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Egypt?

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### **Abstract**

Foreign Direct Investment (FDI) is usually considered an important catalyst for economic growth in developing countries. FDI plays an important role in transferring technology from developed to emerging economies, it also stimulates domestic investments and enhances human as well as physical capital in the host countries. This paper also aims at identifying the effect of FDI on the Egyptian economy. The analysis is carried out using an OLS regression model with three variables. Time series data for FDI inflows, gross capital formation (GCF) and labor force (LF) were gathered for Egypt over the period 1990-2014. After gathering the results of both the single and multiple regressions, some policy recommendations are suggested to enhance and maximize the effect of FDI on economic growth in Egypt.

**Keywords:** Economic Growth, Egypt, Developing countries, Foreign Direct Investment

**JEL classification:** F21, F43, O40, O55

Soheir Tarek  
GUC Graduate  
soheir.mahmoud@student.guc.edu.eg

Hebatallah Ghoneim  
Economic lecturer  
German University in Cairo  
Faculty of Management Technology  
Al Tagamoa Al Khames  
11835 New Cairo – Egypt  
hebatallah.ghoneim@guc.edu.eg

## **1 Introduction**

Developing countries are underprivileged. They suffer from low income per capita and poor growth in the gross domestic product (GDP). The general living standard for the majority of citizens is unfortunate and poverty levels are disturbing. In addition, lack of capital is a common problem in these countries as savings are of insufficient levels resulting in low capital formation. As for employment opportunities, they are usually concentrated in urban areas due to the higher level of education and diversity of economic activities. While rural areas depend mostly on agriculture, traditional crafts and simple forms of trade.

In the past, trade has always been the primary factor that connected national economies in request to make a global economy and promote growth. However over the last few decades, Foreign Direct Investment (FDI) has become the equivalent component to trade and one of the main drivers of economic growth. Economic theories suggest that international capital flows should improve the allocation of resources and consequently encourage growth. In fact, FDI is an essential instrument to spread technology from the most to the least developed countries because it causes positive externalities and spillover effects. It also helps to increase human capital formation and productivity among firms as well as to foster integration through international trade. These are the main reasons that make developing countries seek FDI inflows in order to enhance their economic environment and develop (Kok & Acikgoz, 2009). For the last 40 decades, Egyptian policy makers have been setting incentives to attract foreign direct investment starting with Open door policy in 1974, then financial liberalization policy in 1994, followed by Economic and structural adjustment program in 2000s. In general these policies have been working modernizing and liberalizing the financial market, opening the Egyptian market to the world and decreasing government control. Lately, the government started to set policies that decrease bureaucracy and red tape such as one stop shop for investor. Egypt owns other important determinants of FDI such as large market and cheap labor. All that succeeded in attracting FDI in the last two decades with a peak \$11.5 billion in 2006, which nearly 9% of GDP (World Bank database). When compared to other countries in North Africa at a similar level of develop in terms of the amount of FDI per GDP, Egypt is higher than the progress attained in the region during the period 1990 TO 2010. However, this level of FDI inflows decreased massively after 2011 revolution due to political instability.

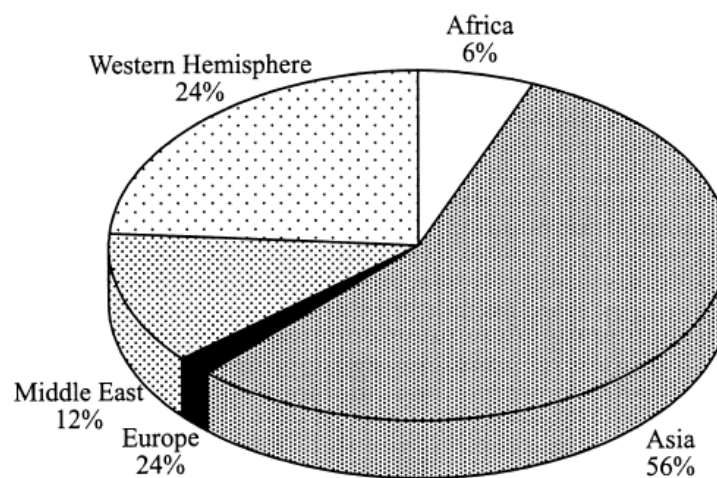
The question is how far such increased in foreign direct investment contributed in creating economic growth GDP in Egypt which an under researched country in an under researched region. This paper will start by overview some of literature that shows the debate of the impact

of FDI in developing countries. Next part will concentrate on analyzing detailed data analysis about the effect of FDI on economic growth in Egypt specifically. Finally, the conclusion and policy recommendations.

