The Effect Of Foreign Direct Investment On Economic Growth In Jordan

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ABSTRACT

The aim of this study is to analyze the effect of Foreign Direct Investment on economic growth in Jordan during the period of 1976-2017. This study employs secondary quarterly data consisting of gross domestic product growth, Foreign Direct Investment, export, domestic investment, and labor force obtained from World Bank's website. Error Correction Model was applied in this study. This research emphasize the presence of long-run association links between the variables. The result of the analysis shows that foreign direct investment, domestic investment, and export have significant effects on economic growth in Jordan and that labor force has no significant effect on economic growth in the country. This study suggests expansion of human capital development and trainings for labor force through investments in education and training.

1. Introduction

The debate about the effect of Foreign Direct Investment (FDI) on economic growth and its impact on the economy has started since the beginning of the eighties of the last century, when FDI flow was widely

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prevalent in terms of size and direction (Iamsiraroj, 2016; Jumaily, 2005). Researchers and economists have given considerable attention to the relationship between FDI and economic growth. They believed that FDI plays an important role in economic growth and that capital transfer is good external source of financing especially in developing countries. It is a widely accepted argument that FDI enhances the economy (Melnyk et al., 2014; Erum et al., 2016).

In this context, FDI can play significant role in the Arab region. It increases domestic savings and employment generation and growth, pushes integration into the global economy, transfers modern technologies, and enhances efficiency and skill in the collection of local workforces. FDI is becoming more important based on the assumption that larger flow of capital will bring certain benefits to the economy (Soumia and Abderrezzak 2013). As a result, most developing countries recognize the potential of FDI, liberalize their investment regimes, and are engaged in promotion activities to attract various investments. Therefore, FDI flows to developing countries, started to pick up in the beginning of 1990s, are mostly the result of progressive liberalization of FDI policies in most of these countries (Louzi and Abadi, 2011).

Jordan has inadequate resources, is weak in natural asset, and is dependent on aid. According to the World Bank's classification, it is an upper-middle income country (UM). It has deficit in its trade balance and high unemployment rates. The service sector is the biggest economic sectors, but its industry is limited (Istaiteyeh and Ismail, 2015). Its FDI during the period of study varied from high to very low. This fluctuation is linked its economic and political stability (Mishal and Abulaila, 2007). Its FDI grew from USD 11.23 million in 1977 to USD 2,029 million in 2017 (World Bank, 2018). The end of the 1980s and the beginning of the 1990s witnessed the negative value of FDI.

Since the 1990s, Jordan has taken significant steps to reform its economy, and accordingly established inclusive financial, economic, and political reform programs. The goal is to shape a dynamic economy with extensive efforts to improve financial and political growth and stability (Bekhet and Matar, 2013). Improvement and enhancement in business environment were prioritized to unlock the potential for growth. Jordan is a country that realized the importance of FDI for economic growth. The government has enacted laws and legislation to create sound investment climate to attract foreign investment (Marwan, 2006; Bakir and Alfawwaz, 2009). As a result of those policies, a rise in the volume of FDI was gained, as shown by the statistics. Its FDI grew from USD 37 million in 1990 to USD 913.258 million in 2000 (World Bank, 2018). The highest FDI inflow was in 2006 (USD 3,544 million) (Figure 1).
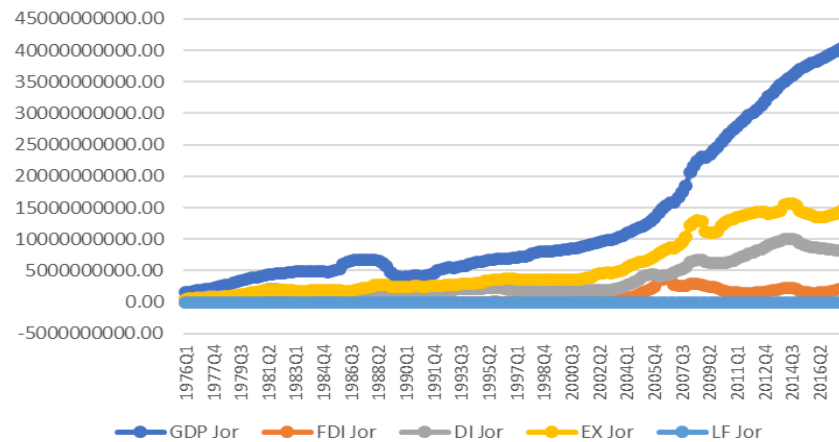
Source**:** World Bank, processed data, 2019

