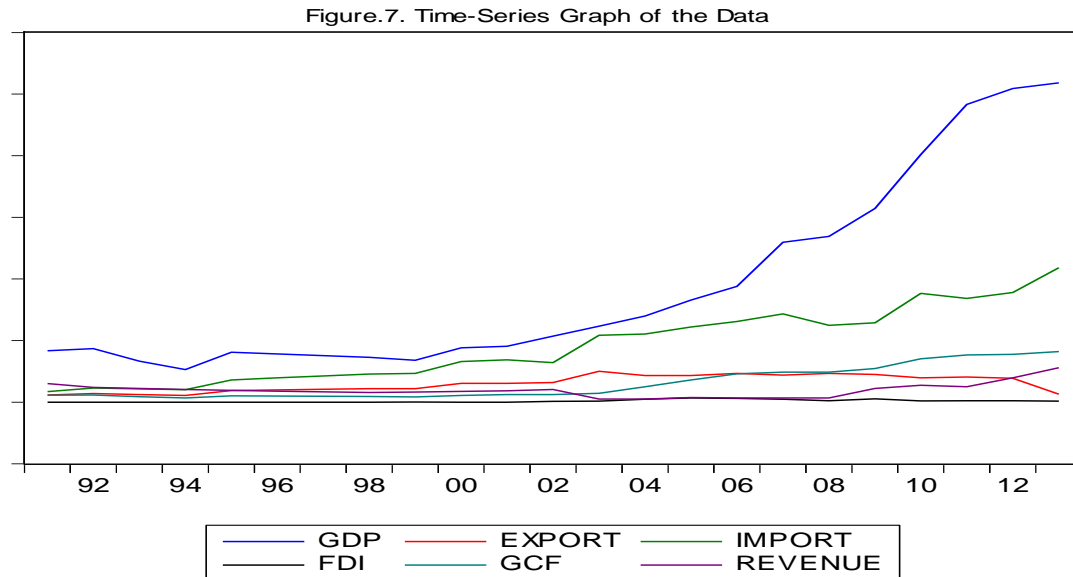
5.7.2 AR Roots & Time-Series Graphs

The results obtained from the AR roots graphs for each pair of the time series which are presented in figure: 1, 2,3,4,5, and 6 below indicates that the VAR model for all pairs of the time series is dynamically stable, since all the modulus in the AR Roots Graph are less than one in the absolute value and they are all lying inside the unit circle. These results of both the Lagrange multiplier serial correlation test and the AR roots graphs indicate a good fit of the model for analysis.

AR Roots Graphs



In addition, the visual inspection of the time series graph which is presented below also indicates there isn't exist any substantial fluctuation in the time series of the data for all the variables of the study.



5.7.3 Results of Residual Normality

The results obtained from the residual normality test which is presented in tables: 5.10 below shows that the residuals of our VAR models for all of the variables are normally distributed, since the computed p . values for Skewness, Kurtosis, and the Jarque-Bera statistics is more than the 1, 5, and 10 percent level of significance. Therefore, the null hypothesis of the test cannot be rejected.

Table: 5.10 Results of VAR Residual Normality Test

FDI-Exports Component	Skewness	Chi-sq	df	Prob.
1	-1.019700	2.079578	1	0.1493
2	-0.270531	0.146374	1	0.7020
Joint		2.225952	2	0.3286
Component	Kurtosis	Chi-sq	df	Prob.
1	3.478231	0.114352	1	0.7352
2	2.322315	0.229628	1	0.6318
Joint		0.343981	2	0.8420
Component	Jarque-Bera		df	Prob.
1		2.193930	2	0.3339
2		0.376003	2	0.8286
Joint		2.569933	4	0.6322
FDI-Revenue Component	Skewness	Chi-square Statistics	df	Prob.
1	-1.479025	4.375029	1	0.0365
2	0.960215	1.844027	1	0.1745
Joint		6.219056	2	0.0446
Component	Kurtosis	Chi-square Statistics	df	Prob.
1	4.986725	1.973538	1	0.1601
2	3.179064	0.016032	1	0.8992
Joint		1.989570	2	0.3698
Component	Jarque-Bera Statistics		df	Prob.

1	6.348567	2	0.0418	1
2	1.860059	2	0.3945	2
Joint	8.208625	4	0.0842	
FDI-GCF Component	Skewness	Chi-square Statistics	df	Prob.
1	0.176544	0.062335	1	0.8028
2	0.288730	0.166730	1	0.6830
Joint	0.229065	2	0.8918	
Component	Kurtosis	Chi-square Statistics	df	Prob.
1	3.514322	0.132264	1	0.7161
2	1.770788	0.755481	1	0.3847
Joint	0.887745	2	0.6415	
Component	Jarque-Bera Statistics	df	Prob.	
1	0.194599	2	0.9073	
2	0.922211	2	0.6306	
Joint	1.116810	4	0.8916	
FDI-Imports Component	Skewness	Chi-square Statistics	df	Prob.
1	-1.009449	2.037974	1	0.1534
2	-0.925563	1.713335	1	0.1906
Joint	3.751309	2	0.1533	
Component	Kurtosis	Chi-square Statistics	df	Prob.
1	4.776348	1.577706	1	0.2091
2	2.865821	0.009002	1	0.9244
Joint	1.586708	2	0.4523	
Component	Jarque-Bera Statistics	df	Prob.	
1	3.615680	2	0.1640	
2	1.722337	2	0.4227	
Joint	5.338017	4	0.2543	
FDI-GDP Component	Skewness	Chi-sq	df	Prob.
1	-0.027057	0.001464	1	0.9695
2	0.314821	0.198225	1	0.6562
Joint	0.199689	2	0.9050	
Component	Kurtosis	Chi-sq	df	Prob.
1	2.021999	0.478243	1	0.4892
2	2.337017	0.219774	1	0.6392
Joint	0.698016	2	0.7054	
Component	Jarque-Bera	df	Prob.	
1	0.479707	2	0.7867	
2	0.417998	2	0.8114	
Joint	0.897705	4	0.9249	

5.8 Concluding Remarks

The results obtained from all the diagnostic tests of the VAR model that were applied namely; the Lagrange Multiplier (LM) serial correlation test, the AR Roots Graph, and the Residual Normality test shows that the VAR model is of good fit for the analysis for all pair of the time series, since it passed through all the diagnostic tests criterions as is required for a valid VAR model. Therefore, the Granger causality testing framework which includes the Johansen Co-Integration test, Granger causality test, Impulse response functions, and Variance decomposition were applied within the VAR model. The results obtained from all these tests are presented below.

5.9 Results of Co-Integration Relationships

5.9.1 Co-Integration Relationship: FDI-Exports

The results of co-integration relationship between the inflow of FDI and exports which is presented in table: 5.11 suggests that the null hypothesis of no co-integration relationship between the variables can be rejected at the 5 and 1 percent critical values based on the results of both the trace and max-eigenvalue statistics. Since, the computed trace statistic which is (22.82446) is more than the 5 percent (15.41) and 1 percent (20.04) critical values. Similarly, the max-eigenvalue statistic which is (22.70636) is also more than the 5 percent (14.07) and 1 percent (18.63) critical values of the test.

However, the null hypothesis of at most 1 co-integration equation between FDI and exports cannot be rejected both at the 1 and 5 percent critical values of the test based on the results obtained from both the trace and the max-eigenvalues statistics. Since, the computed trace and max-eigenvalue statistic which is (0.118100) is less than the 5 percent (3.76) and 1 percent (6.65) critical values of the test. Therefore, both the tests statistics indicate the existence of 1 co-integration relationship between these two variables at the 5 and 1 percent critical values of the test.