## 2 Empirical Impact of FDI: Between Positive and Negative

Rogmans & Ebbers (2013) and Protsenko (2004) basically defined FDI as an investment made by an entity of a certain nationality in a foreign host country. They also mentioned that FDI is one of the three international capital outflows components besides portfolio investment and other flows like bank loans. Another definition presented by the international monetary fund (IMF) is that FDI involves a long-term relationship between foreign investors who are interested in enhancing the economic status in a host country (Al.Shawaf & Al.Msafir, 2016). Figure 1 below represents the distribution of FDI between developing countries over the period from 1983 till 1990.

**Figure 1:** The geographical distribution of FDI inflows in developing countries



**Source:** Amirahamdi & Wu 1994: 173

FDI is important for developing countries since it is a method to fill the saving, foreign-exchange, revenue and Management gaps. Since developing countries suffer low saving rate in comparison to the investment needed in the country, FDI comes as solution to fill this gap thus expand employment opportunities as well as taxes collected. In addition, FDI is used to alleviate the deficit in current account that most developing countries suffer. It is the source of exchange rate that can be used to attain imports. This in addition to the knowhow gains that

spill over with FDI. When a multinational company open a new branch, it does not only provide new funds but also new management structure, new financial reporting system, new skills, new technology and introduce managerial experience. Respectively, FDI impact on economic growth is in the short run through increasing employment. On the other, FDI could be a tool to widen the four gaps, since foreign investment would crowd out local investors, demand on foreign currency as well as entrepreneur opportunity. Local producers might not be able to compete against MNCs, respectively domestic firms would shut down, respectively offsetting the positive impact of FDI on growth. In addition, MNCs would crowd domestic investors in seeking loans from domestic financial sector. Moreover, MNCs care mainly about transferring their profits to the home country, respectively, they have to transfer the sales revenues from domestic currency to foreign currency which pressure the demand on foreign currency rather than provide it. Vast literature tried to show how far foreign direct investment contributed to accelerating FDI, since its net impact depends on the country ability to maximize positive impact and decreases the negative impact (Todaro and Smith, 2011).

Throughout the literature review, scholars have argued that FDI had mixed effects on the host country's economy. Haddad & Harrison (1993) and Hanson (2001) conducted studies that showed the delicate relation between FDI inflows and productivity in developing countries. MNCs exhibit high levels of productivity; however, the total growth rate of domestic firms might not be affected. That is why it could not be generalized that FDI promotes absolute higher productivity and growth in the host industries. This could be explained through the technology gap, which is the level of difference between the foreign and host countries regarding their levels of technology. If the gap is too wide, the host country might not be able to adopt the technological practices introduced by the MNC. As a result, costs can dramatically increase due to conducting intensive trainings and courses to the host labor to be able to grasp the new knowledge. This will possibly lead to losses before having any positive spillovers on productivity and growth.

Blomström & Kokko (2003) stated that the technological spillover was effective in certain industries, while in others, there was little or no effect at all. Moreover in the OECD Report (2002), it was mentioned that FDI reduces a firm's balance of payment as the majority of profits are sent to the mother company abroad. This will have a negative effect on the host country's GDP of course. To add more, the relations between the MNC and domestic suppliers and partners might also be jeopardized. As a result, problems can arise when launching new

subsidiaries, in other words, the risk of not being able to create further HFDI and VFDDI. Other negative FDI effects include environmental pollution. Certain industries, such as steel, cement and other construction related businesses, emit toxins and harmful substances in the air or water. Although these industries significantly contribute to the host country's economic growth; however, the increased pollution increases mortality rates and causes public health to decline. Finally, the wide spread of MNCs may cause other domestic firms to shut down due to the unfair competition resulting from the technological gap and lack of resources. As a result, local investors will be demotivated to make further investments in the economy due to the increase in market entry barriers and the lack of capabilities to face foreign competition (Agosin & Machado, 2005).

