



**The Impact of Foreign Direct Investment on Economic Growth in  
Five Selected Countries (2003-2017)**

تأثير الاستثمار الأجنبي المباشر على النمو الاقتصادي لخمس دول مختارة

2017 – 2003

Prepared by:

Narmeen Dar Suliman

Committee

Dr. Mohanad Ismael (supervisor)

Dr. Fathi Srouji

Dr. Tareq Sadeq

2019



**The Impact of Foreign Direct Investment on Economic Growth in  
Five Selected Countries (2003-2017)**

تأثير الاستثمار الأجنبي المباشر على النمو الاقتصادي لخمس دول مختارة

2017 – 2003

Prepared by:

Narmeen Dar Suliman

Committee

Dr. Mohanad Ismael (supervisor).....

Dr. Fathi Srouji.....

Dr. Tareq Sadeq.....

“This Thesis was submitted in partial fulfillment of the requirements for the Master's Degree in Economics from the Faculty of Graduate Studies at Birzeit University, Palestine”.

Defense date:21/05/2019

## الإهداء:

إلى ذاك الذي أنحني له احتراماً، إلى مصدر عزتي وفخري وقدوتي في الصبر والعطاء،  
إلى أبي العزيز.

إلى تلك التي تحملت وصبرت في سبيل نجاحي، إلى سر سعادتي وراحتي في هذه الحياة،  
إلى أُمي الحبيبة.

إلى كل من شجعتني في رحلتي للعلم والمعرفة، وأضاء لي الطريق، إلى اخوتي الأعزاء  
أيسر وأيمن، وأخواتي العزيزات رنين ونيبال وروزانا.

إلى ذاك المتفاني من يقبع خلف العطاء ويفضل البقاء في الظل، ويخجل إذا ما أثنى عليه  
أحد...ومن دفعني إلى التشبث بالعلم والمعرفة وتحقيق أحلامي، إلى زوجي وصديقي محمد.

## الشكر والتقدير:

من الصعب اختزال كلمات الشكر في عدة سطور، لأنها تشعرنا بمدى قصورها و عدم ايفائها حق صانعيها.

أتقدم بالشكر والتقدير إلى جميع الأساتذة والأخوة العاملين في جامعة بيرزيت، وبخاصة أساتذتي في كلية الأعمال والاقتصاد وبرنامج ماجستير الاقتصاد، إلى كل من أعطاني باقة أمل وشعلة نور وأخص بالذكر الدكتور الفاضل منهد إسماعيل، على مجهوداته ونصائحه وتفضله بالإشراف على هذه الدراسة، جزاه الله كل خير.

كما أتقدم بالشكر والتقدير لأعضاء لجنة النقاش الدكتور فتحي سروجي والدكتور طارق صادق لتفضلهما بقبول مناقشة هذه الرسالة، وتوجيهاتهما السديدة للارتقاء بمستواها.

وأخيرا لا يسعني في هذا المقام إلا أن أتوجه بالشكر والعرفان والامتنان إلى كل من ساهم وساعد في إتمام وإنجاح هذه الدراسة.

**Abstract:**

This thesis empirically examines the effects of Foreign Direct Investment (FDI) on economic growth in five selected countries: Turkey, India, Egypt, Mexico and Brazil. In order to choose between random and fixed models, the researcher has employed the econometric model that consists of Stationary and Hausman tests, covering the period between years of 2003 and 2017. The empirical analysis has revealed that the (FDI) has positive effects on the economic growth in the five selected countries. While the interaction variable between the FDI the school enrollment and the GDP is significantly negative. On the other hand, the government expenditure has a positive impact on the economic growth. Moreover, the researcher has concluded that there is no evident relationship among these two sets: financial development and economic growth, human capital and economic growth. The researcher, therefore, suggests and recommends that the governments of these five selected countries should promote policies that in turn might attract the inflow of the FDI. It is also recommended that they set regulations to guide the FDI in certain economy sectors as to bring positive effects on the overall economy.

بحثت هذه الورقة تأثير الاستثمار الأجنبي المباشر على النمو الاقتصادي في خمسة دول مختارة: تركيا، الهند، مصر، المكسيك والبرازيل. تم استخدام النموذج القياسي في التحليل للفترة الواقعة بين 2003 الى 2017. لقد تبين من خلال التحليل أن الاستثمار الأجنبي المباشر يؤثر إيجابيا على النمو الاقتصادي في الخمسة دول. يبين متغير التفاعل بين الاستثمار الأجنبي المباشر ومعدل الالتحاق بالتعليم والنمو الاقتصادي علاقة سلبية. من ناحية أخرى، يؤثر الانفاق الحكومي بشكل إيجابي على النمو الاقتصادي. لا يوجد علاقة بين التطور المالي والنمو الاقتصادي، لا يوجد علاقة بين رأس المال البشري والنمو الاقتصادي. لذلك، يقترح الباحث ويوصي بأن تقوم حكومات هذه البلدان الخمسة المختارة بعمل سياسات تؤدي إلى جذب الاستثمار الأجنبي المباشر. كما يوصى بوضع قواعد معينة لتوجيه الاستثمار الأجنبي المباشر في قطاعات معينة لإحداث آثار إيجابية على مستوى الاقتصاد الكلي.

## Table of Figures:

Figure 5. 1: Brazil, FDI Inflow for the Period (2003-2017) in Millions of Dollars.....	42
Figure 5. 2: India, FDI Inflow for the Period (2003-2017) in Millions of Dollars.....	44
Figure 5. 3: Mexico, FDI Inflow for the Period (2003-2017) in Millions of Dollars .....	48
Figure 5. 4: Egypt, FDI Inflow for the Period (2003-2017) in Millions of Dollars.....	52
Figure 5. 5: Turkey, FDI Inflow for the Period (2003-2017) in Millions of Dollar.....	55
Figure 5. 6: GDP (Constant 2010 US Dollar).....	59
Figure 5. 7: Government Expenditure.....	60
Figure 5. 8: School Enrollment, Secondary (% gross).....	61
Figure 5. 9: Domestic Credit to Private Sector (% of GDP).....	62

**Table of Tables:**

Table 6. 1: Levin-Lin-Chu Unit-Root Tests for All Variables .....	63
Table 6. 2: Estimation Results for Fixed Effect Estimator .....	64
Table 6.3 : Fixed Effect Estimator with Driscoll and Kraay Standard Error.....	67
Table 6.4: Random Effect Estimator.....	68
Table 6.5: Random Effect Estimator with Driscoll and Kraay Standard Error.....	70
Table 6.6: Random Effect Estimator with Driscoll and Kraay Standard Error.....	72



## Table of Contents

Abstract: .....	iii
Table of Figures: .....	v
Table of Tables:.....	vi
Chapter One: Introduction.....	1
1.1. Preamble.....	1
1.2. Problem Statement: .....	3
1.3. Objectives of the Study:.....	5
1.4. Significance of the Study: .....	6
1.5. Methodology of the Study: .....	6
1.6. Scope of the Study: .....	6
1.7. Content of the Study: .....	7
Chapter Two: Literature Review.....	8
Chapter Three: Theoretical Framework and the Model.....	17
3.1 Theoretical Framework.....	17
3.1.1 The Comparative Advantage Theory.....	18
3.2.2 The Product Lifecycle Theory .....	18
3.3.3 The International Production Theory.....	19
3.4.4 Theories of Economic Growth.....	20
3.2 The Model .....	23
3.2.1 Theoretical Relationships .....	25
Chapter Four: Methodology .....	27
4.1 Panel Unit Root Test.....	27
4.1.1 Levin-Lin-Chu Test .....	28
4.2 Co-integration Test .....	29
4.3 Panel Estimation Method.....	29
4.4. Housman Test: .....	32

4.5. Testing for Auto correlation and Heteroskedasticity .....	32
4.5.1. Testing for Autocorrelation and Heteroskedasticity in Linear Model .....	32
4.5.2. Testing Cross Sectional Dependence in Fixed Effects Model .....	34
4.5.3. Testing Heteroscedasticity in Fixed Effects Model.....	35
4.6. Model Estimation Method Considering Autocorrelation and Heteroscedasticity .....	36
4.6.1. Fixed Effects Estimator with Driscoll and Kraay Standard Error .....	36
4.6.2. Random Effects Estimator with Robust Standard Error.....	37
Chapter Five: Descriptive Analysis .....	39
5.1 Brazil and FDI.....	39
5.2 India and FDI .....	42
5.3 Mexico and the FDI .....	45
5.4 Egypt and the FDI.....	48
5.5 Turkey and the FDI.....	52
5.6 Gross Domestic Product .....	56
5.7 Government Expenditure .....	59
5.8 School Enrollment.....	60
5.9 Domestic Credit to Private Sector .....	61
Chapter Six: Empirical Results .....	63
6.1 Panel Unit Root Testing Results .....	63
6.2 Fixed Effect Regression Results .....	64
6.2.1 Testing for Cross-Sectional Dependence/Contemporaneous Correlation .....	65
6.2.2 Testing for Heteroscedasticity .....	66
6.2.3 Testing for Serial Correlation .....	66

6.2.4 Fixed Effects Estimator with Driscoll and Kraay Standard Error .....	67
6.3 Random Effect Regression Results.....	68
6.3.1 Testing for Serial Correlation .....	69
6.3.2 Random Effect Estimator with Driscoll and Kraay Standard Error .....	69
6.4 Hausman Test.....	71
6.5 The Estimation Model.....	72
Chapter Seven: Conclusions and Policy Implications .....	76
References: .....	80
Annex .....	91
Unit Root Tests .....	91

## **Chapter One: Introduction**

### **1.1. Preamble**

For several decades, the relationship between (FDI) and economic growth has been an intriguing issue for many researchers. Neoclassical model of growth and endogenous growth model both have provided the fundamentals for the empirical work of relationship between the FDI and the economic growth in the growth theory. The FDI plays an important role in contributing to the economic growth, through efficiency improvement and technology transfer. The FDI has become a major channel to access for the advanced technologies by the hosting country (Borensztein, Gregorio and Lee, 1998). Recipient countries can benefit from the “contagion effect” which is usually associated with marketing skills, advanced technologies and management practices used by foreigners (Findlay, 1978).

FDI plays a significant role in transforming the structure of industry in the hosting country and its exports composition. Multinational corporations (MNCs) have contributed to the development of the production capacities of the hosting countries which are directed towards export-oriented activities (Koojaroenprasit, 2012). Chen, Chang and Zhang (1995) argue that the presence of multinational

corporations with their outstanding technology and management skills will force the local firms in the economy to improve their performance, enhance their productivity and to invest more in research and development (R&D). it may then lead to fierce competition and promote economic growth. In addition, the FDI increases the employment either by using local inputs of the host country or by directly creating new jobs. Furthermore, the higher efficiency and productivity of foreign firms usually require lower costs and easily cover the increasing demand that will result in a huge enhancement to the economic condition of a specific country.

The FDI promotes the economic growth in several ways. Its effects are directly becoming a source of capital formation that is referred to as an addition to the economy stock of capital, which includes new machinery, creation of factories and improved transportation. As part of investment, the FDI contribution increases the total investment, which directly leads to growth. In addition, the FDI indirectly contributes to economic growth through influencing other macroeconomic variables that in turn participate in the efficiency improvement, technological progress and in raising living standards that leads to stimulating the economic growth (Xiao & Dickie, 2000).

Drawing on the experiences of many new industrialized countries (NICs) such as Singapore, Taiwan, South Korea and Hong Kong that used and promoted the FDI policy as a central policy of their economic growth. The FDI presents an important policy for developing economic growth of countries. thus, this study investigates the relationship between the FDI and the economic growth in most countries receiving FDI in 2017, including Turkey, Egypt, Mexico, Brazil and India according to the world investment report published by United Nations Conference on Trade and Development (UNCTAD, 2018).

### **1.2. Problem Statement:**

This study aims at investigating the impact of FDI on economic growth in five selected countries, which are Turkey, Egypt, Mexico, Brazil and India as to set policies suitable with its effect, if its effect is positive, the government should be acting the best to attract foreign investors and anticipating what the sectors that need support from abroad. Attending to the following questions is a key element in this study:

1. How does the FDI in the five selected countries under study change during the period of 2003-2017?
2. How does the GDP in the five selected countries under study change during the period of 2003-2017?
3. How does the general government expenditure, domestic credit to private sector and school enrollment change in the five selected countries during the period of 2003-2017?
4. What is the effect of the FDI on economic growth in the five selected countries?
5. What is the effect of general government expenditure on economic growth in the five selected countries during the period of 2003-2017?
6. What is the effect of financial development on economic growth in the five selected countries during the period of 2003-2017?
7. What is the effect of human capital on economic growth in the five selected countries during the period of 2003-2017?

### **1.3. Objectives of the Study:**

The main objective of this study is to analyze the impact of the FDI on the economic growth in the five selected countries. The specific goals that will be achieved are to:

1. Observe the change of the FDI in the five selected countries during the period of 2003-2017.
2. Look at the change of the GDP in the five selected countries during the period of 2003-2017.
3. Examine the change of general government expenditure, domestic credit to private sector and school enrollment in the five selected countries during the period of 2003-2017.
4. Estimate the effect of the FDI on economic growth in the five selected countries during the period of 2003-2017.
5. Evaluate the effect of general government expenditure on economic growth in the five selected countries during the period of 2003-2017.
6. Estimate the effect of financial development on economic growth in the five selected countries during the period of 2003-2017.
7. Gauge the effect of human capital on economic growth in the five selected countries during the period of 2003-2017.