Table: 5.11: Co-Integration Relationship between FDI and Exports

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.825642	22.82446	15.41	20.04
At most 1	0.009044	0.118100	3.76	6.65
Trace test indicates 1 cointegrating relationship(s) at both the 5% and 1% levels				
Lags interval 1 to 1				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.825642	22.70636	14.07	18.63
At most 1	0.009044	0.118100	3.76	6.65
Max-eigenvalue test indicates 1 cointegrating relationship(s) at both the 5% and 1% levels				
Lag interval 1 to 1				

5.9.2 Co-Integration Relationship: FDI-Imports

The results of co-integration relationship between FDI and imports which is presented in table: 5.12 indicates that the null hypothesis of no co-integration relationship between FDI and imports can be rejected at the 5 and 1 percent critical values based on the results of both the trace and the max-eigenvalues statistics, since the computed trace statistic which is (37.22799) is more than the 5 percent (15.41) and 1 percent (20.04) critical values. Similarly, the max-eigenvalue statistic which is (32.28606) is also more than the 5 percent (14.07) and 1 percent (18.63) critical values.

However, the null hypothesis of at most 1 co-integration relationship between these two variables cannot be rejected at the 1 percent critical value. Since, the computed trace and max-eigenvalue statistics which is (4.941928) is less than the 1 percent (6.65) critical value of the test.

Nevertheless, at the 5 percent critical value the null hypothesis of the test can be rejected based on the results of both the trace and max-eigenvalue statistics, since the computed trace and max-eigenvalue statistics which is (4.941928) is greater than the 5 percent (3.76) critical value of the test.

The rejection of the null hypothesis of at most 1 co-integrating relationship at the 5 percent critical value of the test suggest the existence of 2 co-integrating relationship between these two variables.

Table: 5.12: Co-Integration Relationship between FDI and Imports

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.946874	37.22799	15.41	20.04
At most 1	0.361904	4.941928	3.76	6.65
Trace test indicates 2 cointegrating relationship(s) at the 5% level				
Trace test indicates 1 cointegrating relationship(s) at the 1% level				
Lags interval 1 to 3				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.946874	32.28606	14.07	18.63
At most 1	0.361904	4.941928	3.76	6.65
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 5% level				
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 1% level				

5.9.3 Co-Integration Relationships: FDI- GCF

The results of co-integration relationship between FDI and GCF which is presented in table: 5.13 below suggests that the null hypothesis of no co-integration relationship between FDI and GCF can be rejected at the 5 percent and 1 percent critical values based on the results of both the trace and max-eigenvalue statistics, since the computed trace statistic (92.35699) is more than the critical values of 5 percent (15.41) and 1 percent (20.04), similarly the max eigenvalue statistic (87.40722) is more than the critical values of 5 percent (14.07) and the 1 percent (18.63).

On the other hand, the null hypothesis of at most 1 co-integration relationship between these two variables cannot be rejected only at the 1 percent critical value of the test. Since, the computed trace and max-eigenvalue statistic which is (4.949765) is less than the 1 percent (6.65) critical value of the test. The rejection of the null hypothesis at the 1 percent critical

value demonstrates that there exists 1 co-integration relationship between these two variables.

Nevertheless, at the 5 percent critical value of the test the null hypothesis of at most 1 co-integration relationship can be rejected based on the results of both the trace and the max-eigenvalue statistics, since the computed trace and max-eigenvalue statistic which is (4.949765) is more than the 5 percent (3.76) critical value. The rejection of null hypothesis of at most 1 co-integration relationship at the 5 percent critical value based on both the trace statistics and max eigenvalue statistics indicate the existence of 2 co-integration relationships between these two variables.

Table: 5.13: Co-Integration Relationship between FDI and GCF

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.999646	92.35699	15.41	20.04
At most 1	0.362358	4.949765	3.76	6.65
Trace test indicates 2 cointegrating relationship(s) at the 5% level				
Trace test indicates 1 cointegrating relationship(s) at the 1% level				
Lags interval 1 to 3				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.999646	87.40722	14.07	18.63
At most 1	0.362358	4.949765	3.76	6.65
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 5% level				
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 1% level				
Lag interval 1 to 3				

5.9.4 Co-Integration Relationships: FDI-Tax revenue

The results of co-integration relationship between FDI and Tax revenue which is presented in table: 5.14 shows that the null hypothesis of no co-integration relationship between FDI and tax revenue can be rejected at the 5 and 1 percent critical values based on the results of both the trace and the max-eigenvalue statistics, since the computed trace statistic which is (54.62105) is more than 5 percent (15.41) and 1 percent (20.04) critical values, as well as the max-eigenvalue statistic which is (54.52814) is also more than the 5 percent (14.07) and 1 percent (18.63) critical values.

However, the null hypothesis of at most 1 co-integration relationship between these two variables cannot be rejected both at the 1 and 5 percent critical values of the test. Since, the computed trace and max-eigenvalue statistics which is (0.092901) is less than the 1 percent (6.65) and 5 percent (3.76) critical values. Hence, based on the results of both the trace statistics and max-eigenvalue statistics it can be concluded that there exists only 1 co-

integration relationship between these two variables at both the 1 percent and 5 percent critical values of the test.

Table: 5.14: Co-Integration Relationship between FDI and Tax revenue

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.992967	54.62105	15.41	20.04
At most 1	0.008410	0.092901	3.76	6.65
Trace test indicates 1 cointegrating eqn(s) at both 5% and 1% levels				
Lags interval 1 to 3				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.992967	54.52814	14.07	18.63
At most 1	0.008410	0.092901	3.76	6.65
Max-eigenvalue test indicates 1 cointegrating eqn(s) at both 5% and 1% levels				
Lag intervals 1 to 3				

5.9.5 Co-Integration Relationship: FDI-GDP

The results obtained from the Johansen test of co-integration which is presented in table: 5.15 below demonstrate that the null hypothesis of no co-integration equation between FDI and GDP can be rejected only at the 5 percent critical value of the test. Since, the computed trace statistic which is (16.74855) is more than the 5 percent (15.41), but is less than the 1 percent (20.04) critical value of the test. While, the null hypothesis of at most 1 co-integration relationship between these two variables based on trace statistic cannot be rejected both at 1 and 5 percent critical values since, the computed trace statistic which is (3.205691) is less than the 5 percent (3.76) and 1 percent (6.65) critical values of the test.

However, based on the results of max- eigenvalue statistics the null hypothesis of no co-integration relationship between FDI and GDP cannot be rejected both at the 1 and 5 percent critical values, since the computed max-eigenvalue statistic which is (13.54286) is less than the critical values of 5 percent (14.07) and at the 1 percent (18.63). Thus, this indicates that based only on the results of the trace statistic of the test it can be concluded that these two variables are co-integrated.

Table: 5.15: Co-Integration Relationship between FDI and GDP

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.708049	16.74855	15.41	20.04
At most 1	0.252803	3.205691	3.76	6.65
Trace test indicates 1 cointegrating relationship(s) at the 5% level				
Trace test indicates no cointegrating relationship(s) at the 1 % level				
Lags interval 1 to 3				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None *	0.708049	13.54286	14.07	18.63

At most 1	0.252803	3.205691	3.76	6.65
Max-eigenvalue test indicates no cointegrating relationship(s) at both 5% and 1% level				
Lags interval 1 to 3				

5.10 Concluding Remarks

The results of the Johansen test of co-integration revealed that the inflow FDI has one co-integrating relationship with exports, revenue, and GDP, but the existence of two co-integrating relationships with imports and gross capital formation. Granger and Newbold (1974) state that if two time series are found to have co-integration relationship between them then there must exist the causality relationships between them. The existence of the causality relationship can either be unidirectional (one-way) or bidirectional (two-ways). Therefore, in order to evaluate the causality relationships of the inflow of FDI with the variables under consideration the Granger causality test within the VAR model was employed. The results of the test are as following.

5.11 Results of Causality Relationships

5.11.1 Causality Relationships: FDI-Exports

The results of causality relationship between the inflow of FDI and exports which is presented in table: 5.16 below demonstrate that the null hypothesis of no causality from the inflow of FDI to exports cannot be rejected at the 1, 5, and 10 percent level of significance, since the computed *p*. value of the test which is (0.7273) is more than the 1, 5, and 10 percent level of significance.

