

Foreign Direct Investment-Economic Growth Nexus

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Abstract: In this paper investigates the relationship between foreign direct investment and economic growth. On the one hand the effect of FDI on the economies of the MENA region, and, on the other hand, the impact of the economic growth of these countries on the attractiveness of FDI. Our objective, in this study, is to investigate the interrelationships between economic growth and FDI by using panel data models with simultaneous equations by Generalized Method of Moments (GMM) for the period 1998-2011. Our results show that there is bidirectional causality between economic growth and FDI. This implies that economic growth and FDI attractiveness are complementary. These empirical perspectives are particularly attractive to politicians because they help them build sound economic policies to sustain economic development and improve their level of attractiveness. This study aims to contribute to the exiting literature by determining the relationship between FDI and growth by three aspects: Firstly, few scientific papers treat this relationship only in the theoretical framework. Secondly, few scientific papers treat this relationship in the MENA region. Finally, previous studies had found that the nexus FDI-growth is mixed.

Keywords: Economic growth; FDI inflows; simultaneous equations models

JEL Classification: B22; C36; E22; F63

1. Introduction

Over the past two decades, increased globalization has generated strong growth in international activity and FDI. Developing countries are opening more and more financial flows and international exchanges in order to improve their growth and economic development and combat the challenges of this openness while producing an environment adapted to global competition in order to attract more foreign investment. FDI can active contribute to economic growth not only through capital inflows for the host countries, but also through technological contributions and expertise as well as access to new markets. These advantages conveyed by FDI often known as spillovers are linked to each other, and complementary, there are they should not be considered separately. Indeed, the gain generated by the FDI on a the

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growth factor can stimulate the development of other factors, increase the production rate, expand the volume of exports, and increase employment opportunities (Bende et al. 2003; Zhao and Du, 2007; Mastromarco, 2008; Christova-Balkanska, 2009; Lee and Chang, 2009; Vadlamannati and Tamazian, 2009; Bajo-Rubio et al. 2010; Soltani and Ochi, 2012).

In this context, a rich theoretical and empirical literature, which seeking to persuade the theoretical benefits of FDI on the economy of each country has expanded in recent decades (MacDougall, 1960; Bornschieer et al. 1978; Grossman and Helpman, 1991; Borensztein, Lipsey and Zejan, 1992; De Gregorio 1993; Borensztein, De Gregorio and Lee, 1998 ; Berthelemy and Demurger, 2000; Choe, 2003; Güner and Yılmaz, 2007; Massoud, 2008; Tiwari and Mutascu, 2010; Rogmans, 2011; Adeniyi et al. 2012).

The results found out by different authors are mixed. Some showed that there was no positive relationship between FDI and economic growth (Bornschieer et al 1978; Aitken and Harrison 1999; Bashir, 2001; Alfaro et al 2002; Effendi et al 2003; Carkovic and Levine 2005; Meschi, 2006; Massoud 2008). However, others found that FDI positively and significantly affects economic growth (Fry 1993; Obwana 1996; De Mello 1999; Zhang 2001; Bengoa et al 2003; Basu and Guariglia 2007; Türkcan et al 2008; JyunYi and Chih-Chiang 2008; Vu et al., 2008; Adams 2009; Wang, 2009; Anwar and Sun 2011; Agrawal and Khan 2011; Soltani et Ochi 2012; Adeniyi et al 2012; Belloumi 2014). They actually, identified the conditions that can help developing countries make full use of the, FDI potential benefits.

In this article, we analyzed the nature of the relationship between FDI and economic growth to see if it is important or not for the MENA region. The rest of the study is structured as follows: we will discuss the literature on FDI-economic growth relationship; then approach the main literature analysis problems. Finally, we will present the methodological structure of the study and the conclusion.

2. Literature Review

2.1. Theoretical Aspects

Like any other investment, FDI result in a capital contribution. In fact, next to labor and land, Smith (1976) deals with the accumulation of capital as a source of economic growth. In addition, the multiplier theory of Keynes (1936) proved that additional investment produces a multiplied effect on the level of production and employment.

The theories that treat FDI flows can be classified into three schools. For the school of dependence, foreign investment brings more disadvantages than advantages, and exhibits more negative than positive effects but only intensifies underdevelopment.

The modernization school (Saskia Wilhelms, 1998) considers FDI as a prerequisite and a catalyst for growth and sustainable development. Finally, the integration school or electrical theory of John H. Dunning (1980), which shows that three simultaneous benefits such as; volume, distribution and international structure of production of a multinational business depends on three main factors. They are the company's specific advantages (O = Ownership), its location in some countries (L = Location) and the internalization of transactions within the company (I = internalization) which are necessary for the foreign investment to be realized.