#### **1.4. Significance of the Study:**

There has recently been a high economic growth in the five selected countries in the last decade. In effect, this research examines whether the FDI could be the main cause of this growth, given the fact that in certain countries around the world like China and South Korea, the FDI plays an important role in the economic growth. If the FDI is really important to achieve the economic growth in the five selected countries, it is highly recommended that the governments attract foreign investors.

#### **1.5. Methodology of the Study:**

The independent variable includes FDI, human capital, financial development and government expenditure, while the dependent variable is the GDP growth. The study uses the econometric model that consists of the Stationary and Hausman test. The data are attained from the World Bank.

#### **1.6. Scope of the Study:**

This study, which uses macroeconomic annual time series data that is gathered from the World Bank between the periods of 2003 and 2017,

is applied to five countries, including Turkey, Egypt, Mexico, Brazil and India.

### **1.7. Content of the Study:**

This study is organized as follows: chapter 2 reviews the literature that studies the effect of the FDI on the economic growth in some countries. Chapter 3 presents the theoretical framework that contains a description of the theories applied in this thesis. On the other hand, chapter 4 includes a full description of the model and methodology, an empirical review of the unit root test, panel estimation model and the Hausman test. Chapter 5 covers data description of the variables included in the model of each country and the sources and definitions of these variables. Chapter 6 examines the empirical results from the five selected countries. Lastly, chapter 7 introduces conclusions and gives policy implications.

## **Chapter Two: Literature Review**

Despite the many literature on the FDI, Its role in the economic growth remains controversial and inconclusive. Previous literature and studies about its impact on the economic growth have proved that the FDI affects the economic growth positively in most cases, whereas some studies have shown a negative or even a null effect of the FDI on the host country economic growth. In order to show how these effects have occurred, many factors have been investigated. In fact, the trade regime, the developed financial sector and the appropriate level of human capital could play a remarkable role in determining the positive effect of the FDI on the economic growth (Almfraji, & Almsafir, 2014). The causal relationship between the FDI and the economic growth is heterogeneous across countries. “There is need for additional research to better understand the factors that lead to the observed heterogeneity across countries” (Nair, & Weinhold, 2001).

Koojaroenprasit (2012) examines the impact of the FDI on the economic growth in South Korea using multiple regressions between the period of 1980 and 2009. The author finds a strong positive impact of the FDI on economic growth. The interaction of the FDI-export and the FDI-human capital indicates an adverse impact on the transfer of

knowledge and technology to the economic growth. Using a multivariate system with (ECM) error correction model, Tang et al. (2008) examine the causal relationship between the FDI, domestic investment and economic growth in China between 1988 and 2003. The results show that there is a directional causality from the FDI to domestic investment then to economic growth; they also indicate that the effect of the FDI is complementary with domestic investment rather than crowding it out, so via this manner it is stimulating the economic growth in China.

Other studies found that there are mediating variables contingent on the relationship between the FDI and the economic growth in order to bring affirmative influence; this might suggest an adequate level of human capital, developed financial market and an economic stability [Li & Liu, 2005; Azman et al., 2010; Makki, & Somwaru, 2004; Alfaro et al., 2004; Bengoa & Sanchez-Robles, 2003]. For example, the study of Azman et al. (2010) presents a new evidence of the role of financial development in determining the relationship of the FDI on growth, using a database of 91 between 1975 and 2005. It uses a concept of threshold effects in a regression model to estimate the dynamic relationship between them. The study suggests that the

effects of the FDI on economic growth are positive only after a threshold level from financial development. Moreover, the study of Alfaro Et Al. (2004) takes in to account the links between the FDI, financial market and economic growth. The study surmises that the developed financial market will allow agents to take advantage of spillovers and diffusion of technology in the economy.

In fact, most empirical evidence suggests an important role of the FDI in the economic growth, but the level of development of the financial market is significant for the positive effect to occur. Makki, & Somwaru (2004) investigate the role of the FDI and trade in improving the economic growth for 66 developing countries over three decades. The results of this study maintain that the FDI, the domestic investment, trade and the human capital are important factors for developing countries with regard to the economic growth. By using the interaction effect, the study concludes a strong interaction between the FDI and trade in promoting economic growth. Furthermore, the study suggests that the FDI is increasing the productivity of the domestic investment, so with a positive interaction among elements of human capital, macroeconomic stability and the FDI, the contribution to the economic growth becomes well enhanced.

Bengoa & Sanchez-Robles (2003) have conducted a study of 18 Latin American countries to test the relationship between economic freedom, FDI and economic growth by using panel data between 1970 and 1999. The study offers that the economic freedom is a positive determinant for the inflow of the FDI in the host country. Therefore, the study suggests a positive effect of the FDI in economic growth. Nevertheless, this positive effect requires an economic stability, an adequate level of human capital and a liberalized market to take a place.

Additionally, other studies have analyzed the causal relationship between the FDI and economic growth using both time series data and panel data; most studies make use of the Granger model to inquire the causal relationship between the variables. Most of these studies found a causative relationship between FDI and economic growth. By applying a panel VAR model Choe (2003) investigates the causal relationship in 80 countries between 1972 and 1995. The results show that the FDI granger causes a growth in the GDP and vice versa, but the effect is more apparent from GDP to FDI rather than from FDI to GDP. The findings also suggest that the high inflow of the FDI does not necessarily mean a rapid economic growth. Another study of

Hansen & Rand (2006) supports the results of the previous study by applying Granger causal relationship between FDI and GDP for a 31 developing countries for 31 years. Dritsaki, Dritsaki, & Adamopoulos (2004) study the relationship between FDI, trade and economic growth for Greece from 1960 to 2002, by applying a co-integration test and a Granger causality test. The results maintain a long run relationship and a causal relationship between FDI, trade and economic growth.

Wodajo (2012) oversees research on the relationship between FDI, export and economic growth in Ethiopia at an aggregate and sectoral level, by applying a descriptive analysis, a correlation analysis and causality techniques. Data is collected over 30 years from 1981 to 2010 for a causality analysis and regression while the data for sectoral level analysis is collected from 1993 and 2010. The results of this study show that the largest share from the FDI is for manufacturing sector whereas the other goes for service and agriculture sectors. Regionally, the distribution of FDI is uneven, because of the differences in incentives for the FDI between regions, for example, Addis Ababa is one of the most regions that attracts FDI because of the infrastructure development.

The results of long run regression show that the FDI stock is positively related to real GDP, but the FDI flow is negatively related to real GDP. In causality analysis, the results show that FDI does not cause real GDP granger, but the real GDP granger causes FDI. This implies a direction from economic growth to FDI. Moreover, the results show a bidirectional causality between aggregate export and FDI. Hence, there is a positive and strong link between FDI, openness and economic growth in Ethiopia through comparative advantage, diffusion of knowledge, technology transfer, exposure to competition and increasing scale economies. Balcha (2011) states that “Foreign Direct Investment (FDI) plays vital role in internationalizing economic activity and transfer of technology”.

In case of Tunisia, the effect of FDI in economic growth is ambiguous; the empirical studies have found conflated results for using different models to test the relationship between the aforementioned components. For example, a study by Belloumi (2014) examines the relationship between trade, FDI and economic growth in Tunisia: an application of the autoregressive distributed lag model between 1970 and 2008, by implementing bounds testing (ARDL) model to co-integration in order to investigate the long run



relationship between above variables. In effect, the study uses the Granger test to estimate the causality relationship between FDI and economic growth in Tunisia. The results of this study show that there is no Granger causality between FDI and economic growth, and the domestic investment is the main driver for the economy in Tunisia. On the other hand, Hassen & Anis (2012) state that FDI play an important role for economic growth over the period of 1975 to 2009 in Tunisia. Obviously, this study is conducted in three steps. The first step is the stationary test of the variables, including GDP, FDI, human capital, financial development and trade openness. The findings offer that the variables are stationary in the first place. The second step is the co-integration test that is to investigate the long-term relationship between the same variables, and the results show a positive relationship between dependent variable and other explanatory variables in Tunisia. The final step is the analysis of error correction model that takes into account the relationship between economic growth, FDI and other explanatory variables over the short run.

Okezie & Nkechi (2013) investigate the relationship between FDI, human capital and economic growth in Nigeria on the long-term, using a panel data and OLS multiple regression technique. The results

present that the FDI impact on economic growth in Nigeria on the long run is negative, and the effect of human capital is rather negatively significant, with overall growth. In effect, this is an indicator of a lack of skilled labor in the country. However, the FDI affects positively to economic growth in Nigeria, but the effect may not be significant. The FDI in the oil and the communication sectors are the highest in supporting the economic growth of Nigeria. Yet, the FDI in the manufacturing sector affects the economy negatively, so this reflects a poor business environment. The spillovers effect is also poor, reflecting a weakness in human capital in the country (Ayanwale, 2007).

A study by Uwubanmwun & Ogiemudia (2016) empirically investigate the relationship between FDI and economic growth in Nigeria by applying the Error Correction Model (ECM), for the period between 1979 and 2013. The objective of the study is to determine the short run as well as the long run effect of the FDI in the economy of the country. The study utilizes a Granger causality model to test the nature of the relationship between FDI and economic growth in Nigeria. The empirical results of the study show that the effect of FDI in economic growth of the country is positive, and its contribution to

the development is only over the short run and a non-significant negative effect on the long run.

This study is an application of the previous theories and applied research on the effect of FDI on economic growth. In particular, the study analyzes the impact of FDI on economic growth in five selected countries that includes Turkey, Egypt, Brazil, Mexico and India between 2003 and 2017. The benefits of this study is that it extends the period of the study to 2017, which is the latest available data. Nevertheless, there are no any previous studies studying this topic in the five selected countries from 2003 to 2017 according to researcher's knowledge. Furthermore, this study considers the general government expenditure as an independent variable besides other variables to show their effects on economic growth. Other studies had not taken into account this variable in their models in determining the relationship between FDI and economic growth.

## **Chapter Three: Theoretical Framework and the Model**

### **3.1 Theoretical Framework**

The reason why certain companies have the tendency towards being global is profit maximization. This can mainly be achieved by lowering labor cost, differential rate of return and portfolio diversification. There are many theories explaining the existence of the FDI. According to some specialists (Caves, 1969; Kindleberger, 1971 and Hymer, 1970), market imperfections represent the main factor that determines the internationalization of firms. Market imperfections, according to Hymer, come from the deviation of the perfect competition because of permanent and exclusive control of property rights, product differentiation, scale economies, distribution system and access to resources. Due to this imperfect competition, profit decreases and the number of companies also decreases by mergers and acquisitions (Pitelis and Sugden, 2000). Permanent firms are looking for market opportunities that are raised by these imperfections, so their decision to invest abroad is considered as a strategy to benefit from advantages their competitors do not possess in these markets.

### **3.1.1 The Comparative Advantage Theory**

David Ricardo developed this theory, which explicates the fact that the country will export the products that maximize their utility by producing it with lower factors of productions and import the products that are scarce in the country. Comparative advantage is the ability to produce products at a lower opportunity cost, sell goods and services at lower prices than competitors and then realize stronger sales margins. However, this theory has failed to explain the existence of the FDI because it assumes a perfect mobility of factors of production, two countries and two products. To a certain extent this may explain the comparative advantage of the international trade of China: the transition from the export of primary-source products to the export of labor-intensive products (Sun et al., 2012).

### **3.2.2 The Product Lifecycle Theory**

It was developed in 1960 by Raymond Vernon to explain the patterns of international trade. This theory suggests that the trade cycle begins with the mother company that produces the product for the first time, then by its subsidiaries and then by other companies in developing countries, where the production costs are the lowest. The theory also

explains how the country that appears as an exporter of the product in the beginning can end as an importer when the product lifecycle reaches the last stage. This theory is highly influenced by the market expansion and technological progress. The study of Mullor-Sebastian (1983) presents three empirical tests of the product lifecycle theory depend on the U.S. trade data. The results of the tests support the hypothesis of product lifecycle theory that the industrial product groups behave in the manner predicted by the theory on world markets.

### **3.3.3 The International Production Theory**

This theory suggests that the ability of a firm to invest abroad depends on the attractions and advantages offered by other markets. This theory identifies many factors that are important to make the decision of investing abroad. The government actions play an important role for the attraction of investors. Many factors attract the FDI to the host country, such as market size, market growth and per capita income. For companies, new market gives a chance to firms to stay competitive, keep growing as well as achieve economies of scale (Kudina & Jakubiak, 2012). The study of Globerman & Shapiro

(1999) examines the effects of major policy changes on the FDI during 1950 and 1995, which did the Canadian government implement. The results show that the free-trade agreements (FTA and NAFTA) have a significant effect on encouraging inward FDI into the country.

### **3.4.4 Theories of Economic Growth**

Great attention has recently been attracted to determine factors that promote economic growth one of these factors is the FDI. Many theories have dealt with this issue like the Neoclassical theory and the Endogenous growth theory.