Nevertheless, the null hypothesis of no causality from exports to the inflow of FDI can be rejected at the 1, 5, and 10 percent level of significance, since the computed *p*. value of the test which is (0.0007) is less than the 1, 5 and 10 percent level of significance. The rejection of the null hypothesis of no causality from exports to the inflow of FDI shows the existence of a unidirectional (one-way) causality relationship between the inflow of FDI and exports which runs from exports to the inflow of FDI. This indicates that the changes in the level of exports is crucial for foreign investments in the country and any changes in its level whether its increase or decrease has direct impact on the level of FDI inflow, while any changes in the level of FDI inflow has no impact on the level of exports. This means that the FDI inflows is dependent upon the country's economic openness and as the country's economy become open to international trade it stimulates FDI.

Table: 5.16 Causality Relationships between FDI & Exports

Dependent variable: Exports			
Excluded	Chi-sq	df	P. value

FDI	0.121565	1	0.7273
All	0.121565	1	0.7273
Dependent variable: FDI			
Excluded	Chi-sq	df	P. value
Exports	11.40052	1	0.0007
All	11.40052	1	0.0007

Ho: No causality from FDI to exports. No causality from exports to FDI.

5.11.2 Causality Relationships: FDI-Imports

The results of causality relationship between the inflow of FDI and imports which is presented in table: 5.17 below shows that the null hypothesis of no causality from the inflow of FDI to imports can be rejected at the 1, 5, and 10 percent level of significance, since the computed *p*. value of the test is (0.0013). This *p*. value is less than the 1, 5, and 10 percent level of significance. In the same way, the null hypothesis of no causality from imports to the inflow of FDI can also be rejected at the 1, 5, and 10 percent level of significance, since the computed *p*. value of the test is (0.0000). This *p*. value is less than the 1, 5 and 10 percent level of significance.

The rejection of the null hypothesis of no causality from the inflow of FDI to imports and from imports to the inflow of FDI indicates that there exists a bidirectional (two-ways) causality relationship between these two variables. This means that any changes (increase or decrease) in the level of inflows of FDI can causes changes in the level of imports and any changes (increase or decrease) in the level of imports can causes changes in the level of inflow of FDI to the country.

The existence of two-ways causality might be due to the dependences of FDI inflows upon the country's economic openness, as the country's economy become more open to international trade it stimulates FDI.

In addition, it might also be due to the required raw material and other production inputs that the country is lacking. Therefore, at the initial phases of investments the imports of machineries, installation facilities and other tangible and intangible assets and in the later operation phases the imports of raw materials for production may Granger causes the level of imports.

Table: 5.17 Causality Relationships between FDI & Imports

Dependent variable: Imports			
Excluded	Chi-sq	df	P.value
FDI	15.77046	3	0.0013
All	15.77046	3	0.0013
Dependent variable: FDI			

Excluded	Chi-sq	df	P.value
Imports	25.64556	3	0.0000
All	25.64556	3	0.0000

Ho: No causality from FDI to Imports. No causality from Imports to FDI.

5.11.3 Causality Relationship: FDI-GCF

The results of causality relationship between FDI and GCF which is presented in table: 5.18 below suggest that the null hypothesis of no causality from FDI to GCF can be rejected at the 5 and 10 percent level of significance, but not at the 1 percent, since the computed *p*. value of the test which is (0.0148) is only less than the 5 and 10 percent, but more than the 1 percent level of significance. In the same way, the null hypothesis of no causality from GCF to FDI can also be rejected, but at the 1, 5, and 10 percent level of significance, since the computed *p*. value of the test is (0.0092). This *p*. value is less than the 1, 5, and 10 percent level of significance.

The rejection of the null hypotheses of no causality from the inflow of FDI to GCF and from the GCF to inflow of FDI implicates that that there exists a bidirectional (two-ways) causality relationship between these two variables. This means that any changes (increase or decrease) in the level of inflows of FDI can cause changes in the level of GCF, and any changes (increase or decrease) in the level of the GCF can cause changes in the level of inflow of FDI to the country.

The existence of two ways relationship show that the country's GCF plays a great role for the inflow of FDI and as more and more investment in the fixed assets of the country occurs it attracts more foreign investors and increases the level of inflow of FDI, while its decrease can reduce the level of inflow of FDI. Similarly, the increases in the level of inflow of FDI adds to the fixed assets of the county and in this way the level of GCF increase, while its decrease reduces the level of GCF.

Table: 5.18 Causality Relationships between FDI and GCF

Dependent variable: GCF			
Excluded	Chi-sq	df	P. value
FDI	10.49997	3	0.0148
All	10.49997	3	0.0148
Dependent variable: FDI			
Excluded	Chi-sq	df	P. value
GCF	11.53247	3	0.0092
All	11.53247	3	0.0092

Ho: No causality from FDI to GCF. No causality from GCF to FDI.

5.11.4 Causality Relationship: FDI- Tax revenue

The causality relationship between FDI and Tax revenue which is presented in table: 5.19 indicates that the null hypothesis of no causality from the tax revenue to FDI can be rejected at the 5 and 10 percent level of significance, but not at the 1 percent level of significance, since the computed *p*. value of the test which is (0.0180) is only less than the 5 and 10 percent level of significance.

On the other hand, the null hypothesis of no causality from the inflow of FDI to tax revenue can be rejected at the 1, 5, and 10 percent level of significance, since the computed *p*. value of the test is (0.0001). This *P*. value is less than the 1, 5, and 10 percent level of significance.

The rejection of the null hypothesis of the test for both the variables implicates the existence of bidirectional (two-ways) causality relationships between these two variables. This means that any change (increase or decrease) in the level of inflow of FDI can cause changes in the level of tax revenue, and any changes in the level of tax revenue can cause changes in the level of inflow of FDI.

The existence of two ways causality relationship between these two variables shows that these two variables have reinforcing effects on each other. The tax incentives given by the government to foreign investors might be a reason for causing changes in the inflow of FDI. As tax incentive is believed to attract more foreign investment, while the increase in the inflow of FDI is also believed to have positive role in the revenue of the country and its increase contributes to tax revenue.

Table: 5.19 Causality Relationships between FDI and Tax revenue

Dependent variable: FDI			
Excluded	Chi-sq	df	P.value
Tax revenue	10.06775	3	0.0180
All	10.06775	3	0.0180
Dependent variable: REV			
Excluded	Chi-sq	df	P.value
FDI	21.41782	3	0.0001
All	21.41782	3	0.0001

Ho: No causality from FDI to Tax revenue. No causality from Tax revenue to FDI.

5.11.5 Causality Relationships: FDI- GDP

The results of causality relationship between FDI and GDP which is presented in table: 5.20 suggest that the null hypothesis of no causality from FDI to GDP cannot be rejected at the 1, 5, and 10 percent level of significance, since the computed *p*. value of the test which is (0.5153) is more than the 1, 5, and 10 percent level of significance, while the null hypothesis of no causality from GDP to FDI can be rejected at the 1, 5, and 10 percent level of

significance, since the computed p . value of the test which is (0.0000) is less than the 1, 5 and 10 percent levels of significance.

These results of the test imply the existence of unidirectional (one-way) causality relationship between these two variables in which the direction of causality runs from GDP to the inflow of FDI. These results of the test indicate that any changes (increase or decrease) in the level of GDP of the country can cause changes in the level of inflow of FDI, while any changes (increase or decrease) in the level of inflow of FDI has no impact on the level of GDP of the country.

This means that the foreign investors are prone to a stable macroeconomic condition of the country. The improvement in the economic conditions of the country lead foreign investors to be more optimistic about the future and potentially invest more as they expect positive returns.