Regarding the neoclassical theory, the first theories of economic growth (Smith, 1776; Robert, 1798, Ricardo, 1817) emphasized the importance of the quantitative expansion of the production factors namely: capital and labour, the role of market growth in improving the efficiency and productivity of an economy, and the role of demand and multiplier effects of the increase in investment and exports. However, the assumption of diminishing returns to scale in the capital of Solow (1956) shows that the increase in the income per capital has an effect in the short term and the long-term growth rate which remains unchanged. Then, the limit of the neoclassical model is that it cannot account for the actual dynamics of the developed capitalist countries. In this way, the FDI will affect economic growth only in the short term, due to the fact that the law of diminishing returns to scale regarding FDI capital does not affect economic growth.

2.2. Empirical Aspects

In theory, there are several attempts to explain economic growth variables. As part of this article we have chosen FDI flows among these variables. In addition, empirically, these attempts to explain economic growth are numerous. For example; Seetanah et al. (2005) analyzed the impact of FDI on economic growth in 39 countries in sub-Saharan Africa using panel data for the period 1980-2000 using the Cobb-Douglas production function. The study found that FDI is a crucial part of the economic issue in the countries of sub-Saharan Africa. Moreover, a positive link is confirmed by the dynamic panel GMM estimation method. Ilhan et al. (2007) studied the impact of FDI on economic growth of Turkey and Pakistan during the 1975-2004 periods using the Granger causality technique. They found that the increase in GDP is caused by FDI in the case of Pakistan, while there is evidence of bidirectional causality between FDI and GDP in the context of Turkey. Remaining in the same wave, Sridharan et al. (2009) analyzed the causal relationship between FDI and economic growth in the BRICS countries during different periods using the (VECM) method.

The results suggest that there was a two-way causality between FDI and GDP for Brazil, Russia and South Africa, besides, FDI caused economic growth in India and China. Furthermore, through methods of simultaneous equations, Ruxanda Muraru

(2010) found evidence of a bidirectional link between both countries, which means that FDI inflows stimulate economic growth and, higher GDP attracts more FDI.

Nguyen and Nguyen (2007) identified two connection paths between FDI and economic growth in which FDI promotes economic growth and, in turn, economic growth is seen as a tool to attract FDI.

Moreover, in their study, Agrawal and Khan (2011) indicate that economic development depends on a favorable economic climate for their realization. In the absence of such a climate, the FDI can be against-productive and can frustrate rather than promote economic growth.

Turkcan et al. (2008) tested the endogenous relationship between FDI and economic growth using a panel data set for 23 OECD countries for the period 1975-2004. They declared that FDI and growth are mutually important determinants.

Nicet-Chenaf and Rougier (2009) studied the interactions between FDI and growth in a number of countries in the MENA region using a panel data model. Their results showed that FDI has no significant direct effect on economic growth, but plays an indirect role in growth through its positive effects on the formation of human capital and international integration. They explained these results by the relative weakness of FDI in these countries, which hinders the positive impact of FDI on growth.

Hossain and Hossain (2012) examined the causal relationship between FDI and GDP for Bangladesh, Pakistan and India in the period 1972-2008. The Granger causality results indicate that there is no causal relationship between GDP and FDI for Bangladesh and a unidirectional relationship found for Pakistan and India.

Tintin (2012) examined the extent to which FDI stimulates economic growth taking into account the level of development and the quality of the host country institutions using a panel data model with fixed effects for a sample of 125 countries for the period 1980-2010. The author used the index of economic freedom for the proxy of the quality of institutions in the host country. He found that FDI promotes economic growth both in developed and developing countries.

However, the significance of the effects of FDI on economic growth is not uniform in all the groups of countries. The index of economic freedom had a positive and significant effect on economic growth, which implies the importance of high-quality institutions for economic development.

On the other hand, Brewer (1991) showed that the relationship between FDI and economic growth is negative, which could be due to the lack of motivation of local enterprises to develop because of the preponderance of foreign companies.

However, others cannot find any influence of FDI on economic growth. This was proven, for example, by Crankovic and Levine (2000) using a panel of 72 countries

for the period between 1960 and 1995.

Like this work, it turns out that the studies that have been conducted to explain the relationship between economic growth and foreign direct investment are inconclusive. Nevertheless, one has the feeling that there is a tendency to authenticate the positive relationship between these two variables.

2.3. FDI flow to MENA countries

The link between foreign investment and economic growth has been a subject of great academic research in recent decades (Borensztein et al. 1998; Anwar and Sun, 2011; Soltani and Ochi, 2012) foreign direct investment (FDI) is a means of stimulating economic growth (Adams, 2009). Moreover, it allows human freedoms averaging peaceful and profitable exchanges and enhances (Chauffour 2011).