#### **3.4.4.1 The Neoclassical Theory**

Solow is considered as a pioneer of the neoclassical theory. Solow's model focuses on the long run economic growth with the assumption of full employment of labor and capital, constant return to scale and constant population growth. Based on Cobb-Douglas' production function, the output is a function of labor, capital and technology (Myftar, 2014). The Capital accumulation is an important factor for a steady level of economic growth under the neoclassical growth model.

The main factors for growth are capital, labor and technological progress. In this model, the FDI contributes to a higher level of investment that increases the productivity level and income. Furthermore, it generates employment, increases competition that enhances the productivity, improves and balances payments, and introduces new managerial skills and training for workers (Bergsten et al, 1978; Kojima 1975). Admittedly, by diminishing returns to capital in neoclassical growth models and as countries move towards a steady state, the FDI only has a "short-run" growth impact. As a result, the effect of the FDI on economic growth is identical with domestic investment.

#### **3.4.4.2 The Endogenous Growth Theory in 1980**

This theory underlines an endogenous relationship between the human capital spillover effect, technological progress and economic growth. It suggests that the FDI is an essential factor for driving growth of the host country through transfer of technology and technological spillovers (Lucas, 1988; Romer, 1986). Moreover, this can be achieved from managerial skills, training of workers and transfer of technology and capital that in turn help promote the



economic growth of the hosting country (Rodrik and Subramanian, 2008). On contrary to the neoclassical growth model, the FDI is assumed to be productive more than the domestic investment, as it encourages the incorporation of technologies in the production process of the host economy (Borensztein et al., 1998). Therefore, technological spillovers related to the FDI act to offset the diminishing return to of the capital and puts the economy on a long run growth path. Moreover, they can augment the existing stock of knowledge through labor training, introduction of management practices, skill acquisition and organizational arrangements. Afterwards, the FDI can promote the long run economic growth (Karimi & Yusop, 2009). Obviously, through knowledge spillovers and capital accumulation, the FDI plays a key role in economic growth.

In effect, the thesis will apply the econometric model, which consists of three tests (Stationary test, co-integration test and Hausman test), as to estimate the effect of FDI, human capital, financial development and government expenditure on the economic growth in the five selected countries during 2003 and 2017.

### 3.2 The Model

Based on the literature of [(Almfraji & Almsafir, 2014), (Koojaroenprasit, 2012), (Li& Liu, 2005), (Makki, & Somwaru, 2004) and (Bengoa & Sanchez-Robles, 2003)], this study considers the following model, where it is different from the aforementioned literature for it deals with general government expenditure as an independent variable, given its importance in stimulating economic growth.

$$Y = F(\text{FDI}, \text{HC}, \text{F}, \text{G})$$

Where:

Y: GDP (constant 2010 US dollar)

The FDI (net inflow), is the sum of equity capital by foreigners, reinvestment of earnings and other forms of capital. The direct investment is a cross border investment with a resident in one country that has a control on the management of an enterprise on another country, where the ownership of more than 10% of voting stocks is considered as a direct investment (World Bank, 2018).

FD: financial development is measured by total value of domestic credit to private sector as a percentage of GDP. Domestic credit to private sector (DCPS) is the financial resources provided by financial

corporation to the private sector, which includes loans, accounts receivables and trade credits and purchases of non-equity securities. The financial corporations comprise deposit money banks and monetary authorities, money lenders, foreign exchange companies, pension funds and many other financial corporations. This variable is used as a proxy variable to measure the financial development (World Bank, 2018).

HC: human capital is measured by the average rate of enrollment for secondary school.

Enrollment for secondary school (% gross): gross enrollment (SE) ratio is calculated by dividing the total enrollment of students for secondary school regardless of age by the population and multiplying by 100. Data for education are collected by the UNESCO Institute while data about enrollment for secondary school are collected from World Bank. This variable is used as a proxy variable to measure the development of human capital (World Bank, 2018).

G: general government final consumption expenditure.

In this study, the interaction between the FDI and human capital is applied to investigate the positive spillover and transfer of technology in the five selected countries.

### **3.2.1 Theoretical Relationships**

#### **3.2.1.1 Financial Development**

Theoretically, financial development contributes to economic growth by creating economic conditions that help increase the efficiency in allocating resources (see Levine, 2004). In fact, the economic growth based on financial development depends on the ability of the system to mobilize and allocate savings efficiently in the economy. By attracting deposits from different economic units and financing investment projects, this could support firms and projects with external financing, and then it will contribute into a higher level of economic development.

#### **3.2.1.2 Human Capital**

It refers to the skills and knowledge that reflect the experience and education of individuals. The basics of human capital theory were set up by Adam Smith in 1776 in his book "*The Wealth of Nations*". The human capital theory explains the wage differentials between employees based on education and experience, and it suggests that the investment in human capital improves the economic condition in a

country by increasing the productivity and innovation, which in turn supports the economic growth (Wealth of Nation).

### **3.2.1.3 General Government Expenditure**

It incorporates all governmental consumption, transfer payment and investment; it is expected that these expenditures will create future benefits, such as research spending or infrastructure investment. There is no doubt about the role of government in stimulating the economic condition of a specific country, and there are many theories that discuss ~~about~~ general government expenditure and examine its role in the development of the economy. In fact, the Keynesian theory suggests that increasing government expenditures create a multiplier effect (Keynes, 1936). If expenditure of the government increases, then the employment and the income will also increase, leading to a rise in aggregate demand and then stimulating the economic growth (Gwartney et al., 2013).

## Chapter Four: Methodology

### 4.1 Panel Unit Root Test

Since the work on the existence of unit root was published by Nelson and Plosser in 1982, in macroeconomic time series data, the unit root received a great attention in the last two decades. Their paper is recognized as an important contribution for theory and policy. It also represents the starting point for large macroeconomic and econometrics literature. Their work presents a statistical evidence on the hypothesis of a unit root of a macroeconomic time series for the US economy, including GNP, prices, wages, stock prices and employment. The results of these variables have an important implication for business cycle theorizing, economic policy prescriptions and also for econometric modeling.

We should check the stationary of our variables to start the panel data estimation. Therefore, we need to apply the panel unit root test (Nell & Zimmermann, 2011).

The presented model below checks for stationary:

$$\Delta y_{it} = \alpha_i + \delta_i t + \rho_i y_{i,t-1} + \sum \phi \Delta y_{i,t-l} + \varepsilon_{it}$$

Where,  $\Delta y_{it} = y_{it} - y_{i,t-1}$ , First difference operator

if  $\rho = 0$ ,  $Y$  is stationary, but if  $\rho < 0$ , then  $y$  is non-stationary or has a unit root.

Null hypothesis:  $H_0 : \rho_1 = \rho_2 = \dots = \rho_n < 0$

Alternative hypothesis:  $H_1 : \rho_1 = \rho_2 = \dots = \rho_n = 0$

To check for stationary, we will use the following type of a panel unit root test:

#### 4.1.1 Levin-Lin-Chu Test

The probability for rejecting null hypothesis is the power of the test, and the null hypothesis is a non-stationary (have a unit root) Levin, Lin and Chu (2002), considering the Augmented Dickey Fuller (ADF) test for panel data. Levin-Lin-Chu Test (LLC) suggests the following hypothesis:

$H_0$ : each time series contains a unit root

$H_1$ : each time series is stationary

The necessary and suitable condition for the test is when  $\sqrt{NT}/T \rightarrow 0$ .

The authors suggest that the statistic performs well when  $T$  lies between 5 and 250 and when  $N$  lies between 10 and 250. Still, the test has many disadvantages such as: it is very restrictive where the null hypothesis suggests that all cross sections have a unit root, and it

relies on the assumption of cross-sectional independence (Nell & Zimmermann, 2011).

## **4.2 Co-integration Test**

After the work of Newbold and Granger was published in 1974, Engle and Granger introduced the co-integration term for the first time in 1987 on spurious regression. The term analyzes the non-stationary time series data whose means and variances vary over time and allow estimating parameters for long run periods. Co integration test identifies the long run relationships between groups of variables. There are three popular tests for co-integration: Engle–Granger, Phillips–Ouliaris and Johansen.

## **4.3 Panel Estimation Method**

Panel data analysis increases the econometric estimations efficiency as it allows the error variances and intercept to differ freely across entities and it gives additional variability, additional accurate inference of model parameters, less of the collinearity among independent variables and more degrees of freedom (Hsiao, 2003).



The panel data test introduces two models: random effects and fixed effects model.

The fixed effect model cannot be biased because its omitted time-invariant characteristics (such as race, language, religion, gender, culture, etc.), since it controls time-invariant differences between the individuals.

The following equation represents the fixed effects model:

$$Y_{it} = \alpha_i + \beta_1 x_{it} + u_{it}$$

Where,

$Y_{it}$  is the dependent variable where  $t$  = time and  $i$  = entity

$\alpha_i$  ( $i = 1 \dots n$ ) is the unknown intercept for each entity

$x_{it}$  represents one independent variable

$\beta_1$  is the coefficient for IV,

$u_{it}$  is the error term,  $u_{it} = \mu_{it} + v_{it}$ ,

Random effects model assumes a random variation across entities.

This variation is uncorrelated with independent variables that included in the model.

The random effect has an advantage of including time invariant variables such as gender.

The following equation represents the random effects model:

$$y_{it} = \alpha + \beta x_{it} + u_{it} + \varepsilon_{it}$$

Where  $\varepsilon_{it}$  is within entity error and  $u_{it}$  is between entity errors.

The difference between the random effects and the fixed effects models, is that in the random-effects model it suggests that  $\alpha_i$  is purely random with the assumption that suggests that  $\alpha_i$  is uncorrelated with the independent variables. In the fixed effects model, the error term ( $\alpha_i$ ) is allowed to be correlated with the independent variables  $x_{it}$ , while assuming that  $x_{it}$  is uncorrelated with the idiosyncratic error  $u_{it}$  (Baltagi, 2001).

#### **4.4. Housman Test:**

Housman (1978) has developed a statistical hypothesis test to choose between the random effects and the fixed effect models. The test evaluates the consistency and compares the coefficient estimators between the two models. If  $\mu_{it}$  is correlated with the independent variables, then the random effects estimator is inconsistent, while the fixed model remains consistent.

When we run the Housman Test, we have to check for  $\text{prob} > \chi^2$ , if  $\rho < 0.05$ , then we should consider the fixed model otherwise we should use the random effects model.

#### **4.5. Testing for Auto correlation and Heteroskedasticity**

##### **4.5.1. Testing for Autocorrelation and Heteroskedasticity in Linear Model**

The serial correlation in linear panel-data causes the results to be less efficient as it biases the standard errors. For this reason, in the panel data method, there is a need to identify auto correlation in the idiosyncratic error term. Wooldridge (2002) developed a new attractive test for auto correlation in fixed and random effects because it is easy to implement and needs less assumptions, so it can be

applied under general conditions and also it is robust to conditional heteroscedasticity.

“Wooldridge’s method uses the residuals from a regression in first-differences. Note that first differencing the data removes the individual-level effect, the term based on the time-invariant covariates and the constant,

$$y_{it} - y_{it-1} = (x_{it} - x_{it-1}) \beta_1 + e_{it} - e_{it-1}$$

$$\Delta y_{it} = \Delta x_{it} \beta_1 + \Delta e_{it}$$

where  $\Delta$  is the first-difference operator.

Wooldridge’s procedure begins by estimating the parameters  $\beta_1$  by regressing  $\Delta y_{it}$  on  $\Delta x_{it}$  and obtaining the residuals  $e_{it}$ . Central to this procedure is Wooldridge’s observation that, if  $e_{it}$  are not auto correlated, then  $\text{Corr}(\Delta e_{it}, \Delta e_{it-1}) = -0.5$ .

Given this observation, the procedure regresses the residuals  $e_{it}$  from the regression with first-differenced variables on their lags and tests that the coefficient on the lagged residuals is equal to  $-0.5$ . To account for the within-panel correlation in the regression of  $e_{it}$  on  $e_{it-1}$ , the variance–covariance matrix (VCE) is adjusted for robust at the panel level” (Drukker, 2003).

#### 4.5.2. Testing Cross Sectional Dependence in Fixed Effects Model

Generally, the estimations in the panel data set suffers from cross-sectional dependence in the errors, because of the presence of unobserved components and common shocks that become a part from error term Anselin (2001), Pesaran (2004). In the last decades, the financial and economic integrations of financial entities and countries significantly increased, leading to strong interdependencies between cross-sectional units.

It is important to fit panel data through testing for cross-sectional dependence. When  $T > N$ , we may use the Lagrange multiplier (LM) test, that is developed by Breusch and Pagan (1980), which is available in stata through command `xttest2` (Baum 2001,2003,2004).

“Lagrange multiplier (LM) test checks the hypothesis that the residual correlation matrix, computed over observations common to all cross-sectional units, is an identity matrix of order  $N_g$ , where  $N_g$  is the number of cross-sectional units. The Lagrange multiplier test statistic is:

$$\lambda_{LM} = T \sum_{i=2}^{N_g} \sum_{j=1}^{i-1} r_{ij}^2$$

where  $rij^2$  is the  $ij$ th residual correlation coefficient. The Breusch and Pagan (1980) test statistic is distributed  $\chi^2 [d]$ , where  $d = \frac{Ng(Ng-1)}{2}$  under the null hypothesis of there is no cross-sectional dependence” (Baum, 2001).