Table: 5.20 Causality Relationships between FDI and GDP

Dependent variable: GDP			
Excluded	Chi-sq	df	P. value
FDI	2.285344	3	0.5153
All	2.285344	3	0.5153
Dependent variable: FDI			
Excluded	Chi-sq	df	P. value
GDP	34.01951	3	0.0000
All	34.01951	3	0.0000

Ho: No causality from FDI to GDP. No causality from GDP to FDI.

5.12 Concluding Remarks

The results obtained from the Granger causality tests revealed the existence of unidirectional (one-way) causality relationship between the inflow of FDI, Gross Domestic Product (GDP), and Exports, which runs from GDP and Exports to the inflow of FDI, while the existence of bidirectional (two-ways) causality relationships between the inflow of FDI, Imports, Tax revenue and Gross Capital Formation (GCF).

The existence of unidirectional causality relationships between the inflow of FDI and Exports indicates that any changes (increase or decrease) in the level of GDP and Exports have direct causal effects on the level of inflows of FDI. In addition, the existence of bidirectional causality relationships of FDI with Imports, GCF, and Tax revenue indicates that any changes (increase or decrease) in the level of inflows of FDI has causal effects on the level of Imports, GCF, Tax revenue, and vice versa.

However, these results obtained from the Granger causality test only revealed the existence and directions of the causality relationships of the inflow of FDI with Exports, Imports, GCF,

Tax revenue, and GDP within the range of the data employed in this study and it does not tell us about the strength and extent of the causality relationships between them beyond the range of the data.

Therefore, in order to evaluate the dynamic interaction and gauge the extent of the causality relationships between the variables under investigation beyond the data range within the VAR model this analysis was further extended and the innovation accounting method which incorporates the impulse response function and variance decomposition were implemented. The time frame specified for these two analytical methods of the innovation accounting is 20 years. The results obtained from these two functions of the innovation accounting method are as following.

5.13 Results of Impulse Response Function

5.13.1 Impulse Response: FDI –GDP

The response from the inflow of FDI to GDP which is presented in figure: 5.8 below shows that a positive one standard deviation shock to GDP, FDI slightly decreases in the second year which is then followed by a moderate increase in the third year, followed by decrease in fifth year and then again increases in year six, but from the tenth year onward the response of FDI to GDP fluctuate below the zero level till year twenty. On the other hand, the response from the GDP to the inflow of FDI which is presented in figure: 5.9 below illustrate that a positive one standard deviation shock to the inflow of FDI, GDP to some extent decreases in the first two years of the time horizon. Nevertheless, the decrease is then followed by a small increase in year four and eight, but after that it fluctuates around zero up to the year twelve, and from year twelve onward the response of the GDP to the inflow of FDI completely dies out.

Figure: 5.8 Response of FDI to GDP

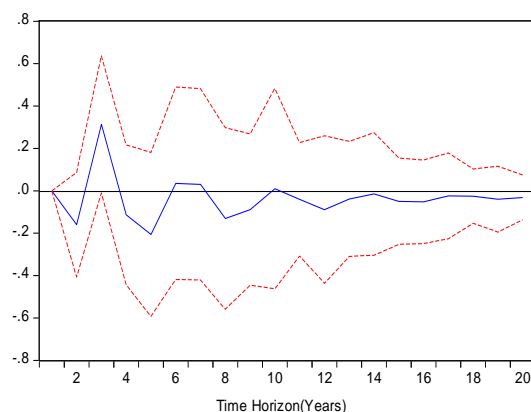
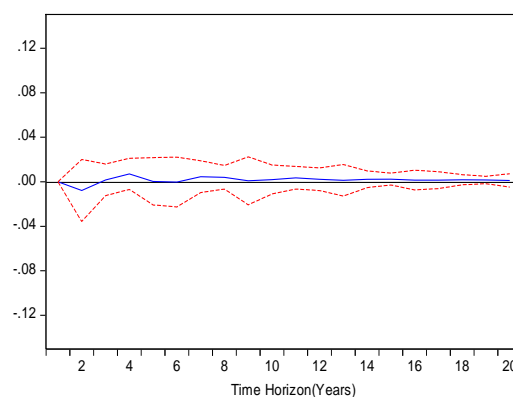


Figure: 5.9 Response of GDP to FDI



5.13.2 Impulse Response: FDI – Exports

The response from FDI to Exports which is presented in figure: 5.10 below shows that due to a one standard deviation positive shock to Exports, it causes an immediate increase in the

inflow of FDI in the first two years, however the increase is immediately then followed by a rapid decline from the second year onwards until the response dies out in the year twelfth of the time horizon.

Whereas, the response from exports to the inflow of FDI which is presented in figure: 5.11 below demonstrates that due to a one standard deviation shock to the inflow of FDI, the level of exports slightly increases in the first two years, but the increase is then followed by a gradual decline in the following years and finally in the year eighth the response of exports to the inflow of FDI dies out.

Figure: 5.10 Response of FDI to Exports

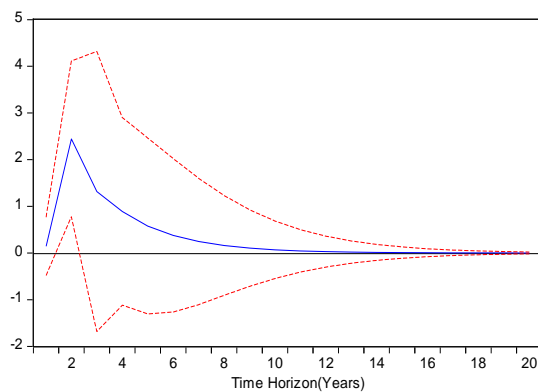
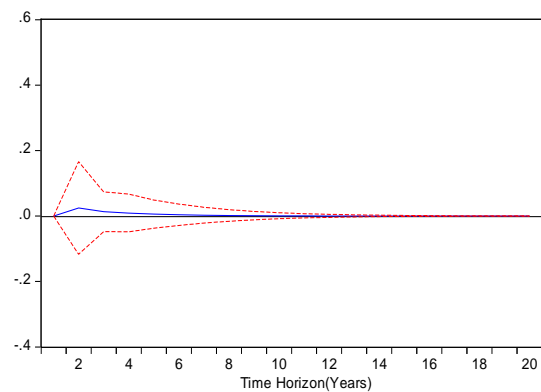


Figure: 5.11 Response of Exports to FDI



5.13.3 Impulse Response: FDI – Imports

The response of the inflow of FDI to imports which is presented in figure: 5.12 below shows that a one standard deviation positive shock to Imports, the inflow of FDI slightly decreases in year two, but regain its pre-shock level in the third year, but then from the third year onwards it gradually declines until year twenty.

On the other hand, the response from Imports to the inflow FDI which is presented in figure: 5.13 below shows that a one standard deviation positive shock to the inflow of FDI, imports slightly increases, but it dies out in the third year, but then from the third year onwards it gradually increases but remains just above the zero level throughout the twenty years' time horizon.

Figure: 5.12 Response of FDI to Imports

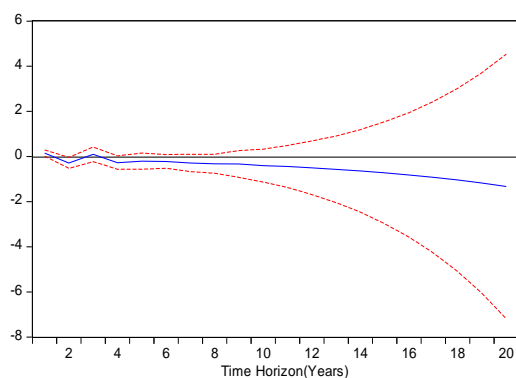
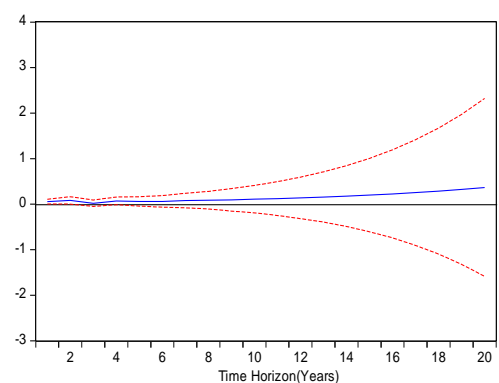


Figure: 5.13 Response of Imports to FDI



5.13.4 Impulse Response: FDI –GCF

The response of the inflow FDI to GCF which is presented in figure: 5.14 below shows that a one standard deviation positive shock to GCF, the inflow FDI decrease rapidly in the first four years of the specified time horizon. Thereafter, it gradually increases but it remains below the zero level throughout the specified twenty years' time horizon. On the other hand, The response of GCF to FDI which is presented in figure: 5.15 below shows that due to a one standard deviation positive shock to FDI, GCF slightly increases in the first two years, but the increase is then followed by decline until the year sixth, thereafter it slightly increases, but from the year eighth onward it decreases and eventually dies out in the year eighteenth.