Figure 1 *Development of Jordanian EG, FDI, DI, LF*

The importance of FDI has increased the interest of measuring its impact on economic growth, involving independent agent or factors and variables that interact with using various models. Some studies confirmed the positive impact of FDI on economic growth, while others are doubtful about its effects on long-term growth. The most fundamental problem in the discussion is about the positive or negative impact of FDI on economic growth (Soumia and Abderrezzak, 2013; Almfraji & Almsafir, 2013; Ahmadi & Ghanbarzadeh, 2011). One study found the positive effect of high and new technology associated with those investments, which led to increased earnings from production factors and reduction of savings and investment gap (Elboiashi, 2015).

This research discusses the relation between FDI and economic growth by identifying the effect of FDI and other variables on economic growth. It also determines whether FDI contributes to GDP growth. This objective will be achieved by using World Bank's statistics.

The goal of this study is to analyze the effect of FDI on Jordanian Economic Growth through an empirical analysis by applying Error Correction Model (ECM) using quarterly data of 1976-2017 period. Accordingly, the main objective is to analyze the effect of FDI, labor force, domestic investment, and export on economic growth in Algeria and Jordan. This study is organized as follows. The second section is literature review, the third section presents data collection and research methodology, the fourth section analyzes the result of the study, and the last section provides conclusions
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2. Literature Review

2.1 Review on Theoretical Literature

Solow's neoclassical growth model and endogenous growth model emphasize the intensified competition between countries in attracting FDI

(Iamsiraroj, 2016). They provide the foundation for most empirical studies on FDI-growth relationship (Ozturk, 2007). Solow-Swan's neoclassical economic growth theory believes that the reason of income growth is technological progress, labor growth, and investment rate and that physical capital increase can improve economic growth. The model also suggests that technological development is the engine of growth (Olsson, 2013).

Actual investments are proven to be the major contributing factor for economic development and technological progress, as exogenously stated in the Neoclassical growth model (Ahmadi and Ghanbarzadeh, 2011). In the same context, Solow (1956), as one of the early pioneers in FDI theory, emphasized the crucial role of technological advancement as a specific investment to increase economic growth (Olsson, 2013; Mohammed et al., 2015).

According to Neoclassical thought, FDI plays a prominent role in stimulating economic growth and investment in the host countries. It emphasizes the importance of such investments to reduce the gap between saving and investment. Solow confirmed this idea by introducing work items and technological levels to the economic growth equation (Mohammed et al., 2015).

Solow's model concentrates on four variables: output (Y), capital (K), labor (L), and knowledge or effectiveness of labor (A). At all times, economy consists of three things, i.e. capital, labor, and knowledge, which are then combined to produce output (Romer, 2012). Furthermore, Solow (1956) stated that growth depends on savings, which can be used as an investment, and the investment will accelerate capital accumulation as a proposition to labor productivity and income in the model (Tiwari & Mutascu, 2011; Erum et al., 2016).

2.2 Review of Existing Empirical studies

The most fundamental problem in the discussion, based on the empirical studies, is about the impact of FDI on economic growth, either positively or negatively. Some studies found ineffective and negligible effects. Other studies found that the positive effect is the result of high and new technology associated with those investments, which increased production factors and reduce savings and investment gap. In addition, FDI can stimulate local investment in host countries and, eventually, economic growth (Ahmadi & Ghanbarzadeh, 2011; Ozturk, 2007).