#### 4.5.3. Testing Heteroscedasticity in Fixed Effects Model

In the fixed effect model, that given by  $y_{it} = \alpha_i + \beta_1 x_{it} + u_{it}$ , the standard error assumes a homoscedasticity of the disturbance estimator with the same variance across individuals and time. When the model suffers from heteroscedasticity, the estimated standard errors will be biased. This is why we should calculate robust standard errors to correct the presence of heteroskedasticity.

When the variance of the error procedure varies across units but it is homoskedastic within cross sectional units, we called group wise heteroskedasticity.

“The `xttest3` command calculates a modified Wald statistic for groupwise that calculates heteroskedasticity in the residuals of a fixed-effect regression model under of the null hypothesis of homoskedasticity. The null hypothesis specifies that  $\sigma_i^2 = \sigma^2$  for  $i =$

1,...,  $N_g$ , where  $N_g$  is the number of cross-sectional units” (Baum,2001).

## **4.6. Model Estimation Method Considering Autocorrelation and Heteroscedasticity**

### **4.6.1. Fixed Effects Estimator with Driscoll and Kraay Standard Error**

When the error structure is heteroskedastic and correlated between the groups and autocorrelated up to some lag in our fixed effects model, we cannot rely on the fixed model estimator results. Driscoll and Kraay (1998) present a nonparametric covariance matrix estimator, which produces heteroskedasticity consistent standard errors that are robust to common forms of temporal and spatial dependence

The xtscd program executed by Daniel Hoechle can handle missing values and it is suitable for balance and unbalance panels. It estimates fixed effect models and pooled OLS with Driscoll and Kraay standard errors.

The respective fixed-effects estimator is applied in two steps. In the first step all model variables  $z_{it} \in \{y_{it}, x_{it}\}$  are within-transformed as follows,

$$\bar{z}_{it} = z_{it} - z_i + z \quad \text{where } z_i = T_i^{-1} \sum_{t=i}^{T_i} z_{it} \text{ and } z = \sum_i \sum_t z_{it} / \sum T_i$$

“Recognizing that the within-estimator corresponds to the OLS estimator of”

$$\tilde{y}_{it} = \tilde{x}'_{it} \theta + \tilde{\varepsilon}_{it},$$

“the second step then estimates the transformed regression model in (the above equation) by pooled OLS estimation with Driscoll and Kraay standard errors” (Hoechle, 2007).

#### 4.6.2. Random Effects Estimator with Robust Standard Error

The estimated parameter of the econometric model is unbiased. When the assumption of homoskedasticity is violated, the estimator parameter of the covariance matrix can be unreliable and biased under heteroskedasticity. After reviewing the literature of heteroskedasticity and its effects on random effect model estimation, the researcher has found that there is a highly appealing and alternative method that reduces the effect of heteroskedasticity on



inference, which employs robust or heteroskedasticity-consistent standard error estimator of random effects model. In case of heteroscedasticity, the command that we have to run in order to solve this problem is a `xtreg, robust` command. The case of heteroscedasticity and autocorrelation we have is to use cluster option (Hoechle, 2007).

## Chapter Five: Descriptive Analysis

### 5.1 Brazil and FDI

Brazil is the largest economy in Latin America. It is the first country that received the FDI in the region and currently attracts more than 40% of FDI inflow in the continent. According to UNCTAD, Brazil was the fifth largest recipient of global FDI flows in 2014 as it reached approximately USD 64 billion in 2013. Figure (5.1) shows that the inflow of the FDI into Brazil from 2003 to 2017 increased and it reached the peak in 2009-2011. Over the last few decades, the FDI has played an important role in Brazilian industrialization that was attracted by the large domestic market and by government policies (Motta Veiga, 2004).

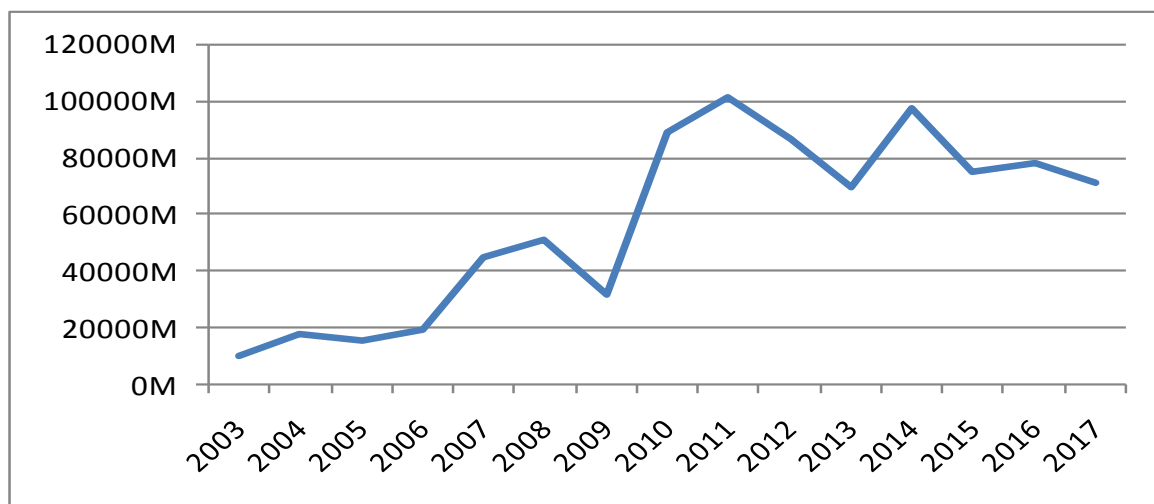
The government of Brazil adopted many policies to attract FDI. It signed some bilateral investment agreements such as the bilateral investment treaty with Mozambique that it signed On March 26, 2015. Moreover, it is committed to the General Agreement on Trade in Services (GATS) and the *Trade-Related Investment Measures* (TRIMs) Agreement. To encourage domestic and foreign investment, the government of Brazil uses different tax incentives and attractive

financing through the National Bank for Economic and Social Development (BNDES). The government also has granted tax benefits for some free trade zones. Most of these zones aim to attract investment to the underdeveloped regions in the country, the most prominent of which is the Manaus Free Trade Zone in Amazonas State that attracts a significant amount of foreign investment. In October 2011, the president of Brazil Rousseff signed a constitutional amendment to extend the Manaus status as an industrial zone for another 50 years. In addition, to enter Brazil's insurance or reinsurance, foreign companies should establish a subsidiary, or partner with a local company, or enter into a joint venture. There are a few restrictions on transferring or converting funds that are associated with FDI in Brazil and Foreign exchange transactions have been fully liberalized. On February 25, 2014, Minister of Agrarian Development and the Attorney General of Brazil signed a bill providing for rural lands purchased by foreigners between June 7, 1994 and August 22, 2010, where companies with foreign partners will be regarded as Brazilian. In the state of São Paulo, foreigners were able to buy unlimited amounts of land. As a result, companies controlled by foreign entities take advantage of this opportunity and seek investment

properties. Generally, the government of Brazil makes no distinction between national and foreign capital in cases of direct investment. In case of expropriation and Compensation, there have been no known expropriation actions against foreign interests in Brazil so far (Investment Climate Statement, 2015). Moreover, most of the barriers that restrict the inflow of FDI have been removed, especially in the stock market. The country ~~is~~ has pursued macroeconomic reforms and regulated the relations between corporations and political power after the corruption of Brazilian political life that occurred in 2010. These efforts have allowed improvement of the inflow of FDI after 2013.

The main investing countries into in Brazil in 2017 are Chile, Germany, United States, Hong Kong, Canada, Italy, France, United Kingdom, Norway and Switzerland. The majority are investing in real estate, energy livestock and mineral extraction, water collection, finance, IT services, treatment and distribution, transportation and storage, trade and crop (UNCTAD, 2018).

**Figure 5. 1: Brazil, FDI Inflow for the Period (2003-2017) in Millions of Dollars**



Source: (World Bank, 2018)

## 5.2 India and FDI

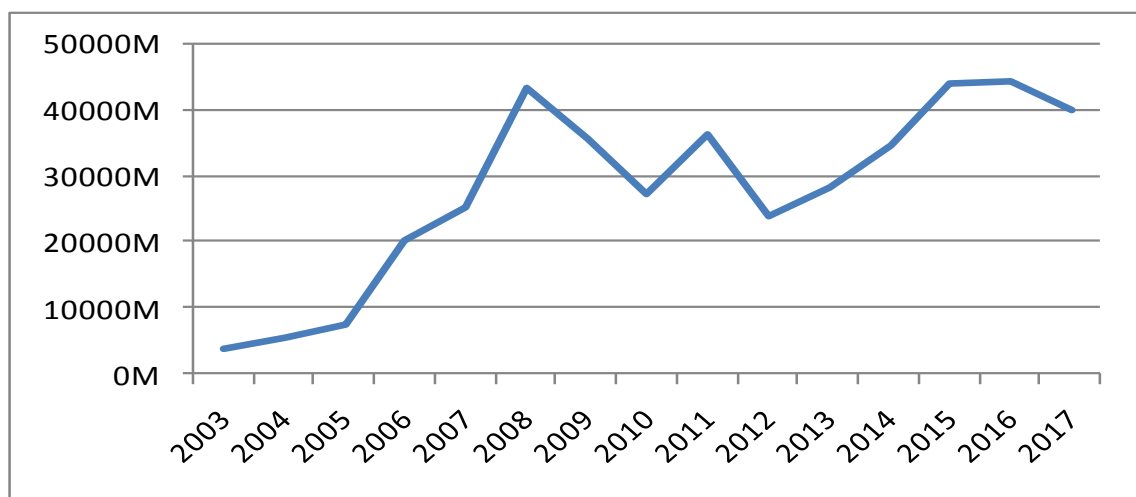
The FDI is a major source of financial resources for the economic development of India. The economy of India needs the FDI to fill the gap between savings and investment and to support the productivity. Indian FDI policy has been very progressive in attracting the FDI. The government has adopted an investor-friendly policy to promote the FDI. Most of the sectors in the country are open for 100% the FDI automatically. Furthermore, to ensure that the country remains a friendly destination and attractive, the government has developed a particular policy associated with the FDI and it reviews it on an

ongoing basis. The government removed industrial licensing, and privatized the public sector. It also renewed the Foreign Exchange Management Act (FEMA) in 1999 to facilitate the management of foreign exchange in the capital account and revoked the high local-content requirements, export obligation conditions and dividend balancing requirements. Furthermore, it has established major institutions to facilitate and promote the inflow of FDI, such as the Secretariat for Industrial Assistance (SIA), Foreign Investment Implementation Authority (FIIA) and the Foreign Investment Promotion Board (FIPB). It has also set up institutions to help the FDI in implementing the projects. To assure and benefit foreign investors, the government has signed on double tax avoidance and bilateral investment agreements with more than 70 countries. Central and state government offered fiscal incentives such as concessions and tax subsidies. Opening of major sectors like multi-brand retail, defense, insurance, railway, pension, banking and civil aviation to foreign investors. With a plan to open up many other sectors in the future (Sahoo, 2014). The government of India has made many economic reforms and established special economic and development zones that contain many incentives for foreigners to invest in the country, for

example, the companies in these zones are absolved of paying taxes for the first five years of investing.

Low labor cost was one of the factors that attracted the FDI into the country (UNCTAD, 2018). As we can see from the figure (5.2), the FDI is increasing over time but it has dropped after 2007 because of the global financial crisis. However, the FDI again has increased until it has reached the peak in 2015. The main investing countries into India are Mauritius, Singapore, the U.K., Japan, the U.S.A., Netherlands, Cyprus, Germany, France and Switzerland (Meena and Singh, 2015).

**Figure 5. 2: India, FDI Inflow for the Period (2003-2017) in Millions of Dollars**



Source: (World Bank, 2018)

### **5.3 Mexico and the FDI**

Mexico is the fifteenth largest FDI recipient in 2017 according to the world investment report. It is one of the emerging countries that are most open to the FDI. The government of Mexico has created a secured environment for foreigners to invest in the country and it created some special economic zones in 2016 in the underdeveloped areas of the country. The companies which invest in those areas will receive various incentives such as relaxing the regulatory processes, supporting infrastructural development and trade facilities and duty free customs benefit. According to the recent World Bank Study “Doing Business 2012”, the government of Mexico succeeded in improving trade across borders, easing the procedure to start a business, getting electricity and enforcing contracts.