Figure: 5.14 Response of FDI to GCF

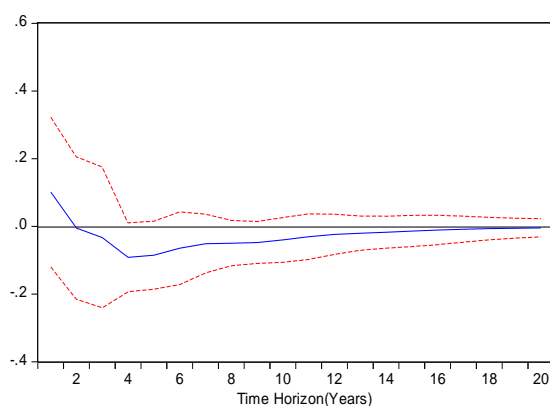
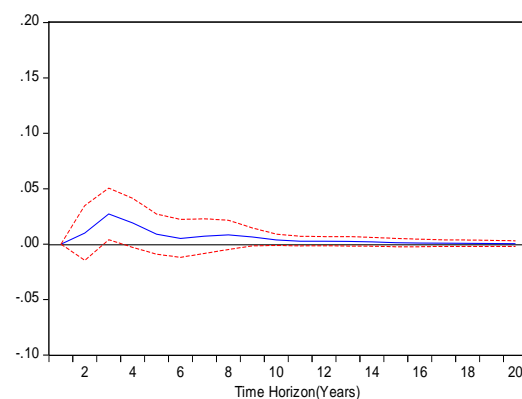


Figure: 5.15 Response of GCF to FDI



5.13.5 Impulse Response: FDI – Tax revenue

The response of FDI to Tax revenue which is presented in figure: 5.16 below shows that due to a one standard deviation shock to Tax revenue, FDI drops down and fluctuate below the zero level throughout the twenty years' time horizon. While the response of Tax revenue to FDI which is presented in table: 5.17 below shows that due to a one standard deviation shock to FDI, the Tax revenues slightly increases, but then it drops down and gets back to pre-shock level, thereafter it gradually increases, but remain just above the zero level throughout the 20 years' time horizon.

Figure: 5.16 Response of FDI to Revenue

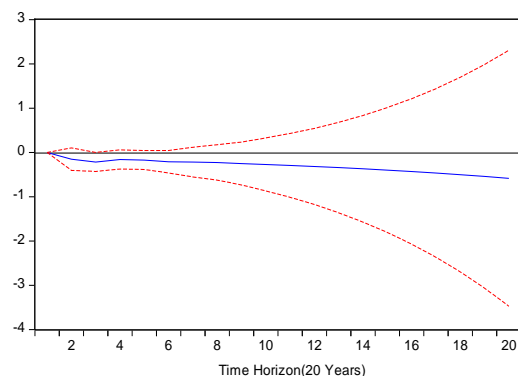
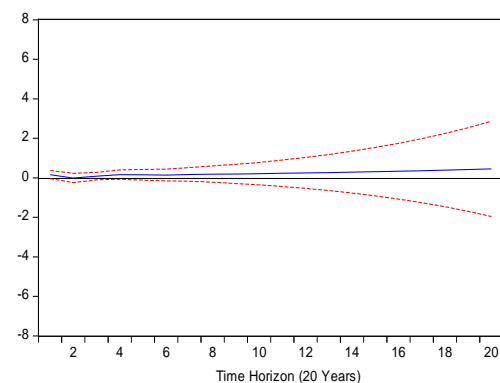


Figure: 5.17 Response of Revenue to FDI



5.14 Results of Variance Decomposition

5.14.1 Variance Decomposition: FDI- GDP

The variance decomposition of the inflow of FDI which is presented in table: 5.21 illustrate that 100 percent of variation in the inflow of FDI in the first year is explained by its own innovation. This shock to the inflow of FDI also causes an instant change in GDP, but the resulting change in GDP has no effect on the inflow of FDI in the first year, since GDP explains 0 percent of variation in the first year.

However, the effect of GDP begins from the second year as FDI accounts for 73.155 percent of the innovation in the second year and the effect from GDP to the inflow of FDI contributes 26.844 percent. The influence of GDP over the inflow of FDI increases year after year and at the end of the 20-years' time horizon the GDP accounts for 71.662 percent of variation in the inflow of FDI.

Table: 5.21 Variance Decomposition of the inflow of FDI

Period	S.E.	FDI	GDP	Period	S.E.	FDI	GDP
1	0.261231	100.0000	0.000000	11	0.544645	29.86182	70.13818
2	0.308926	73.15515	26.84485	12	0.552147	29.16749	70.83251
3	0.457002	40.67134	59.32866	13	0.553515	29.02974	70.97026
4	0.471916	38.57360	61.42640	14	0.553769	29.02271	70.97729
5	0.514899	32.40629	67.59371	15	0.556204	28.84608	71.15392
6	0.517356	32.58379	67.41621	16	0.558725	28.62043	71.37957
7	0.518274	32.48226	67.51774	17	0.559270	28.57462	71.42538
8	0.535356	30.77415	69.22585	18	0.559930	28.53436	71.46564
9	0.542728	29.95050	70.04950	19	0.561439	28.41579	71.58421
10	0.542824	29.94189	70.05811	20	0.562359	28.33750	71.66250

On the other hand, the variance decomposition of GDP which is presented in table: 5.22 below shows that 97.248 percent variation of GDP is due to its own innovation with 2.751 percent variation explained by FDI in the first year of the time horizon. However, the variation of GDP slightly decreases year after year and ends up at the 95.52910 percent at the end of the time horizon while, the inflow of FDI explains 4.470 percent of variation by the end of the time horizon.

Table: 5.22 Variance Decomposition of Gross Domestic Product (GDP)

Period	S.E.	FDI	GDP	Period	S.E.	FDI	GDP
1	0.097338	2.751553	97.24845	11	0.146185	4.164152	95.83585
2	0.105296	2.363915	97.63609	12	0.149223	4.224899	95.77510
3	0.105315	2.382480	97.61752	13	0.150775	4.241230	95.75877
4	0.115539	3.605140	96.39486	14	0.151776	4.294830	95.70517
5	0.129244	3.473828	96.52617	15	0.153287	4.356525	95.64348
6	0.130994	3.442913	96.55709	16	0.154689	4.378689	95.62131
7	0.132594	3.709114	96.29089	17	0.155512	4.399315	95.60068
8	0.138974	3.976176	96.02382	18	0.156287	4.432591	95.56741
9	0.142960	3.958283	96.04172	19	0.157189	4.457545	95.54246

10	0.144118	4.012153	95.98785	20	0.157893	4.470897	95.52910
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5.14.2 Variance Decomposition: FDI-Exports

The variance decomposition of the inflow of FDI which is presented in table: 5.23 below show that 100 percent of variation of the inflow of FDI is due to its own innovation with no contributions from exports in the first year. However, in the second year this drops significantly and gets to 22.444 percent with 77.555 percent contribution from exports. The influence of the inflow of FDI over exports after the second year gradually decreases and by the end of the time horizon it gets to 18.023 percent with 81.976 percent contribution from exports.