Akbar, Elms, & Dhakar (2006) and Abdel Aal (2010) related the positive impacts of FDI in host countries to two main effects. First, inward FDI to the recipient country enhanced the stock of physical and human capital and thereby elevated microeconomic efficiency. Second, income per capita increases which leads to more consumption and investments in capital stock that also leads to economic growth. FDI inflows have a direct effect on the host country through creating new job opportunities. Indirect effects are present through the common links between the domestic and foreign firms. In 1997, FDI created over 26 million jobs in developing countries. Indirect jobs had a multiplier of 1.6 (each direct job created 1.6 indirect jobs) leading to a significant decrease in poverty levels since wage levels rise and GDP improves due to increased productivity (Abdel Aal 2010:9). Wage level enhancement is referred to as wage spillovers. MNCs usually pay wages that are 14 times higher than those paid by domestic firms.

Abdel Al (2010) also mentioned, along with Lipsey & Sjöholm (2005) and Milberg (1990) that host economies benefited greatly from the technological spillovers. The introduction of new technologies by MNCs to host economies led to improved productivity and a reduction in the "idea gap", or lack of knowledge, between developing and developed countries. Technology transfer usually happens across four integrated stages:

1. Vertical spillovers that arise from the relationship between the suppliers of both the foreign country and host country. This results in the transfer of technological knowhow and work expertise. MNCs provide suppliers and labor in the host country with knowledge on how to enhance the quality of raw materials used in the manufacturing process, in addition to being more efficient through the use of advanced technologies. This usually happens through conducting training sessions and courses. Technological spillovers indirectly improve human capital in the host country which will be explained later.

2. Horizontal spillovers resulting from the interaction between mother companies and their corresponding global branches in host countries. Unfortunately, there was no clear consensus regarding this point to clarify how or why it occurred.
3. Transferring skilled labor from the foreign to the host country. These foreign skilled labor are usually referred to as expats, they range from blue-collar workers all the way up to managers.
4. The movement of R&D practices between developed and developing economies. R&D stands for research and development that refer to the analytical or investigative procedures a business conducts to improve existing products and services or to develop new ones.

As it was mentioned, FDI indirectly improves human capital in host countries. The training offered to labor and suppliers by MNCs broadens their knowledge which helps them develop. This will eventually lead to increasing the level of competition in the developing market as productivity will increase and the quality of goods and services will be greatly enhanced. In addition to proper resource allocation, this will make the production process more efficient thus decreasing costs and increasing profits (OECD Report, 2002). Moving on, according to the neoclassical growth theory, FDI increases the capital stock in host countries leading to higher economic development as a result of the increase in domestic savings (Freckleton, Wright & Craigwell, 2012). Finally, Larraín & Tavares (2004) confirmed that FDI is a key factor that helps in decreasing corruption in the host country. As mentioned earlier, corruption is widely spread in developing economies, but luckily, large FDI inflows help combat such serious issue. The ironic thing is that corruption is a major determinant that hinders a country's opportunity in receiving FDI. The opposite notion also holds, higher FDI inflows can significantly deter corruption.

This is a sample of the literature that tried to take part in the debate of the impact of FDI and this is the target of this paper as well through the analysis in next section.

### **3 FDI and Economic Growth in Egypt: Data Analysis**

The main objective of this paper is to examine the effect of FDI on GDP in Egypt while considering other variables; gross capital formation and labor force. In recent years, the country has been attracting the second-highest FDI inflows in North Africa after Angola. Since 2014,

FDI inflows in Egypt have risen by almost 50% due to expansions in the pharmaceutical, telecommunications and gas industries (AmCham, 2017).