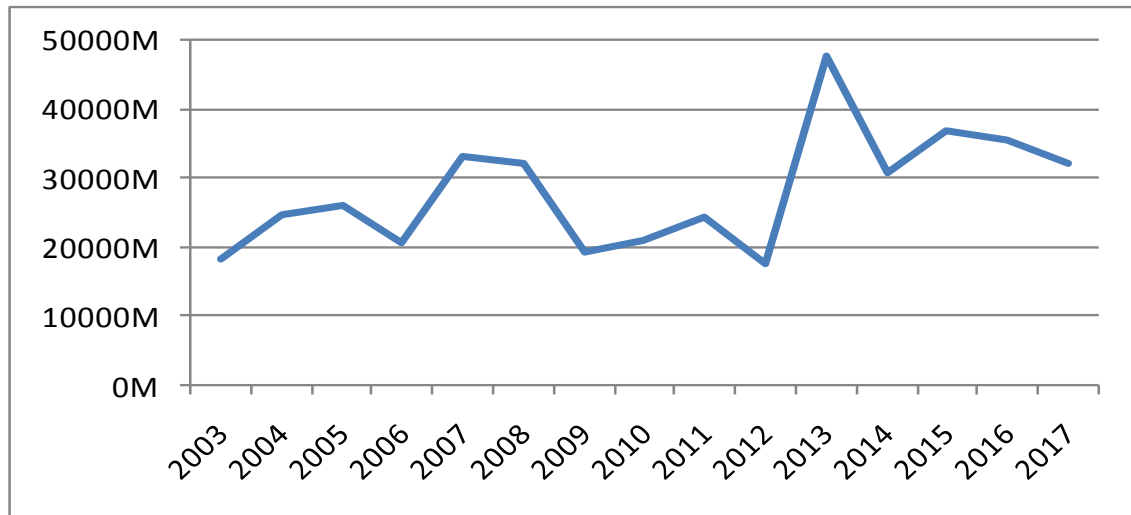
The Foreign Investment Act of 1993 is the statute governing foreign investment in Mexico. The law is consistent with the foreign investment of the North American Free Trade Agreement (NAFTA). It provides non-discriminatory treatment for most foreign investment, liberalizes criteria for automatic approval of foreign investment and eliminates performance requirements for most the FDI. The NAFTA eliminated some barriers to investment in the country, such as



domestic content requirements and trade balancing. Under NAFTA Canadian and the U.S. companies have the right to transfer funds without restrictions and the right to international arbitration. Mexico is a party to many OECD agreements that cover foreign investment, in particular the Codes of Liberalization of Capital Movements. Approximately 95% of foreign investment transactions do not require approval from government. The applications of investment that do not exceed USD 165 million are approved automatically. Concerning expropriation and compensation, Mexico may not expropriate property under NAFTA, except for public purpose and on a non-discriminatory basis. The Mexican government's modifications to the tax regime provide companies with financial and operational benefits. In December 2008, former President Felipe Calderon published in the (Diario Oficial) a gradual reduction in import duties of more than 10,000 customs tariffs so that companies would get inputs at competitive prices. The government has created a federal entity to attract the FDI into the country and many agreements for mutual protection of investment and promotion have been negotiated. As a consequence, this makes Mexico a safe place for investment (Investment Climate Statements, 2018).

The Inflow of the FDI into Mexico is increasing over time with some fluctuation as we can see from figure 5.3. The highest record of the FDI was in 2013 due to the Belgian brewer Anheuser-Busch InBev's acquisition of Mexican beer giant Grupo Modelo which was completed in May of the same year. In recent years, Mexico has suffered from increasing crime rates, corruption and lack of reforms in the tax regulations. The liberalization policy of the telecommunication and energy sectors has attracted the FDI into Mexico. Most investing activities have come from Spain and the United States especially in the banking sector. The sectors that receive a significant amount of FDI are the energy sector, electronics, finance and automobile industry (UNCTAD, 2018).

**Figure 5. 3: Mexico, FDI Inflow for the Period (2003-2017) in Millions of Dollars**



Source: (World Bank, 2018)

#### **5.4 Egypt and the FDI**

From the figure 5.4, the inflow of the FDI has increased starting from 2003 until 2007. The inflow afterwards began to decrease quickly due to the global economic crisis in 2008, political crisis that started in 2007 and socio-political revolution in 2011, but once again the inflow began to increase. In 2017, Egypt became the largest recipient of FDI in Africa. The Inflow into Egypt for hydrocarbons sector has been increasing since the discovery of gas reserve. Low labor cost,

privatization, large domestic market, strategic geographical position and unique tourist are the main factors that attract the FDI into Egypt. The Egyptian government has recognized that attracting foreign investment is essential to address many of the economic challenges it faces, including shortage of foreign currency, low economic growth, current account imbalances and high unemployment. Therefore, the government has adopted many policies to attract the inflow of the FDI. Egypt has signed more than 100 bilateral investment treaties, and is a member of the World Trade Organization (WTO), the Greater Arab Free Trade Area (GAFTA) and the Common Market for Eastern and Southern Africa (COMESA). Furthermore, in many sectors, there is no difference between foreign and domestic investors. There are special requirements for foreign investments in certain sectors, such as oil and gas, as well as real estate, where joint ventures are needed. Egypt does not discriminate between nationals and foreigners in the formation of private companies. The 1997 Investment Incentives Law designed to encourage foreign investment in targeted areas. The law allows 100% foreign ownership of investment projects and guarantees the right to remit income earned and to repatriate capital. The government of Egypt established the General Authority for Investment

and Free Zones (GAFI), which is affiliated with the Ministry of Investment and International Cooperation (MIIC), in order to regulate and facilitate investment in Egypt. The Investor Services Center (ISC) is a management unit established in GAFI that provides one-stop services, making it easier for international investors to find opportunities in the local Egyptian economy and increasing the competitive advantages of the nation as an export hub for Europe, the Arab world and Africa, and enhancing investment opportunities in Egypt in various sectors.

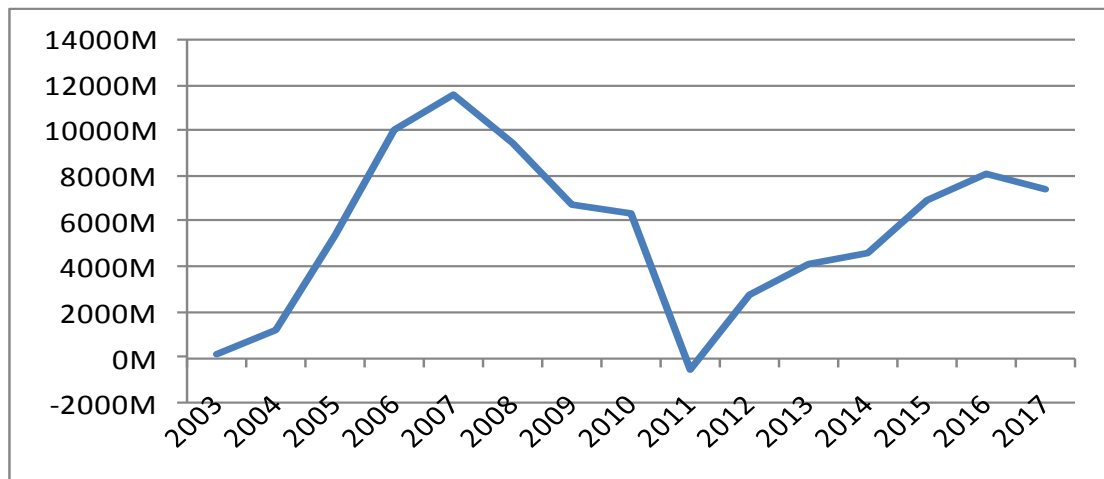
With regard to expropriation and compensation, the Investment Incentives Act provides guarantees against the nationalization or confiscation of investment projects within the scope of the law. The law also provides guarantees against seizure of assets under custody or sequestration. It offers also guarantees against full or partial expropriation of investment project property. The U.S.-Egypt Bilateral Investment Treaty provides protection against expropriation. In addition, the investors enjoy general incentives, where Investors are exempted from the stamp tax, registration of the memorandum of incorporation of the companies, fees of the notarization, mortgage contracts associated with their business for five years, credit facilities

and to the registration contracts of the lands required for a company's establishment( Investment Climate Statements, 2018).

Egypt have adopted the investment law in 2017 which included geographical locations of investment incentives and labor intensive projects. This investment law set up special economic zones where the regulations are more attractive for FDI (better infrastructure, tax incentives, facilitation of registration, efficient administration and more liberal) (UNCTAD, 2018).

European Union, Arab countries and United States are the countries that invest the most in Egypt, while the United Kingdom was the largest investor in 2017. The FDI is concentrated in the construction, financial services sector, oil sector, manufacturing and real estate sectors.

**Figure 5. 4: Egypt, FDI Inflow for the Period (2003-2017) in Millions of Dollars**



Source: (World Bank, 2018)

### **5.5 Turkey and the FDI**

Turkey is the second recipient of the FDI in West Asia according to the World Investment Report in 2018. Turkey has been an attractive market for foreign investors for the last fifteen years. The country experienced strong economic growth given the positive economic and banking reforms that were implemented between 2002 and 2007. Turkey recognizes that it needs to attract a new, significant FDI to meet its ambitious development goals and finance the current account deficit. It has adopted many reforms to attract FDI, such as development of public private partnership and strengthening

intellectual property protection. Turkey has one of the most liberal legal systems for the FDI in the Organization of Economic Cooperation and Development (OECD). Foreign investment does not require approval from government. Most sectors are open for all investors regardless of nationality. Investors can establish business in the country regardless of nationality or place of residence. Turkey's regulatory environment is business-friendly. There are no limits on foreign ownership and there are no sector-specific restrictions. However, there is a pressure on some sectors to partner with domestic firms and to transfer technology.

The Republic of Turkey Investment Support and Promotion Agency (ISPAT)) was established in 2006 to promote investment opportunities in Turkey for the global business community and to assist investors before, during and after their entry into the country. Its websites are clear and easy to use. It is the hub where both locals and foreigners can register their businesses. It included information about legislation and establishment of the company. Turkey signed many agreements for the protection of investments and reciprocal promotion. As of 2017, Turkey has 75 bilateral investment agreements and it also has a bilateral taxation treaty (BIT) with the United States. Under BITs

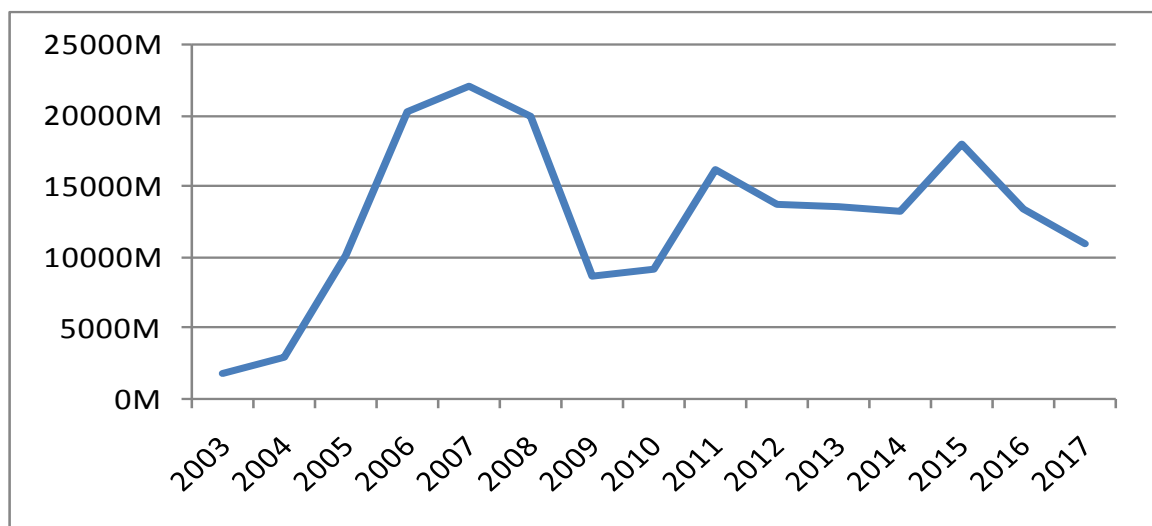


between the United States and Turkey, expropriation can only occur in accordance with due process of law and can be for a general purpose only and should be non-discriminatory. With regard to investment incentives, the regional incentive program in Turkey divides different parts of the country into six different regions, providing the following benefits to foreign investors: value Added Tax (VAT) exemption, corporate tax privilege, land allocation, customs tax exemption, allocation of investment sites, Income tax withheld subsidies, support of employer's insurance contributions and government support for credit interests (Investment Climate Statements, 2018).

In 2017, Turkey continued to implement the Intellectual Property Rights Act (IPR), the first in Turkey's modern history, and an important step forward in the development of intellectual property rights in the country. The law combines a series of "decrees" into a uniform, up-to-date legal structure. It also greatly increases the capacity of the country's patent office, and improves the marketing framework and technology transfer. As a result, the inflow of the FDI increased over time and reached peak in 2007. However, the inflow started to decrease quickly because of the global economic crisis in 2008.

The factors that hindered the development of the FDI are political instability, an attempted coup d'état that took place in 2016, inflation, weak currency, the proximity to conflicts in the Middle East and the measures taken against Gulen for their alleged association with the coup. EU was the largest investing group in 2007 with approximately 67.9% of total investment. Netherlands, Spain, Azerbaijan, Austria, UK, Germany, Japan, Belgium, United States are the main states that invest in Finance and insurance, transport and storage, manufacturing, energy and Construction.