Table: 5.23 Variance Decomposition of the inflow of FDI

Period	S.E.	FDI	EXPORTS	Period	S.E.	FDI	EXPORTS
1	1.169975	100.0000	0.000000	11	3.255078	18.02484	81.97516
2	2.721651	22.44428	77.55572	12	3.255209	18.02399	81.97601
3	3.031739	19.65132	80.34868	13	3.255264	18.02363	81.97637
4	3.162902	18.65050	81.34950	14	3.255288	18.02348	81.97652
5	3.216334	18.28157	81.71843	15	3.255298	18.02341	81.97659
6	3.238813	18.13147	81.86853	16	3.255302	18.02338	81.97662
7	3.248310	18.06902	81.93098	17	3.255304	18.02337	81.97663
8	3.252336	18.04271	81.95729	18	3.255305	18.02337	81.97663
9	3.254044	18.03157	81.96843	19	3.255305	18.02336	81.97664
10	3.254770	18.02685	81.97315	20	3.255305	18.02336	81.97664

While, the variance decomposition of exports which is presented in table: 5.24 below show that in the first year exports accounts for 98.524 percent of variation with 1.475 percent contribution from the inflow of FDI. By the second year it drops to 97.603 percent with 2.396 percent contribution from the inflow of FDI. However, from the second year onward it slightly decreases and at the year twenty it gets to 97.166 percent with 2.833 percent contribution from the inflow of FDI.

Table: 5.24 Variance Decomposition of Exports

Period	S.E.	FDI	EXPORTS	Period	S.E.	FDI	EXPORTS
1	0.353401	1.475407	98.52459	11	0.391210	2.833473	97.16653
2	0.373002	2.396739	97.60326	12	0.391214	2.833579	97.16642
3	0.383797	2.652358	97.34764	13	0.391216	2.833624	97.16638
4	0.388067	2.758783	97.24122	14	0.391217	2.833643	97.16636
5	0.389884	2.802116	97.19788	15	0.391217	2.833651	97.16635
6	0.390651	2.820315	97.17969	16	0.391217	2.833654	97.16635
7	0.390977	2.827999	97.17200	17	0.391217	2.833656	97.16634
8	0.391115	2.831255	97.16874	18	0.391217	2.833656	97.16634
9	0.391174	2.832637	97.16736	19	0.391217	2.833657	97.16634
10	0.391199	2.833224	97.16678	20	0.391217	2.833657	97.16634

5.14.3 Variance Decomposition: FDI-Imports

The variance decomposition of the inflow of FDI which is presented in Table: 5.25 indicate that 100 percent of variation in the inflow of FDI is due to its own innovation in the first year with no contribution from imports. However, in the second year the contribution of the inflow of FDI hugely falls to 71.952 percent, but in the third year it slightly increases and gets to 73.838 percent. In the fourth year and onwards it significantly decreases year after year and ends at 38.090 percent with 61.909 percent of variation explained by imports by the end of year twenty.

Table: 5.25 Variance Decomposition of the inflow of FDI

Period	S.E.	FDI	IMPORTS	Period	S.E.	FDI	IMPORTS
1	0.263101	100.0000	0.000000	11	0.995148	43.69556	56.30444
2	0.390772	71.95209	28.04791	12	1.113236	42.37837	57.62163
3	0.410213	73.83860	26.16140	13	1.250568	41.32950	58.67050
4	0.491930	62.29450	37.70550	14	1.404948	40.51503	59.48497
5	0.533336	59.02607	40.97393	15	1.579617	39.83589	60.16411
6	0.577124	55.83044	44.16956	16	1.778895	39.30957	60.69043
7	0.644818	51.94495	48.05505	17	2.003696	38.89257	61.10743
8	0.720570	49.54580	50.45420	18	2.258233	38.55764	61.44236
9	0.793604	47.20731	52.79269	19	2.546494	38.29641	61.70359
10	0.890952	45.20912	54.79088	20	2.872204	38.09024	61.90976

On the other hand, the variance decomposition of imports which is presented in table: 5.26 below illustrate that in the first year imports explains 66.238 percent of the variation whilst, the inflow of FDI accounts for 33.761 percent of variation. In the second year this significantly drops to 52 percent but from the third year onward it steadily increases year after year and ends up at 62.525 percent with 37.474 percent of variation explained by the inflow of FDI in the year twenty.

Table: 5.26 Variance Decomposition of imports

Period	S.E.	FDI	IMPORTS	Period	S.E.	FDI	IMPORTS
1	0.097749	33.76126	66.23874	11	0.432666	38.63296	61.36704
2	0.145944	47.99097	52.00903	12	0.488090	38.32537	61.67463
3	0.151794	46.10447	53.89553	13	0.551464	38.11906	61.88094
4	0.189505	43.83205	56.16795	14	0.622418	37.95538	62.04462
5	0.211761	43.16787	56.83213	15	0.702661	37.81328	62.18672
6	0.234758	41.67378	58.32622	16	0.793546	37.71234	62.28766
7	0.267927	40.62217	59.37783	17	0.895948	37.63055	62.36945
8	0.301725	40.09801	59.90199	18	1.011685	37.56428	62.43572
9	0.338739	39.37029	60.62971	19	1.142454	37.51463	62.48537
10	0.383798	38.95445	61.04555	20	1.290065	37.47492	62.52508

5.14.4 Variance Decomposition: FDI- GCF

The variance decomposition of the inflow of FDI presented in table: 5.27 show that in the first year 100 percent of variation of the inflow of FDI is due to its own innovation with no contribution from GCF. In the second year the inflow of FDI accounts for 99.983 percent of variation, while the GCF accounts for a negligible 0.016 percent of variation. From the third year onward the variation of the inflow of FDI gradually decreases and it drops down to 83.218 percent with 16.781 percent contribution from the GCF by the end of the twenty-year time horizon.

Table: 5.27 Variance Decomposition of the inflow of FDI

Period	S.E.	FDI	GCF	Period	S.E.	FDI	GCF
1	0.389910	100.0000	0.000000	11	0.441291	83.76453	16.23547
2	0.389943	99.98383	0.016168	12	0.441997	83.58661	16.41339
3	0.405113	97.83606	2.163938	13	0.442499	83.45812	16.54188
4	0.415772	92.90133	7.098671	14	0.442869	83.36386	16.63614
5	0.424561	89.19935	10.80065	15	0.443115	83.30361	16.69639
6	0.429496	87.43401	12.56599	16	0.443263	83.26886	16.73114
7	0.432589	86.39074	13.60926	17	0.443353	83.24797	16.75203
8	0.435479	85.44459	14.55541	18	0.443412	83.23404	16.76596
9	0.438183	84.61217	15.38783	19	0.443452	83.22460	16.77540
10	0.440132	84.06376	15.93624	20	0.443478	83.21866	16.78134

However, the variance decomposition of GCF presented in table: 5.28 below show that in the first year of the time horizon the GCF explains 93.228 percent of variation whilst, the inflow of FDI explains only 6.771 percent of the variation. However, this gradually decline throughout the years and ends up at 81.965 percent with 18.033 percent contribution from the inflow of FDI by the year twenty.