The effect of FDI on economic growth has been widely analyzed, but the results are indecisive. For instance, Erum et al. (2016) analyzed the contribution of FDI on economic growth in SAARC countries using annual data from 1990 to 2014 and panel data model, finding that there is significant and positive relationship between FDI and economic growth in SAARC Countries .

Soumia and Abderrezzak (2013) analyzed the determinants of FDI and its impact on growth. They examined a panel data of AMU Countries during the period of 1980-2010 using the dynamic panel system, GMM estimator.

They found that FDI, in the long run, positively affects growth rate and improves the economic situation in Algeria, Morocco, and Tunisia. Moreover, Melnyk et al. (2014) investigated the impact of FDI on economic growth, in the case of post-communism transition economies, by employing Neoclassical growth theory model on a panel data of 26 countries during the period of 1998-2010. The finding is that FDI has a positive effectiveness on the economic growth of the host countries.

Belloumi (2014) examined the relationship between FDI, trade openness, and economic growth in Tunisia in the period of 1970-2008 using ARDL model. The result conclusion that there is no significant Granger bidirectional causality between FDI and economic growth, particularly in the short run. Similarly, Mohammed et al. (2015) examined the impact of FDI on Algerian economy through an observational examination during the period of 1970-2014 by applying ARDL and ECM-ARDL. They studied whether FDI affects Algerian macroeconomic factors non-hydrocarbon GDP, non-hydrocarbon export, industry, and employment. They came to the result that FDI is ineffective and presents a negligible effect on non-hydrocarbon exports, just as industry, in the short run. Over the long haul, the estimation utilizing cointegration analysis does not feature a dynamic connection between FDI and non-hydrocarbon economic growth.

Istaiteyeh and Ismail (2015) employed cointegration and Vector Error Correction on quarterly data from 2003 to 2013 to examine the causal relationship between FDI, economic growth and export in Jordan. They found that FDI, in the long run, has a negative effect on economic growth.

3. Data and Method

This study analyzes the effect of FDI on economic growth in Jordan. The model was tested on the data gathered quarterly from 1976 to 2017. The variable were collected from the publication and the databases of the World Bank.

Error Correction Model (ECM) was applied in this study. There are several stages of analysis, in which stationary test and cointegration test must be met. There are many studies using several specification regarding the relationship among FDI and economic growth. The model specification of this study was derived from Neoclassical growth model. The functional model can capture the relationship between the variables, as intended by this study. Based on the theory and literature about growth, the following model was taken.

$Y = f (FDI, LF, DI)$　　　　1

Where Y is Growth of Gross domestic product (GDP growth), FDI is Foreign Direct Investment, LF is labor force, and DI is Domestic Investment. To develop competitive economy, which depends on the quality of goods and services, and to increase the productivity of growth, export was added to the model.

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Y = ƒ **(FDI, LF, DI, EX)** **2**

The functional model shows the relationship between the variables of this research; the formula is as follows.

$Y_{it} = \alpha_0 + \alpha_1 \Delta FDI_{it} + \alpha_2 \Delta LF_{it} + \alpha_3 \Delta EX_{it} + \alpha_4 \Delta DI_{it} + + \varepsilon t.$

4. Results and Discussion

4.1 Stationary Test Result

Before estimating the ECM, we used Augmented Dickey-Fuller test for a unit root, and the stationary of each series was checked. The data stationarity test was performed using the unit root test with Augmented Dickey-Fuller. The data will be declared stationary if the ADF test significance value is lower than 0.05 ($p < 0.05$). The followings are the results of the stationarity test on the research variables consisting of GDP growth, FDI, labor force, domestic investment, and export. The DF and ADF results for the four variables included in the equation are presented in Table 1. The result shows that all variables are integrated order one. This means that the series are non-stationary in the first difference. The results also show that the series is also stationary in the second difference.