**Figure 5. 5: Turkey, FDI Inflow for the Period (2003-2017) in Millions of Dollar**



Source: (World Bank, 2018)

## **5.6 Gross Domestic Product**

Turkey is one of the developing countries according to the CIA World Factbook, it is also defined by economists and political scientists as a newly industrialized country. The country occupies the world's 17th-largest in nominal GDP. The green line in the above graph represents the GDP growth in Turkey, where the annual growth rate from 2003 to 2017 averaged 7.76%. As a result of the world financial crisis in 2008, the GDP decreased and recorded as the lowest level at -14.4% in the first quarter of 2009.

The increasing structural reforms in Egypt, since 2000, include privatization, fiscal and monetary policy, new business legislations and taxation, helped the country move towards market oriented economy and increased foreign investments. The reforms and policies for the country have strengthened macroeconomic annual growth results, which averaged 8% annually between 2004 and 2009 and the average annual growth rate from 2003 to 2017 was 4.3% as presented in the purple line in the above graph.

However, the government largely failed to equitably share the wealth and the benefits of growth, and failed to gradually improve the

economic conditions for the broader population, especially with the growing problem of unemployment and underemployment.

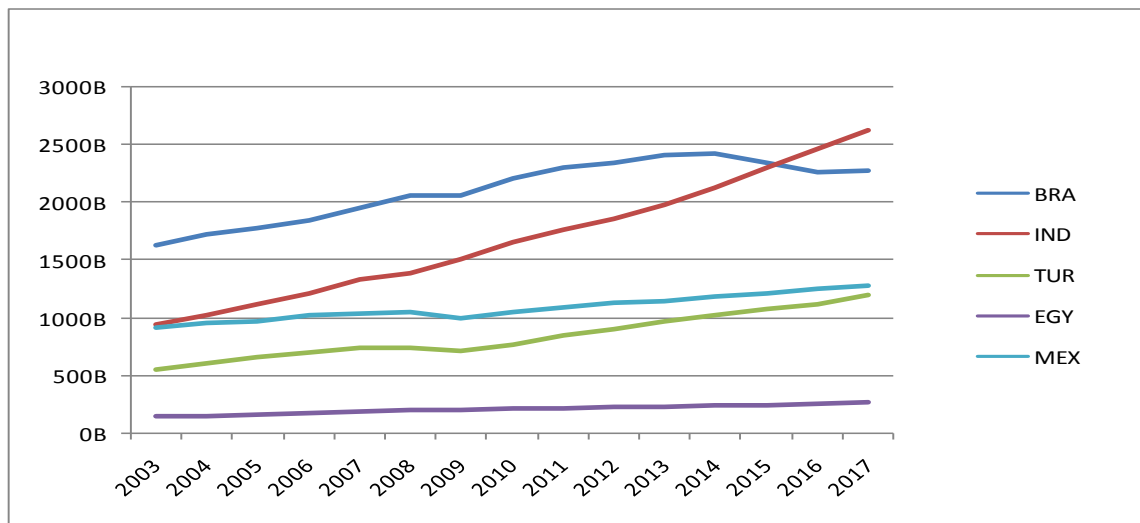
The economy of Mexico is the 11<sup>th</sup> largest in purchasing power parity and the 15<sup>th</sup> largest in nominal terms in the world, according to the International Monetary Fund (IMF). Over the past decades, the Mexico macroeconomic environment has become stable. The country has become one of the top 15 global manufacturing economies in the world and one of the top five auto producers. About 70% of cars exported from the country are based in imported parts. From Figure (5.6), we can see that the GDP is increasing with average growth rate at 2.4% between 2003 and 2017. Mexico was the most affected by the 2008 recession in Latin America nations, leading to decrease the average growth rate.

India is the 6<sup>th</sup> largest economy in the world. Its purchasing power parity is the third largest in the world. India has accomplished a huge progress towards a free market economy. The GDP is increasing in an obvious way as we can see from the red line in Figure (5.6), with average GDP growth at 7.62% from 2003 to 2017. The growth of the Indian economy has been driven by the expansion and growing of the

services sector faster than other sectors. If India makes more reforms for its fundamental market, the growth rate can be sustained.

Brazil is the 8<sup>th</sup> largest economy in the world in nominal GDP and it is the 8<sup>th</sup> largest in the world in purchasing power parity. It has also the second largest economy in the American continent behind the United States. The economy of Brazil is a mixed economy. It relies on import substitution to achieve economic growth. The country was one of the fastest growing economies in the world as we can see from the blue line in the above graph, but the economic growth decelerated in 2013 and then in 2014 as it entered a recession but it took until 2017 for the economy to start to recover. The average growth rate was 2.23% from 2003 to 2017. The largest component of GDP is the service sector followed by industrial sector.

**Figure 5. 6: GDP (Constant 2010 US Dollar)**



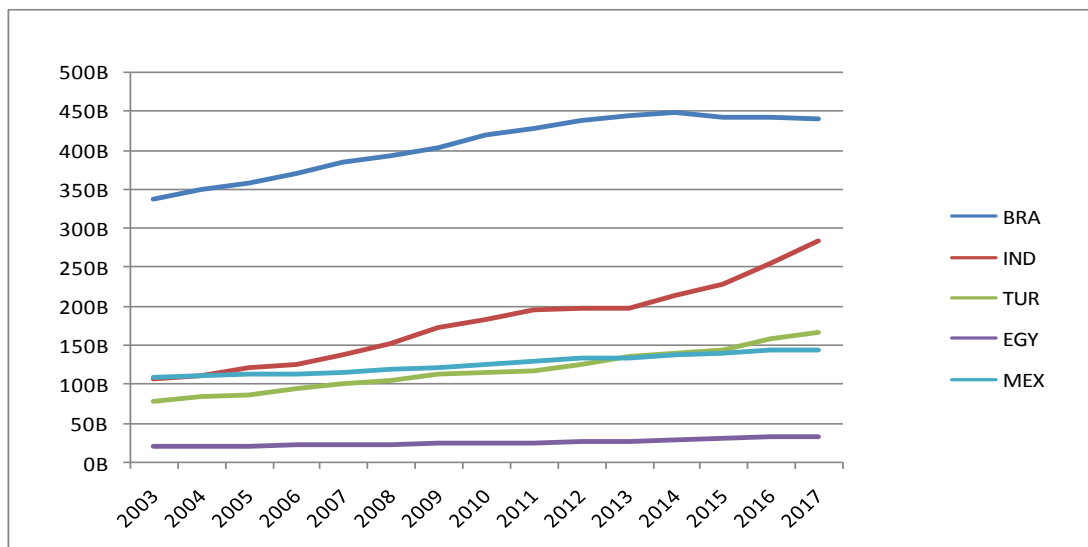
Source: (World Bank, 2018)

## 5.7 Government Expenditure

Figure 5.7 shows that the general government final consumption expenditure is increasing over time for Brazil, India, Turkey and Mexico. Nevertheless, the rate of increase is different between these countries. Egypt remains more or less constant over time. The average growth rate of government expenditure for Brazil was approximately 3% between 2004 and 2013. Yet, after 2013 the growth rate became negative. As we can see, the highest amount of government expenditure is for Brazil and the lowest is for Egypt. India government expenditure is increasing obviously, where the average growth rate

reached approximately 9% from 2013 to 2017 and 7% from 2003 to 2017. while the average growth for Turkey reached 6% from 2003 to 2017, the growth rate for Egypt and Mexico is not significant.

**Figure 5. 7: Government Expenditure**



Source: (World Bank, 2018)

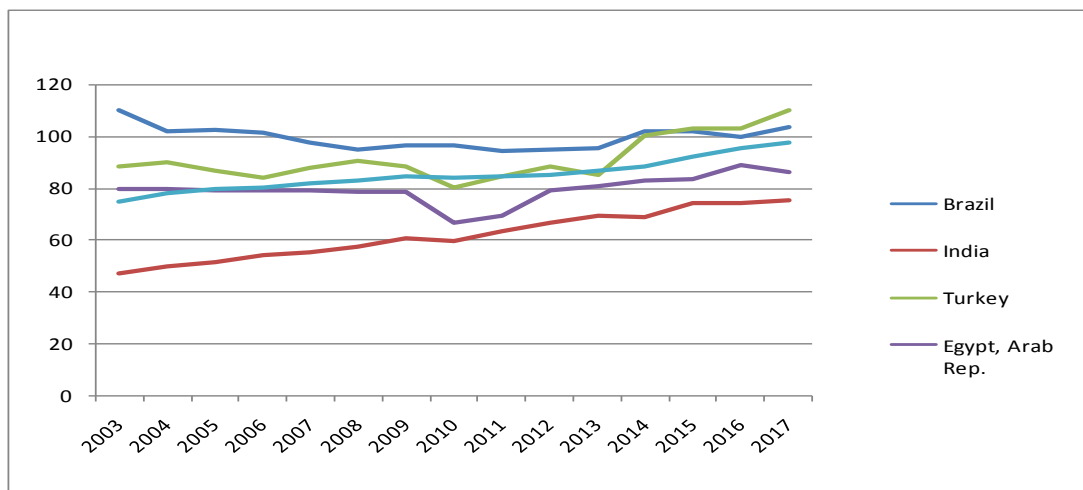
## 5.8 School Enrollment

While the school enrollment increased in India, Turkey and Mexico, it decreased in Brazil and remained almost the same in Egypt. The maximum percentage of school enrollment (ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown) is 103.0502, 102.371, 97.27147, 89.46746 and 78.28603 for Turkey, Brazil, Mexico, Egypt

and India respectively. However, the minimum percentage of school enrollment is 80.0172, 92.992, 77.91896, 66.62542 and 49.83808 in Turkey, Brazil, Mexico, Egypt and India respectively.

The inclusion of underage and overage students because of late and early school entrance makes the percentage exceed 100.

**Figure 5. 8: School Enrollment, Secondary (% gross)**



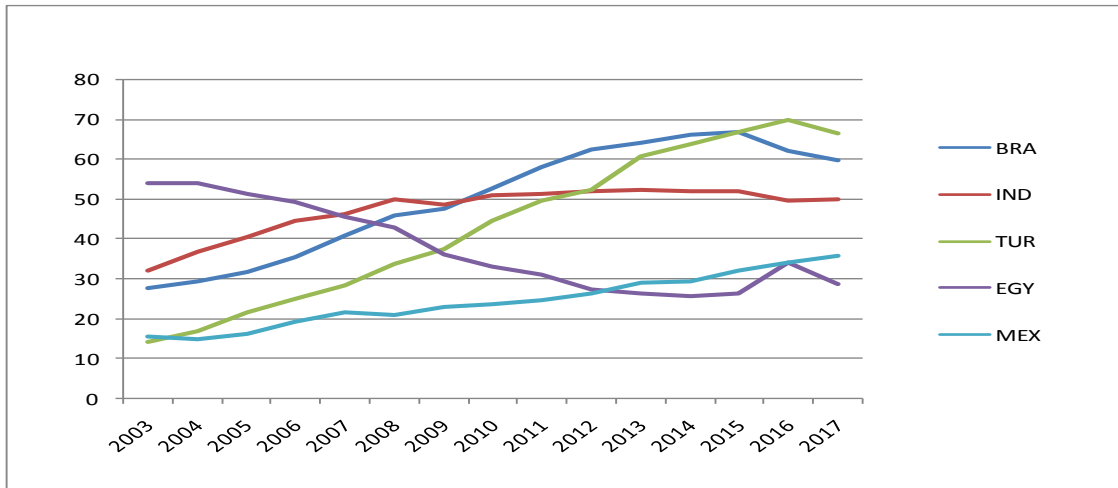
Source: (World Bank, 2018)

## 5.9 Domestic Credit to Private Sector

Turkey scored the highest DCPS rate followed by Brazil and Mexico as Figure 5.9 shows. This is an indicator of increasing financial development in these countries. For India it was increasing until 2008 and stabled afterwards, but for Egypt it decreased significantly, which shows a huge decline in the financial development in Egypt.



**Figure 5. 9: Domestic Credit to Private Sector (% of GDP)**



Source: (World Bank, 2018)

## Chapter Six: Empirical Results

### 6.1 Panel Unit Root Testing Results

In order to check the stationary of the variables, the researcher has applied the Levin-Lin-Chu unit-root test for each variable, where null and alternative hypothesis is as follow:

Ho: Panels contain unit roots

Ha: Panels are stationary

Table 6.1 shows that the null hypothesis is rejected for all variables, where the p-value is less than 5%. All variables are stationary at level, so we can depend either on fixed or on random effect panel regression. The selection between two models will depend on the Hausman test.

*Table 6. 1: Levin-Lin-Chu Unit-Root Tests for All Variables*

<b>Variable</b>	<b>P-value</b>	<b>Results</b>
<b>LogGDP</b>	0.0091	Stationary at level
<b>log</b>	0.0354	Stationary at level
<b>FDI</b>	0.0000	Stationary at level
<b>DCPS (%GDP)</b>	0.0009	Stationary at level
<b>SE (%gross)</b>	0.0016	Stationary at level

**Notes:** when the p-value is less than 0.05 at 5% level, we reject the null hypothesis of non-stationary (panels contain unit root); hence, we

accept the alternative hypothesis of panels as stationary. The test has time trend, and the lag specification is one.