Table: 5.28 Variance Decomposition of Gross Capital Formation (GCF)

Period	S.E.	FDI	GCF	Period	S.E.	FDI	GCF
1	0.087074	6.771946	93.22805	11	0.181313	17.95246	82.04754
2	0.146313	9.918678	90.08132	12	0.181576	17.97574	82.02426
3	0.167422	15.20848	84.79152	13	0.181727	18.00093	81.99907
4	0.171083	16.90198	83.09802	14	0.181793	18.01666	81.98334
5	0.172468	17.27616	82.72384	15	0.181828	18.02381	81.97619
6	0.175208	17.28002	82.71998	16	0.181857	18.02738	81.97262
7	0.178466	17.41547	82.58453	17	0.181879	18.03010	81.96990
8	0.180176	17.69951	82.30049	18	0.181892	18.03235	81.96765
9	0.180747	17.86832	82.13168	19	0.181899	18.03377	81.96623
10	0.181026	17.92879	82.07121	20	0.181903	18.03450	81.96550

5.14.5 Variance Decomposition: FDI-Tax revenue

The variance decomposition of the inflow of FDI which is presented in table: 5.29 show that in the first year 100 percent of variation of the inflow of FDI is due to its own innovation with no contribution from Tax revenue. However, in the second year the contribution of Tax revenue increases significantly and it accounts for 11.59530 percent of the variation. From the second year up to the tenth year of the time horizon it increases by almost 5 percent, but thereafter its contribution gradually decreases and at the end of the twenty years' time horizon the inflow of FDI accounts for 69.843 percent of variation, while the tax revenue contributes by 19.06603 percent of the variation.

Table: 5.29 Variance Decomposition of the inflow of FDI

Period	S.E.	FDI	Tax revenue	Period	S.E.	FDI	Tax revenue
1	0.408422	100.0000	0.000000	11	0.862549	33.28225	66.71775
2	0.445380	88.40470	11.59530	12	0.927864	30.68875	69.31125
3	0.497254	71.68125	28.31875	13	0.998953	28.40312	71.59688
4	0.524684	65.44067	34.55933	14	1.075637	26.41670	73.58330
5	0.558305	59.68339	40.31661	15	1.158496	24.70679	75.29321
6	0.605026	53.41636	46.58364	16	1.248236	23.22795	76.77205
7	0.648498	47.96079	52.03921	17	1.345258	21.94605	78.05395
8	0.694129	43.75142	56.24858	18	1.450074	20.84035	79.15965
9	0.746124	39.83867	60.16133	19	1.563363	19.88774	80.11226
10	0.802598	36.30614	63.69386	20	1.685790	19.06603	80.93397

However, the variance decomposition of Tax revenue which is presented in table: 5.30 shows that in first year Tax revenue accounts for 81.07205 percent of variation, while the inflow of FDI contributes by 18.92795 percent. In the second year the contribution of the inflow of FDI increases significantly and gets to 89.79631 percent, but from the third year onward its contribution gradually decreases and at the end of the twenty-year time horizon the tax revenue contributes by 86.06102 percent, while the inflow of FDI accounts for 13.93898 percent of variation.

Table: 5.30 Variance Decomposition of Tax revenue

Period	S.E.	FDI	Tax revenue	Period	S.E.	FDI	Tax revenue
1	0.371133	18.92795	81.07205	11	1.478741	13.67845	86.32155
2	0.506504	10.20369	89.79631	12	1.618389	13.72971	86.27029
3	0.574184	10.05252	89.94748	13	1.766612	13.76631	86.23369
4	0.678126	12.83541	87.16459	14	1.924972	13.80954	86.19046
5	0.792196	12.98549	87.01451	15	2.094660	13.84399	86.15601
6	0.890813	12.74246	87.25754	16	2.276378	13.86847	86.13153
7	0.994114	13.21722	86.78278	17	2.471210	13.89056	86.10944
8	1.107982	13.47584	86.52416	18	2.680444	13.91017	86.08983
9	1.225513	13.49299	86.50701	19	2.905280	13.92587	86.07413
10	1.347759	13.57101	86.42899	20	3.146998	13.93898	86.06102

5.15 Concluding Remarks

The overall results obtained from both the impulse response function and the forecast error variance decomposition methods indicates that the inflow of FDI does not have a long run stable relationships with all the variables that are under investigation in this study, since throughout the 20 years' specified time horizon of the study the results of the impulse response function indicates that the relationship between them is not quite persistent as it fluctuate substantially throughout the years and dies out before it reaches the 20 years' time horizon of the study. Similarly, the results of variance decomposition also indicate that the contribution of the inflow of FDI towards the variables under study decreases substantially throughout the twenty years specified time horizon of the study. These results of both the impulse response function and the forecast error variance decomposition methods implies that in the long run the inflow of FDI does not have a strong and stable positive impact on the Afghan economy.

The next chapter of the thesis is the general conclusion and discussion. It includes the overall findings of the study, policy implication, contribution of the study to the existing empirical literature, limitation of the study, and a number of recommendations for further research in this area.

Chapter 6

Conclusion & Discussion

Chapter Contents

- 6.1 Introduction**
- 6.2 Findings & Discussion**
- 6.3 Policy Implication**
- 6.4 Contribution of the Study**
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- 6.6 Recommendation for Further Research**

CONCLUSION & DISCUSSION

6.1 Introduction

This chapter of the thesis presents the conclusion and discussion of the entire study. It highlights the major findings of the study in regards to the research aim and objectives and presents the conclusion based on the research findings. It also presents the policy implication, the academic contribution of the study to the existing empirical literature, the limitations that the study suffers from, and a number of recommendations for further research in this area.

6.2 Findings & Discussion

In this study two analytical methods were adopted to find out the impact of the inflow of FDI on Afghan economy through a number of macroeconomic variables. The variables were exports, imports, gross capital formation (GCF), tax revenue and gross domestic product (GDP).

In the first step of the analysis the Pearson Product Moment Correlation test was applied to find out the existence of the correlation relationships of the inflow of FDI with the variables under investigation. In the second step the Granger causality testing framework within the vector auto-regression (VAR) model was applied to evaluate the types and extent of the causality relationship that exists between the inflows of FDI and the variables under investigation.

The results obtained from the Pearson product moment correlation coefficient test revealed that FDI has a statistically significant strong positive correlation relationship with the level of exports, imports, and GCF, but it has a statistically significant moderate positive correlation relationship with the tax revenue, and GDP of the country.

On the other hand, the results that were obtained from the Granger causality test revealed that the inflow of FDI has a unidirectional (one-way) causality relationship with the GDP, and exports, in which the direction of the causality runs from the GDP and exports to the inflow of FDI, but it has a bidirectional (two-ways) causality relationships with imports, tax revenue and the GCF.

The existence of unidirectional causality relationships of the inflow of FDI with exports and GDP indicates that any changes that occurs whether it is increase or decrease in the level of GDP and exports have direct causal impact on the level of inflows of FDI, while any changes that occurs in the level of the inflow of FDI has no causal impact on the level of exports and GDP.

In addition, the existence of bidirectional causality relationships of the inflow of FDI with the level of imports, GCF, and tax revenue indicates that any changes that occurs whether it is increase or decrease in the levels of the inflows of FDI of the country have direct causal impact on the level of imports, GCF, and tax revenue, while any changes whether it is increase or decrease in the level of these variables have direct causal impact on the level of the inflow of FDI.

These results that were obtained from the two statistical approaches namely; the Pearson product moment correlation test and the Granger causality test led to the following main conclusions.

The results obtained from the Pearson product moment correlation test made it clear that the inflow of FDI has statistically significant positive correlation relationships with all the variables that were employed in this study. In other words, the test of the correlation relationship revealed that any increase in the level of inflow of FDI to Afghanistan increases its level of exports, imports, GCF, tax revenue, and the GDP, while any decrease in the level of inflow of FDI to Afghanistan decreases the level of its exports, imports, GCF, tax revenue, and the GDP.

On the other hand, the results from the Granger causality test revealed that the inflow of FDI has no causal impact on the level of GDP and exports due to its unidirectional relationship running from these two variables to FDI inflows, but its bidirectional causality relationships with imports, tax revenue, and GCF means that the inflow of FDI has a reinforcing causal relationship with these variables. This implies that any changes in the level of inflow of FDI causes changes in the level of imports, tax revenue, and GCF, while any changes in the level of these variables can also causes changes on the level of inflow of FDI to the country. In addition, the results of the impulse response function and variance decomposition methods of the innovation accounting function revealed that the relationship of the inflow of FDI with the variables under investigation is not quite persistent as they fluctuate substantially throughout the specified time horizon of the study. This demonstrates that FDI inflows to Afghanistan are only in short term projects and it does not have a long term impact on the country's economy.