For the given objective, a quantitative method has been applied; which is multiple-linear time series regression. The dependent variable is Egypt’s GDP measured in US dollars and the explanatory variables are FDI measured in US dollars, gross capital formation (GCF) measured as a percentage of GDP and labor force (LF) measured a percentage from the total population. The OLS regression method, as defined by Gujarati and Porter (2010), is a mathematical analysis that seeks to find the line of best fit for a certain data set. Each data point represents the relation between the independent parameters and the dependent variable, which is why this method is the most suitable for the research.

Time series analysis is conducted through the use of the previously specified data that were collected from the World Bank for the years ranging from 1990 to 2014 (24 years). A time series analysis is one that has a sequence of information in a certain order for a specified time range with the aim of investigating specific variables. A detailed description of the variables in the econometric model is provided in table 3 below.

**Table 1:** Description of the dependent and independent variables in the model

<b>Dependent Variable</b>	
<b>GDP</b>	It is the main indicator for economic growth; measures the volume of production within Egypt’s borders.
<b>Independent Variables</b>	
<b>FDI</b>	Measures the investment made by foreign entities from different nationalities in the host country (Egypt).
<b>GCF</b>	Measures the increase in the country’s assets and inventories at a certain period of time. Assets include plants, machinery, construction projects and inventories include “work in progress” and finished goods.
<b>LF</b>	Represents the fraction of the population from the age 15 and older that take part in producing goods and services in the economy.

**Source:** Constructed by the author based on the literature

Variables are chosen based on the below equation extracted from extended from Solow growth model:



$$\log GDP = \beta_0 + \beta_1 \log GCF + \beta_2 \log FDI + \beta_3 \log LF + \varepsilon$$

$\varepsilon$  represents the error or white-noise process. The model is called log linear because all the variables are linear in parameters and logged, the distinctive feature is that the betas ( $\beta$ ) of the explanatory variables measure the elasticity of the dependent variable. This is also called the constant elasticity model because the regression line will always be straight; hence, the elasticity will be constant at all times.

Imbens & Wooldridge (2009) mentioned that the use of logarithms had numerous advantages that usually lead to the desirable coefficient interpretations. Using a logarithmic form, the measurement unit of variables can be ignored as the slope coefficients are invariant to rescaling. Moreover, when  $y > 0$ , a model that uses  $\log(y)$  as the dependent variable is more likely to implement the central limit theorem (CLM) assumptions unlike one that uses just the value of  $y$  as it is. Furthermore, the log moves the data towards normal distribution which lessens heteroskedasticity or skewness by almost eliminating outliers or errors. The researcher carried a multiple regression analysis in an attempt to correlate FDI with economic growth and results are displayed in table 2.

**Table 2: Multiple Regression Results:**

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.840580536							
R Square	0.706575637							
Adjusted R Square	0.664657871							
Standard Error	0.158415269							
Observations	25							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	3	1.269041606	0.423013869	16.85623313	8.29895E-06			
Residual	21	0.527003345	0.025095397					
Total	24	1.796044951						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	2.355853187	4.505884027	0.522839286	0.606559033	-7.014645583	11.72635196	-7.014645583	11.72635196
X Variable 1 (GCF)	-2.214861102	0.506615818	-4.371875144	0.000267027	-3.268426367	-1.161295837	-3.268426367	-1.161295837
X Variable 2 (FDI)	0.232826532	0.069748733	3.338075433	0.003119482	0.087776102	0.377876961	0.087776102	0.377876961
X Variable 3 (LF)	5.578639122	2.824990497	1.974746155	0.061591108	-0.296250206	11.45352845	-0.296250206	11.45352845