## 6.2 Fixed Effect Regression Results

The results of the fixed effect model show that there is a significant positive effect on the logarithm of the GDP for only one variable, which is the logarithm of the public expenditure (logG). The overall  $R^2$  for this model is about 95%.

*Table 6. 2: Estimation Results for Fixed Effect Estimator*

<b>Independent variables</b>	<b>Coefficient</b>	<b>p-value</b>
Log G	1.024567	0.000
FDI	-4.37E-13	0.685
SE (gross)	0.000198	0.716
DCPS ( as % of GDP)	-0.0004149	0.077
FDI*SE	1.08E-14	0.346
Constant	.5941737	0.235
Number of obs	75	
Number of groups	5	
F (5, 65)	337.11	
Prop >F	0.0000	
Overall R2	0.9457	

### 6.2.1 Testing for Cross-Sectional Dependence/Contemporaneous Correlation

The problem of cross-sectional dependencies has been tested using Breusch-Pagan LM test of independence based on the null hypothesis that considers residuals across entities as uncorrelated (no cross-sectional dependence).

According to the Breusch-Pagan LM test, we cannot reject the null hypothesis at 5% level of significance where  $\chi^2(10) = 17.661$ ,  $Pr = 0.0610$ . The results are based on 15 complete observations over panel units. This can be considered as an indication that there is no cross-sectional dependence. As we can see from table 6.3, the correlation between the errors is weak for most cases, either negative or positive correlations.

**Table 6.3: Cross-Sectional Dependence/Contemporaneous Correlation Test**

	_e <sub>1</sub>	_e <sub>2</sub>	_e <sub>3</sub>	_e <sub>4</sub>	_e <sub>5</sub>
_e <sub>1</sub>	1.0000				
_e <sub>2</sub>	-0.1138	1.0000			
_e <sub>3</sub>	0.3211	-0.0615	1.0000		
_e <sub>4</sub>	-0.5560	0.4595	-0.1692	1.0000	
_e <sub>5</sub>	0.5694	0.2276	0.2736	-0.2404	1.0000

### 6.2.2 Testing for Heteroscedasticity

The problem of heteroscedasticity is tested by using modified wald test for group wise heteroscedasticity, which has the null hypothesis as there is no heteroscedasticity.

According to the heteroscedasticity test, we reject the null hypothesis at 5% level of significance, which will be considered as an indication of the presence of a heteroscedasticity problem.

Where:

$H_0: \sigma^2(i) = \sigma^2$  for all  $i$

$Chi^2(5) = 137.64$

$Prob > Chi^2 = 0.0000$

### 6.2.3 Testing for Serial Correlation

The problem of serial correlations is tested by using Wooldridge test for autocorrelation in panel data, which has the null hypothesis as there is no first-order autocorrelation.

According to the serial correlation test, we reject the null hypothesis at 5% level of significance, which will be considered as an indication of the presence of a serial correlation problem.

Where:

H0: no first-order autocorrelation

F (1, 4) = 16.162

Prob > F = 0.0159

## 6.2.4 Fixed Effects Estimator with Driscoll and Kraay Standard

### Error

To solve the problems of heteroscedasticity and serial correlation, we will depend on the fixed effects estimator with Driscoll and Kraay standard error.

The results of the fixed effect model with Driscoll and Kraay Standard Error show that there is a significant positivity effect at 5% level on the logarithm of the GDP for only one variable, which is the logarithm of public expenditure (logG). The  $R^2$  for this model is about 96%.

**Table 6.3 : Fixed Effect Estimator with Driscoll and Kraay Standard**

### Error

Independent variables	Coefficient	p-value
Log G	1.024567	0.000
FDI	-4.37E-13	0.632
SE (gross)	0.000198	0.674
DCPS ( as % of GDP)	-0.0004149	0.276
FDI*SE	1.08E-14	0.284
Constant	.5941737	0.418
Number of obs	75	

Number of groups	5
F (5, 14)	413.12
Prop >F	0.0000
Within R2	0.9629

### 6.3 Random Effect Regression Results

The results of the random effect model show that there is a significant positivity effect at 5% level on the logarithm of the GDP for two variables, which are the logarithm of public expenditure (logG) and the FDI. There is also a significant negativity effect at 5% level of the interaction variable between the FDI and the school enrollment (SE). The overall  $R^2$  for this model is about 98%.

*Table 6.4: Random Effect Estimator*

<b>Independent variables</b>	<b>Coefficient</b>	<b>p-value</b>
Log G	0.901015	0.000
FDI	1.22E-11	0.000
SE (gross)	-0.00097	0.224
DCPS ( as % of GDP)	-0.0005	0.279
FDI*SE	-1.28E-13	0.000
Constant	2.055361	0.000
Number of obs	75	
Number of groups	5	
Wald <i>chi</i> <sup>2</sup> (5)	-	

Prop > $\chi^2$	-
Overall R2	0.9786
Sigma_u	0
Sigma_e	0.01844114
Rho	0

---

### 6.3.1 Testing for Serial Correlation

The same test for fixed effect model, according to the serial correlation test, is Prob > F = 0.0159, then we reject the null hypothesis at 5% level of significance, which will be considered as an indication of the presence of a serial correlation problem.

H0: no first-order autocorrelation

### 6.3.2 Random Effect Estimator with Driscoll and Kraay Standard Error

To solve the problem of serial correlation, we will depend on the random effects estimator with Driscoll and Kraay standard error.

The results of the random effect model with Driscoll and Kraay Standard Error are similar to the origin model (Random effect regression model).



**Table 6.5: Random Effect Estimator with Driscoll and Kraay****Standard Error**

<b>Independent variables</b>	<b>Coefficient</b>	<b>p-value</b>
Log G	0.901015	0.000
FDI	1.22E-11	0.000
SE (gross)	-0.00097	0.450
DCPS ( as % of GDP)	-0.0005	0.301
FDI*SE	-1.28E-13	0.000
Constant	2.055361	0.000
Number of obs	75	
Number of groups	5	
Wald <i>chi</i> <sup>2</sup> (5)	10827.69	
Prop > <i>chi</i> <sup>2</sup>	0.000	
Overall R2	0.9786	
Sigma_u	0	
Sigma_e	0.01844114	
Rho	0	

## 6.4 Hausman Test

To decide between the two models (fixed or random) with Driscoll and Kraay Standard Error, the test of Hausman was conducted that basically tests whether the unique errors ( $u_i$ ) are correlated with the regressors (predicted variables), the null hypothesis is they aren't (the preferred model is random effects).

According to the test results, we cannot reject the null at 5% level of significance since the p-value of the test is about (0.96) that exceeds 5%. Thus, we can conclude that the preferred model is the random effect estimation.

*Table 6.7: Hausman Fixed Random Test*

	(b) Fixed	(B) Random	(b-B) Difference	sqrt v_B))	(diag(V_b- S.E.
Log G	1.024567	0.9010147	0.1235527	0.0669132	
FDI	-4.37E-13	1.22E-11	-1.26E-11	.	
SEgross	0.0001986	-0.000975	0.0011733	.	
DCPSofGDP	0.0004149	-0.000505	0.0000896	.	
FDISE	1.08E-14	-1.28E-13	1.39E-13	.	

b = consistence under H0 and Ha; obtained from xtsc

B = inconsistency under H0, efficient under Ha; obtained from xtsc

Test: H0: difference in coefficient not systematic

$$\begin{aligned} Chi^2 (3) &= (b-B)' ((V_b-v_B)^{-1}) (b-B) \\ &= 0.31 \end{aligned}$$

$$\text{Prob} > Chi^2 = 0.9582$$

## 6.5 The Estimation Model

According to the results in the previous sections, this study will depend on the model of random effect estimator with Driscoll and Kraay Standard Error as in the below table 6.8.

*Table 6.6: Random Effect Estimator with Driscoll and Kraay*

### *Standard Error*

<b>Independent variables</b>	<b>Coefficient</b>	<b>p-value</b>
Log G	0.901015	0.000
FDI	1.22E-11	0.000
SE (gross)	-0.00097	0.450
DCPS ( as % of GDP)	-0.0005	0.301
FDI*SE	-1.28E-13	0.000
Constant	2.055361	0.000
Number of obs	75	
Number of groups	5	
Wald <i>chi</i> <sup>2</sup> (5)	10827.69	
Prop > <i>chi</i> <sup>2</sup>	0.000	
Overall R2	0.9786	
Sigma_u	0	

Sigma_e	0.01844114
Rho	0

According to the results in table 6.2 above, at 5% level of significance we reject the null as there is no relationship between government expenditures and the GDP in the five selected countries. Hence, there is an indication of the presence of a positive effect for government expenditures on the GDP. The aforementioned figures can be explained as government expenditures rises by 1%, the GDP will increase by 0.9%. This result is compatible with the Keynesian theory. The second variable that positively affects the GDP is the FDI, which according to the results in table 5.2 above rejects the null as there is no relationship between the FDI and the GDP in the five selected countries. The results can be interpreted as the FDI increases by \$ 1 million, the GDP will increase by about 0.0012%. These results support the previous findings of most of the literature that concludes the same results as the studies of Koojaroenprasit (2012), Choe (2003), Hansen & Rand (2006), Dritsaki, Dritsaki, & Adamopoulos (2004), and Wodajo, E. T. (2012).

Another important result from table 5.2 above is that there is a significantly negative effect at 5% level of significance for the interaction variable between the FDI, the school enrollment and the

GDP. This means that the rise of in the school enrollment decreases the positive effect of the FDI on the GDP. This result can be concluded from the fact that the concentration of the FDI is in the manufacturing sectors that do not need skilled labor. For example, the manufacturing sector during the past 15 years in Turkey has attracted the highest amount of the FDI, which most manufacturing goods are textiles, cotton and wool that does not need skilled labor. The same scenario is in Mexico and Egypt, the FDI reached at 45% and 43%, respectively in manufacturing sector in 2017 (UNCTAD, 2018). It can also be said that when more students go to schools, the needs for the FDI from skilled and unskilled labor offsetting by labors from abroad in the short run, which will decrease the positive effect of the FDI.

The researcher has also concluded an insignificant relationship between the human capital represented by school enrollment and GDP at 5% level of significance, and this result can be biased and robust for an alternative data sources and specifications. These results and justifications are compatible with Benhabib & Spiegel (1994), and may have resulted from the fact that the countries are not developed enough to benefit from their skilled labor.

Moreover, the researcher has come up to the conclusion that the relationship between financial development presented by domestic credit to private sector and the GDP is insignificant one at 5% level of significance. According to Cecchetti & Kharroubi (2012), more financial development is not always better; it is believed that at a certain point of more enlargement of the financial development, it can reduce growth. Because of that, the financial sector just like the rest of the sectors in the economy is competing for economy resources, since it requires physical capital, like buildings, computers and skilled workers. Additionally, more credit to private sector could be harmful to the economic growth, according to Coffinet et al. (2016), the effect of consumer credit on domestic growth depends on the structure of expenses; thus when the expenses of loans go towards imports, the consumer credit may boost imports rather than domestic credit.

## **Chapter Seven: Conclusions and Policy Implications**

There has been an ongoing debate among economists and policymakers, at an international level, whether the FDI enhances the hosting country economic growth. This thesis fundamentally examines the positive effect of FDI on the economic growth of a specific country, as well as it discusses the effect through two channels that include the inflow of capital and technology spillovers.

The empirical part of the thesis attempts at verifying whether the inflow of the FDI affects the economic growth. The research is willing to perform a panel data analysis on a dataset of five economies, which are Turkey, India, Brazil, Mexico and Egypt over the period between 2003 and 2017. By finding out that, the inflow of the FDI has a positive impact on the host country economic growth. It is worth mentioning that the thesis can contribute, on the macro level, to various outcomes of the existing empirical studies.

The study has benefited from the panel unit root test (Levin-Lin-Chu Test) as to check for stationary of variables. The results show that all the variables are stationary at level, so there is no need to apply the co-integration test to see the long run relationships between these variables. Moreover, the researcher has adopted the Hausman test to

choose between random and fixed models. Furthermore, the researcher has used the descriptive analysis to describe the movement of the FDI for each country. As a result, the findings support the neoclassical and growth theory about the positive effect of the FDI through spillover effect, technological progress and capital accumulation. Whereas the FDI increases by \$ 1 million, the GDP shows an increase by about 0.0012%.

The interaction variable among the FDI, the school enrollment and the GDP is significantly negative, which means that increasing in school enrollment decreases the positive effects of the FDI on the GDP due to an orientation of the FDI in manufacturing sector that does not need skilled labor. Therefore, the government should take this point into consideration when they set policies to guide the FDI in accordance with their needs.

The governments of the five selected countries should promote policies that can attract the inflow of the FDI as well as set policies that guide the FDI into specific types of country fields that are able to affect the overall economy. Not all of the FDI should be treated the same because different types of investment have different effects on a specific country. Therefore, the trick is to attract quality FDI that



contribute to the creation of jobs and facilitate the knowledge and technology transfer. For example, the government can reduce tax for the sectors that need; they can also give spatial privileges and restrict the sectors in the face of the FDI that would harm the domestic investment.