These results of the study suggest that the inflow of FDI has very limited positive influence on the Afghan economy, since it only stimulate the GCF, and tax revenue of the country, while its unidirectional relationship with the GDP, exports and imports is not so encouraging for the country's economy, since the changes in the level of inflow of FDI has no causal impact on the level of exports and GDP, but the changes in the level of exports and GDP causes

changes in the level of inflow of FDI. This indicates that the country's overall macroeconomic stability as well as the openness of the country's economy for international trade is much important, since, foreign investors are prone to a stable macroeconomic condition of a country. The improvement in the economic conditions of the country lead can foreign investors to be more optimistic about the future and potentially invest more as they expect positive returns.

On the other hand, the causality impact of the FDI inflows on imports is also not in favour of the country' economy, since a persistent increase in the level of imports can lead the country to trade deficit and a persistent trade deficit of a country based on economic theory is considered to have negative impact on its level of employment, exchange rate, and the growth of the economy.

The findings of this study revealed that the inflow of FDI has very limited influence on Afghan economy, but this does not imply that the inflow of FDI has no or negative role in the recipient country economy. Therefore, the claims of some of the existing empirical studies regarding the negative or no role of the FD inflows in the recipient economy can be refuted, and it can be concluded that the inflow of FDI has a contributory role in the recipient country economy. However, its role might not be similar to the different areas of the recipient country economy. As the finding of this study shown that the inflow of FDI is positively correlated with all the variables of the study, but its causality relationship with the variables are not in the same directions.

6.3 Policy Implication

The findings of this study revealed that the inflow of FDI has very limited influence on the Afghan economy. The limited influence might be due to certain factors that obstruct the country to reap the full benefits from the FDI inflows. Therefore, in order to achieve the optimum benefits, the following suggestions to the policy makers of the Afghan government are recommended.

- The findings of this study shown that the inflows of FDI granger cause the level of imports and has no influence on the level of exports. This is because the country doesn't have the required production inputs such as the raw materials and machinery, and therefore, the foreign investors needs to import them from other countries which leads to increase in the level of imports of the country. A high level of imports can lead the country to trade deficit and a persistent trade deficit is believed to have detrimental impact on a country economy. Since, it can negatively affect the level of employment, growth rate and the

value of the country's currency. Therefore, it is recommended for the Afghan government to step in and provide the required raw material and other production inputs for the investors within the country. In addition, the government must also impose tariffs on imports.

- The findings of this study shown that the inflows of FDI do not granger causes the GDP, but the level of GDP granger causes the inflow of FDI. This means that the foreign investors are prone to a stable macroeconomic condition of the country. The current condition of Afghanistan is not so favourable for foreign investments. Therefore, it is recommended that the Afghan government must make improvements in all sectors of the economy. The improvement in the economic conditions of the country will lead foreign investors to be more optimistic about the future and potentially invest more as they expect positive returns.
- The long run relationship of FDI inflows with all the variables were also found to be not stable as it fluctuates consistently throughout the specified time horizon. This is because the Afghan government emphasis more to increase the level of inflow of FDI to the country through offering incentives, increasing the openness of the economy and by signing bilateral and multilateral trade agreements with the countries around the world. Nevertheless, the quantity of the inflow of FDI is not as much important as the quality of the inflow of FDI to the country. The current foreign investments in the country are largely centred only in the short term projects. These investments cannot have a long term positive impact on the Afghan economy, therefore it is recommended that the policy makers of the Afghan government must emphasis more on attracting the long term foreign investments to the country such as the Greenfield type of foreign investments, since the long term foreign investments involves the transfer of advanced technology and capital and thereby burst the economic activities in the country more than the short term investments.

6.4 Contribution of the Study

The findings and research methods applied in this study differs from the existing empirical studies in a number of ways, and therefore, it has made some unique contributions to the existing empirical literature regarding the role of the inflow of FDI in the recipient country economy.

Firstly, the findings of this study shows that the inflow of FDI with no doubt has its role in the recipient country economy, therefore the claims of some of the existing empirical studies that

the inflow of FDI has negative or no role in the recipient country economy can be refuted. However, its impact might not be similar to the different area of the recipient economy, since the findings of this study shown that the inflow of FDI is positively correlated with all the variables of the study, but the direction of the causality relationships between them runs in different directions.

Secondly, unlike the existing empirical studies which are based on a single analytical method for the analysis of the data, in this study two different analytical methods were applied for the analysis namely; the Pearson product moment correlation test and the Granger causality testing framework within the VAR model, so in this study both the correlation relationships and the causation relationships of the inflows of FDI on the recipient economy were evaluated.

Thirdly, in this study not only the relationship of the inflows of FDI with the GDP of the recipient economy was identified, but also its relationship with a number of macroeconomic variables such as exports, imports, tax revenue, and the gross capital formation, so in this study a more complete picture on the role of the inflow of FDI on the recipient economy is provided.

Fourthly, this study is the first and only attempt made to empirically investigate the role of the inflow of FDI from the standpoint of one of the least developed and landlocked country i.e. Afghanistan. Therefore, this study fills the gap in the existing empirical literature from the specific standpoint of Afghanistan as well as it contributes to the general debate on the influence of FDI in the economy of the recipient country, particularly from the standpoint of the least developed countries.

And finally, this study is based on the most recent and unexplored dataset as well as with the use of the latest statistical software packages of SPSS and E-views for the analysis of the data.

6.5 Limitations of the Study

In this study every effort was made to avoid any flaws and make our research more systematic and scientific, but there are still a number of limitations associated with this research work that needs to be acknowledged. The main limitations that this study suffers from are as following:

Firstly, the time length of the data employed in this research is restricted only to 23 annual observations which are from the year 1991 to 2013, since the data prior to the year 1991 was not available for some of the variables and post 2013 it was not issued at the time the analysis of this research was conducted, so the findings of this study is confined only to this

dataset. In addition, any data that was missing were addressed through the interpolation method.

Secondly, again due to the lack of availability of the data the research work was limited to only a few macroeconomic variables of the country and was unable to find its impact on a large scale in terms of its impact on employment, domestic firms' productivity, competition, and so on.

Thirdly, this research work was completely conducted through the use of secondary time series data, so there might be some hidden errors in the data which the researcher may not know about it, since the data was not collected by the researcher, and therefore the accuracy of the data set cannot be guaranteed.

Fourthly, the data for the inflow of FDI employed in this study is in its aggregate form, so the conclusion drawn from this study is restricted only to the overall inflow of FDI to the recipient economy and its findings cannot differentiate the impact of the different form of the inflow of FDI on the recipient economy.

6.6 Recommendation for Further Research

In this study a better insight on the impact of the inflow of FDI on the Afghan economy was provided, but due to a number of limitations that emerged during the research process discussed earlier in this chapter the following suggestions for further research in this area are recommended.

Firstly, this study was restricted to only 23 annual observations due to the availability of data, therefore a longer period of dataset for further research is highly recommended, since a longer dataset is more compatible with most of the analytical tests employed in this study, and thus can produce better results.

Secondly, the impact of the inflow of FDI on the recipient economies needs a deeper examination; therefore, it will be a significant contribution to the empirical literature if further research on its impact is undertaken both at the micro and macro level of the recipient country economy.

Thirdly, the impact of different form of FDI on the recipient economy needs to be investigated, since each form of the inflow of FDI has its own characteristics and so far it is not much obvious that which form of the FDI inflow is more beneficial and has long term positive impact on the recipient economy.

And finally, it is recommended that a more comprehensive study in this research area needs to be conducted; in terms of evaluating its impact on the level of employment of the recipient country, domestic firms' productivity and on other growth determinant macroeconomic variables of the recipient country, so it will further shed light on the role of the inflow of FDI in the recipient economy.

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