Table 1*. Summary of Augmented Dickey-Fuller Stationary Test Results*

Variable	ADF test (level) P Value	ADF test (first difference) P Value	ADF test (Second difference) P Value
GDP growth	0.9556	0.2359	0.0000
FDI	0.1468	0.0751	0.0000
LF	0.7606	0.1510	0.0000
DI	0.6011	0.2514	0.0000
EX	0.4001	0.7247	0.0000

4.2 Cointegration Test

Cointegration test aims to find out the cointegration relationship between dependent and independent variable. This study used Engle-Granger (EG), which regresses Δut (delta residual) with ut-1 (previous period residuals). The results of the cointegration test are presented in Table 2, which show the t-statistic value of -16,687. Since the value is smaller than the DF critical value of -3.45, it can be stated that there is a long-term effect or cointegration between the independent variables (FDI, labor force, domestic investment, and export) and the dependent variable (GDP growth).

Table 2. *Cointegration Test Results*

Variable	t-statistic	DF Critical Value	Result
Residuals of the previous period (u_{t-1})	-16.68746	-3.45	There is cointegration

4.3 Error Correction Model (ECM) Estimation

ECM estimation was done by regressing the dependent variable with the independent variable in the form of second difference and adding the residual from the previous estimation (see Table 3).

Table 3. *Estimation Result of Long-Term Effect*

Variable	Coefficient	t-statistic	Prob.	Significant
Constant	959495.7	0.089428	0.9289	Not Significant
Foreign Direct Investment (ΔFDI)	0.404366	4.633376	0.0000	Significant
Labor force (ΔLF)	-256.7741	-0.180705	0.8568	Not Significant
Domestic Investment (ΔDI)	0.303864	2.815417	0.0055	Significant
Export (ΔEX)	0.359813	7.311740	0.0000	Significant
u_{t-1}	-0.261733	-3.418654	0.0008	Significant
t-table R-square Adjusted R-square F-statistic Prob. F	1.975 0.576 0.562 43.145 0.000			

The results of the Error Correction Model (ECM) show that, in the long run, FDI, DI, and EX have a positive and significant effect on economic growth and that LF has no significant effect, with the significance value of lower than 0.05 (p <0.05). The results are confirmed by statistics test and p-values described in Table 3.

The result of the study indicates that FDI has a positive effect and significant effect on economic growth, as hypothesized by this study. The results indicate that 1 percent increase in FDI will increase economic growth for 0.404366 percent. This result is consistent with Behname (2012), Herzer (2010), and Soumia (2013).

According to the estimation above, labor force has no significance effect on economic growth. Statistically, if the result is not significant, having zero

impact on economic growth, because the P value (0.855) is bigger than the significance value (0.05). This finding is in line with the studies Belloumi (2014) and Vehapi et al. (2015). Labor force is not significant at 5% level, this is indicative of unemployment problem, where labor's productivity is low productivity and their development is still poor (Al-Muhtaseb, 2009) because the investment in human capital does not reach the required level and the marginal productivity of labor is low (Erum et al., 2016).

Domestic investment has a positive and significant effect on economic growth. The regression coefficient of 0.303864 means that one percent increase in domestic investment will increase economic growth for 0.303864 percent. This finding is consistent with the result of Behname (2012) and Elboiashi (2015).

The result also indicates that export has a positive and significant effect on economic growth, as hypothesized in this study. One percent increase in export will increase economic growth for 0.359813 percent. This finding is supported by Ahmadi & Ghanbarzadeh (2011) and Istaiteyeh & Ismail (2015).

5. Conclusion

This paper examines the effect of FDI on economic growth in Jordan during the period of 1976-2017 using Error Correction Model (ECM). FDI in Jordan gives a positive economic advantage. According to the results of this study, FDI accelerates the growth of Jordan economy. Domestic investment and export have positive effects and are considered as important factors for economic growth acceleration. Furthermore, labor force is not proven accelerating Jordanian economic growth. Labor productivity is low across the country. This is an unfortunate conclusion because it is unexpected. labor is considered as one of the production factors. Improvement in labor force's productivity should be the goal of the government.

Based on the findings, this study suggests that the government of Jordan must invest more in human capital and provide more trainings for labor. Investment in education can accelerate long-term economic growth in Jordan, and the government must update and revise their programs so that they can do better in managing and implementing appropriate policies directly affect economic growth.

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