The following policies can promote inward FDI:

Establishing well-functioning investment promotion agencies (IPAs) to attract inward investment and ensure they operate smoothly. A successful IPA should become the link between suitable the FDI and domestic investment. It should perform the following:

To conduct a SWOT analysis for itself and for the city: Identifying strengths and weaknesses, opportunities and threats.

To identify investment opportunities.

To develop a promotion strategy for a sector based investment, identifying and evaluating target sectors that need development.

To develop an investment profile to seize the opportunity based on research of markets, supply and demand factors and competition.

To set investment targets to evaluate and monitor success.

To follow up investment and engage in after-investment care to expanding and encouraging existing foreign investment.

Marketing and online promotion: the IPA should market the investment opportunities in its country through newsletter, online websites and instruments of new mediation attracts foreigners.

Open market: to reduce restrictions on FDI; to provide dependable condition for all firms, including: access to imports, protection of intellectual property rights, ease of doing business and relatively flexible labor market.

Making international agreements that facilitate the attraction of the FDI, such as bilateral investment treaties (BITs) and GATT/WTO agreements that aim to give more protection to foreigners.

Creation of environment based on the individual freedoms, values of diversity, and self-expression to be attractive to professionals and creative people, especially of the IT sector.

**References:**

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and Economic Growth: The Role of local Financial Markets. *Journal of international economics*, 64(1), 89-112.

Almfraji, M. A., & Almsafir, M. K. (2014). Foreign Direct Investment and Economic Growth literature review from 1994 to 2012. *Procedia-Social and Behavioral Sciences*, 129, 206-213.

Anselin, L. 2001. Spatial Econometrics. In A Companion to Theoretical Econometrics, ed. B. H. Baltagi, 310–330. Oxford: Blackwell Scientific Publications.

Ayanwale, A. B. (2007). FDI and Economic Growth: Evidence from Nigeria. *Africaportal*.

Azman-Saini, W. N. W., Law, S. H., & Ahmad, A. H. (2010). FDI and Economic Growth: New Evidence on the Role of Financial Markets. *Economics letters*, 107(2), 211-213.

Balcha, T. D. (2011). *Sources of Economic Growth in Selected Countries: A Time Series Empirical Analysis, 1981-2009* (Master's thesis).

Baltagi, B. (2001). *Econometric Analysis of Panel Data*. John Wiley & Sons, Chichester.

Baum, C. F. 2001. Residual Diagnostics for Cross-Section Time-Series Regression Models. *Stata Journal* 1: 101–104.

Belloumi, M. (2014). The Relationship between Trade, FDI and Economic Growth in Tunisia: An Application of the Autoregressive Distributed Lag Model. *Economic systems*, 38(2), 269-287.

Bengoa, M., & Sanchez-Robles, B. (2003). Foreign Direct Investment, Economic Freedom and Growth: New Evidence from Latin America. *European journal of political economy*, 19(3), 529-545.

Benhabib, J., & Spiegel, M. M. (1994). The Role of Human Capital in Economic Development Evidence from Aggregate Cross-Country Data. *Journal of Monetary economics*, 34(2), 143-173.

Bergsten, C. F., Horst, T., & Moran, T. H. (1978). American Multinationals and American Interests. *Washington, DC*.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does Foreign Direct Investment affect Economic Growth? *Journal of international Economics*, 45(1), 115-135.

Breusch, T., and A. Pagan. 1980. The Lagrange Multiplier Test and its Application to Model Specification in Econometrics. *Review of Economic Studies* 47: 239–253.

Cecchetti, S. G., & Kharroubi, E. (2012). Reassessing the Impact of Finance on Growth.

Chen, C., Chang, L., & Zhang, Y. (1995). The Role of Foreign Direct Investment in China's Post-1978 Economic Development. *World development*, 23(4), 691-703.

Choe, J. I. (2003). Do Foreign Direct Investment and Gross Domestic Investment Promote Economic Growth? *Review of Development Economics*, 7(1), 44-57.

Dritsaki, M., Dritsaki, C., & Adamopoulos, A. (2004). A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth for Greece. *American Journal of applied sciences*, 1(3), 230-235.

Drukker, D. (2003) "Testing for Serial Correlation in Linear Panel-Data Models". *The Stata Journal*, Vol. 3, No. 2, pp. 168–177.

Engle, R. F., & Granger, C. W. (1987). Co-integration and Error Correction: Representation, Estimation, and Testing. *Econometrica: journal of the Econometric Society*, 251-276.

Findlay, R. (1978). Relative Backwardness, Direct Foreign Investment, and the Transfer of Technology: A Simple Dynamic Model. *The Quarterly Journal of Economics*, 92(1), 1-16.

Globerman, S., & Shapiro, D. M. (1999). The Impact of Government Policies on Foreign Direct Investment: The Canadian Experience. *Journal of International Business Studies*, 30(3), 513-532.

Gwartney, J., Stroup, R., Sobel, R. & Macpherson, D., (2013). *Economics: Private and Public Choice*. Cengage Learning, Nelson Education, Canada.

Hansen, H., & Rand, J. (2006). On the Causal Links between FDI and Growth in Developing Countries. *World Economy*, 29(1), 21-41.

Hassen, S., & Anis, O. (2012). Foreign Direct Investment (FDI) and Economic Growth: An Approach in Terms of Cointegration for the Case of Tunisia. *Journal of Applied Finance and Banking*, 2(4), 193.

Hoechle, D. (2007). Robust Standard Errors for Panel Regressions with  
with Cross-  
Sectional Dependence. *The Stata Journal*, 7(3), 281-312.

Hsiao, C. (2014). *Analysis of Panel Data* (No. 54). Cambridge university press.

Investment Climate Statements (2018). Bureau of Economic and Business Affairs.

Investment Climate Statement (2015). Accessed on Apr 22, 2019 from: <https://www.state.gov/documents/organization/241704.pdf>.

Coffinet, Jérôme, Devost, Geoffrey, Ghorbel-Karker, Chourouk & Jadeau, Christophe (2016). *Does Consumer Credit Support Domestic Growth or Imports? Evidence from France*. Working paper, afse, 99326 document.

Karimi, M. S., & Yusop, Z. (2009). FDI and Economic Growth in Malaysia.

Kojima, K. (1975). International Trade and Foreign Investment: Substitutes or Complements. *Hitotsubashi Journal of Economics*, 16(1), 1-12.



Keynes, M. (1936). *General Theory of Employment, Interest and Money*. Macmillan, London. As in Desmond, N., Titus, O., Timothy, O., Odiche, N. (2012). "Effects of Public Expenditure on Economic Growth in Nigeria: A Disaggregated Time Series Analysis". *International Journal of Management Sciences and Business Research*, Vol.1, Issue 7.

Koojaroenpravit, S. (2012). The Impact of Foreign Direct Investment on Economic Growth: A Case Study of South Korea. *International Journal of Business and Social Science*, 3(21).

Kudina, A., & Jakubiak, M. (2012). The Motives and Impediments to FDI in the CIS. In *EU eastern neighborhood* (pp. 71-82). Springer, Berlin, Heidelberg.

Li, X., & Liu, X. (2005). Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship. *World development*, 33(3), 393-407.

Lucas Jr, R. E. (1988). On the Mechanics of Economic Development. *Journal of monetary economics*, 22(1), 3-42.

Makki, S. S., & Somwaru, A. (2004). Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries. *American Journal of Agricultural Economics*, 86(3),

Meena, K.K., & Singh, D.M. (2015). Foreign Direct Investment Inflow in India.

Motta Veiga, P. (2004). Foreign Direct Investment in Brazil: Regulation, Flows and Contribution to Development. *International Institute for Sustainable Development*, 7(28), 05.

Mullor-Sebastian, A. (1983). The Product Life Cycle Theory: Empirical Evidence. *Journal of International Business Studies*, 14(3), 95-105.

Myftar Kida, N. (2014). Foreign Direct Investment Environment and Economic Growth. *Acta Universitatis Danubius. Œconomica*, 10(4).

Nair- Reichert, U., & Weinhold, D. (2001). Causality Tests for Cross- Country Panels: A New look at FDI and Economic Growth in Developing Countries. *Oxford bulletin of economics and statistics*, 63(2), 153-171.

Nell, C., & Zimmermann, S. (2011). Summary Based on Chapter 12 of Baltagi: Panel Unit Root Tests. *PhD-Course: Panel Data, Vienna*, 2-8.

Nkechi, O. A., & Okezie, O. K. (2013). Investigating the Interaction between Foreign Direct Investment and Human Capital on Growth: Evidence from Nigeria. *Asian Economic and Financial Review*, 3(9), 1134.

Pesaran, M. H. 2004. General Diagnostic Tests for Cross Section Dependence in Panels. University of Cambridge, Faculty of Economics, Cambridge Working Papers in Economics No. 0435

Phillips, P. C., & Ouliaris, S. (1990). Asymptotic Properties of Residual Based Tests for Cointegration. *Econometrica*, 58(1), 165-193.

Pitelis, C. and Sugden, R. (editors) (2000): “The Nature of the Transnational Firm”,

<http://books.google.com/books?id=mXjeiQYR088C&printsec=frontcover#v=onepage&q=&f=false>

Romer, P. M. (1986). Increasing Returns and Long-Run Growth. *Journal of political economy*, 94(5), 1002-1037.

Sahoo, P. (2014). Making India an Attractive Investment Destination: Analyzing FDI Policy and Challenges. *The National Bureau of Asian Research*.

Sun, S. L., Peng, M. W., Ren, B., & Yan, D. (2012). A Comparative Ownership Advantage Framework for Cross-Border M&As: The rise of Chinese and Indian MNEs. *Journal of World Business*, 47(1), 4-16.

Tang, S., Selvanathan, E. A., & Selvanathan, S. (2008). Foreign Direct Investment, Domestic Investment and Economic Growth in China: A Time Series Analysis. *World Economy*, 31(10), 1292-1309.

Uwubanmwun, A. E., & Ogiemudia, O. A. (2016). Foreign Direct Investment and Economic Growth: Evidence from Nigeria. *International Journal of Business and Social Science*, 7(3), 89-103.

Wodajo, E. T. (2012). *Foreign Direct Investment and its Relationship with Growth and Export in Ethiopia* (Doctoral dissertation, a thesis submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Regional and Local Development Studies, Addis Ababa University, Ethiopia).

Xiao, Q. F., & Dickie, P. M. (2000). The Contribution of Foreign Direct Investment to Growth and Stability. *ASEAN Economic Bulletin*, 17(3), 312-23.

## Annex

### Unit Root Tests

```
. xtunitroot llc logG, lags(aic 10)

Levin-Lin-Chu unit-root test for logG
-----
Ho: Panels contain unit roots           Number of panels =      5
Ha: Panels are stationary                Number of periods =     15

AR parameter: Common                     Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 0.40 lags average (chosen by AIC)
LR variance:     Bartlett kernel, 7.00 lags average (chosen by LLC)
-----
```

	Statistic	p-value
Unadjusted t	-2.2703	
Adjusted t*	-1.8064	0.0354

```
. xtunitroot llc FDI , lags(aic 10)

Levin-Lin-Chu unit-root test for FDI
-----
Ho: Panels contain unit roots           Number of panels =      5
Ha: Panels are stationary                Number of periods =     15

AR parameter: Common                     Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 0.40 lags average (chosen by AIC)
LR variance:     Bartlett kernel, 7.00 lags average (chosen by LLC)
-----
```

	Statistic	p-value
Unadjusted t	-6.0919	
Adjusted t*	-4.2153	0.0000

```
. xtunitroot llc SEgross ,trend lags(aic 10)
```

Levin-Lin-Chu unit-root test for SEgross

---

Ho: Panels contain unit roots                      Number of panels =        5  
Ha: Panels are stationary                            Number of periods =     15

AR parameter: Common                                Asymptotics: N/T -> 0  
Panel means: Included  
Time trend: Included

ADF regressions: 0.00 lags average (chosen by AIC)  
LR variance:        Bartlett kernel, 7.00 lags average (chosen by LLC)

---

	Statistic	p-value
Unadjusted t	-5.4817	
Adjusted t*	-2.9392	0.0016

---

```
. xtunitroot llc DCPSofGDP , lags(aic 10)
```

Levin-Lin-Chu unit-root test for DCPSofGDP

---

Ho: Panels contain unit roots                      Number of panels =        5  
Ha: Panels are stationary                            Number of periods =     15

AR parameter: Common                                Asymptotics: N/T -> 0  
Panel means: Included  
Time trend: Not included

ADF regressions: 0.80 lags average (chosen by AIC)  
LR variance:        Bartlett kernel, 7.00 lags average (chosen by LLC)

---

	Statistic	p-value
Unadjusted t	-3.8165	
Adjusted t*	-3.1338	0.0009

---

```

. xtunitroot llc logGDP , lags(aic 10)

Levin-Lin-Chu unit-root test for logGDP
-----
Ho: Panels contain unit roots           Number of panels =      5
Ha: Panels are stationary                Number of periods =    15

AR parameter: Common                    Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 0.60 lags average (chosen by AIC)
LR variance:     Bartlett kernel, 7.00 lags average (chosen by LLC)
-----

```

	Statistic	p-value
Unadjusted t	-2.5904	
Adjusted t*	-2.3619	0.0091