**Source:** constructed by Author via Excel data analysis regression

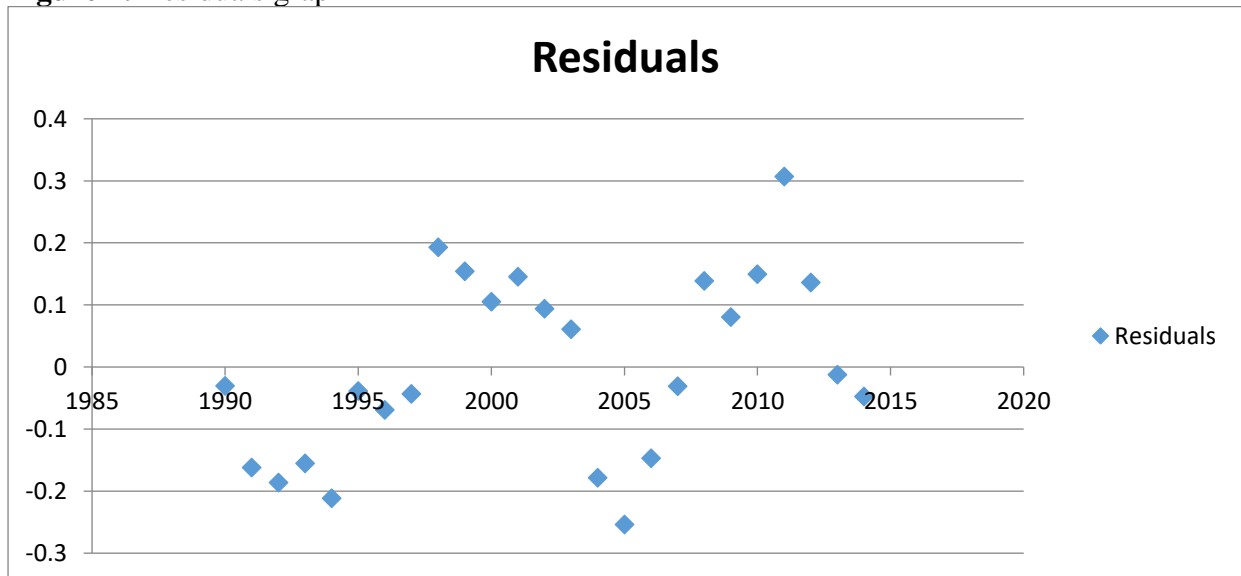
Results obtained from the multiple regression are displayed in table 8 above. The regression yielded an  $R^2$  of 70.66% for the whole model, which is almost 40% higher than the  $R^2$  of each single regression. This confirms that combining the three independent variables has a much higher effect on the GDP and a higher goodness of fit was achieved. The P-value for GCF, FDI and LF is 0.000267027, 0.003119482 and 0.061591108 respectively. GCF and FDI P-values

are significant at 1% while LF is significant at 5%; all variables are valid within the acceptable range mentioned earlier. The whole model achieved an F-statistic of 0.00000829895 indicating that it is significant at less than 1%. Thus testing the combined effect of the independent variables on GDP succeeded in achieving the highest confidence of 99% which confirms the significance of the results. Finally, it is now valid to write the model equation as follows:

$$\log GDP = 2.36 - 2.21 \log GCF + 0.23 \log FDI + 5.58 \log LF$$

It is obvious that LF has the highest effect on GDP where a 1% change in LF increases GDP by 5.58%, next comes FDI which affects GDP by only 0.23% and lastly, changes in GCF decreases GDP by 2.21%. Since the main objective of this paper is to test the effect of FDI on GDP some policies and recommendations will be suggested later that can amplify the effect of FDI in Egypt. These policies will also target GCF in order to change its effect from negative to positive so that the country can obtain the maximum benefit from all variables.

**Figure 2:** Residuals graph



**Source:** constructed by Author via Excel data analysis regression

Figure 2 above represents the residuals graph for the multiple regression with the time, in years, is on the X-axis and the residuals on the Y-axis. As displayed, residuals are scattered randomly which indicates that there is no autocorrelation. Autocorrelation, as defined by Gujarati & Porter (2010), is whether the error terms are linked over time or not. If they are linked, then the residuals will be grouped together and will display a specific trend (increasing or decreasing). If they are not linked, then residuals will not display a certain pattern which is the best scenario because this is an indicator that the estimators are not biased.

## **4 Findings and Policy Recommendations**

Egypt has various positive attributes that can successfully attract the interest of foreign investors including the wide abundance of labor at relatively low wages. The country needs to undertake effective promotion procedures to convince investors that their business contributions in Egypt are crucial and valued. This can be achieved through introducing investment incentives that compete with those offered by other countries in the region and the developing world. Egypt also needs to simplify regulatory practices and get rid of any inefficient routine work. Over the past decades, most developing economies including Egypt have gradually adopted more open policies towards FDI and this trend is likely to prevail in the future.

The general conclusion of this study is that FDI brings net benefit to Egypt. These benefits are necessary for integrating the domestic economy with the global economy especially in the area of technology and transfer of skills. According to the research conducted earlier, the effect of FDI is minor and the GCF is negative. Therefore, it is important for Egypt to attract more FDI flows to the country and reverse the GCF effect to positive in order to improve the country's overall conditions which include physical and human capital and boost economic growth. For this purpose, the paper recommends:

1. Simplifying the bureaucracy process within official entities: the country's governmental structure and procedures must be reorganized in order to become more efficient and less complicated in handling administrative procedures to encourage investors and facilitate their work. It is crucial to eliminate unnecessary red tape procedures, update the governing investment laws and implement the "one stop shop" process.
2. Developing human capital: the government and private sector should combine their efforts to develop the country's greatest asset, its people. This can be achieved by improving the quality of education through introducing courses and training programs targeted towards improving technical and management skills that are heavily required in the current industrial and business activities. Focus on modernizing and encouraging technical industrial education to develop skilled labor capable of coping with the modern business needs across various industries. It is crucial to note that the Egyptian population is young with the average age being 25 years, thus they are a significant asset to the vehicle of growth and development when properly trained and directed.
3. Amending business laws: it is vital for Egypt to tailor all business and investment related laws and regulations to fit today's globalization requirements.

4. Establishing industrial zones and improving the quality of infrastructure: developing new and modern industrial parks aid in attracting foreign investments through creating an encouraging work environment. The presence of ready infrastructure along with a secure investment climate act as a strong catalyst in attracting FDI and setting up lucrative projects.
5. Improving Egypt's global image: the government represented by the trade departments within the Ministry of Foreign Affairs and their offices across the world supported by the media should play an important role in promoting developments regarding the country's economy, society and future plans related to economic growth. Foreign investors should be made aware of the existing business climate in the country and the facilities that will be granted to them upon establishing projects. These image-building efforts are crucial to dispel the negative perceptions that have been persistent for some years and managed to drive away potential investments that could have greatly contributed to boosting Egypt's GDP and development. Moreover, such efforts will revive the tourism sector which used to contribute by one third of GDP.

It is highly guaranteed that upon putting the above policy recommendations into action, the effect of FDI on GDP will increase and the GCF influence will be reversed to positive; thus GDP will improve.

## **5 Conclusion**

To conclude, developing countries constitute around 80% of the global population. They face slow economic development and income per capita is low leading to increased poverty levels. Moreover they have very high population growth rates and bureaucratic governmental processes in comparison to developed countries. These conditions apply to the Egyptian economy; hence, the aim of this paper was to test how FDI can positively enhance the economic performance of the country, solving a significant part of the previous issues through boosting economic growth.

An econometric OLS regression model was used to test the single effects of FDI, GCF and LF on Egypt's GDP using simple regression. The outcome was that all explanatory variables positively affected economic growth but with a weak goodness of fit; thus multiple regression was used to test the combined effect of all three variables on the GDP. The new outcome displayed that LF had a higher positive effect on GDP rather than FDI while GCF had a

negative effect. For that reason, some policy recommendations were suggested to increase the effect of FDI on GDP and reverse the effect of GCF. Moreover, a few limitations were found after conducting the entire research. The data gathered was only for 24 years, which is not a wide enough time span; this could hinder the results' accuracy. Also, it is more preferable to increase the number of variables or to change their combination when carrying out further investigations regarding this topic in order to achieve even higher  $R^2$  values.

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