Similarly, Neuhause (2006) shows that there are three main channels through which FDI can influence technological change, improve capital stocks and boost economic growth. In addition, Ögütçü (2002) argues that FDI is a major catalyst for the development and integration of developing countries into the world economy. In general, the positive role of FDI on development is well documented. According for Chen (1992), FDI has a positive effect on economic growth in the host countries.

According to the OECD (2011), FDI can have more rapid effects on growth and job creation. The massive popular uprisings in Tunisia, Egypt, Libya, Syria and other parts of the Arab world are the latest manifestations of this universal quest for freedom. The figure (1) below shows that there are some improvements and increasing of FDI inflows in the MENA region. As seen on the chart, there is a slight increase in FDI inflows in this area during the 1980-2002 periods. However, the total amount of FDI received by the countries in the MENA region during the period 2002-2011 increased by more than five times, from 100,000.00 million in 2002 to over 700,000.00 million US dollars in 2011. In absolute terms, FDI in the MENA region is small but could nevertheless have a greater impact on the economies of these countries.

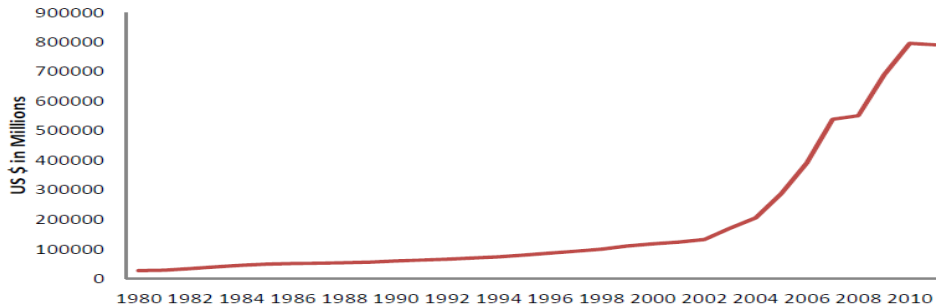


Figure 1. FDI Trends in MENA "1980-2011"

Source: <http://unctadstat.unctad.org>

3. The Estimation Method

We build a model consisting of two equations. The first explains economic growth (Barro, 2001; Borenztein et al. 1998), where the second explains the FDI (Forbes, 2000; Deininger and Squire, 1998 and Lyn Squire, 2003). These two equations are estimated by two-step GMM estimator. At the first step, we estimated the dependent variable of real GDP determinants, namely CPI, human capital, physical capital, working capital and instrumented the explanatory variable FDI instrumental variables are inflation, energy and institutional quality.

The second step, where the dependent variable is the FDI is explained by the variables, namely: inflation, energy, institutional quality and instrumenting the real GDP variable determinants that are written above.

The two links of paths between these variables are examined empirically using the following two simultaneous equations:

$$\ln \text{GDP}_{it} = \alpha_i + \beta_1 \ln \text{H}_{it} + \beta_2 \ln \text{L}_{it} + \beta_3 \ln \text{K}_{it} + \beta_4 \text{CPI}_{it} + \beta_5 \ln \text{FDI}_{it} + \mu_{it} \quad (1)$$

$$\text{IDE}_{it} = \alpha'_i + \delta_1 \ln \text{GDP}_{it} + \delta_2 \ln \text{IFLATION}_{it} + \delta_3 \ln \text{ENERG}_{it} + \delta_4 \text{IQ}_{it} + \varepsilon_{it} \quad (2)$$

The index $i = 1 \dots N$ denotes the country and $t = 1 \dots T$ is the period of time.

4. Empirical Results

The objective of this part is to investigate the direction of economic growth and FDI in 12 countries in the MENA region. To do this, we used the instrumental method dual stage GMM (2SLS).

Table 1. System of simultaneous equations using two-stage least squares (2SLS), 1998–2011

	Eq. (1)	Eq. (2)
	Dependents variables	
	Economic growth	FDI
GDP		5.391749 (0.000) ***
FDI	0.304823 (0.000) ***	
CPI	-0.2474602 (0.034) **	
Inflation		-0.0025896 (0.963)
Ln(ENERG)		0.4734352 (0.106)
IQ		2.332495 (0.000) ***
Ln(K)	0.5858332 (0.116)	
Ln(L)	1.687198 (0.060) *	
Ln(H)	1.274522 (0.000) ***	
Hansen test	0.659 (0.7194)	3.343 (0.3418)
DWH test	80.745 (0.0000)	25.508 (0.0000)

Notes: The coefficient is indicated by the numbers above. The probability is in brackets. Hansen test refers to the over-identification test for the restrictions in GMM estimator. DWH test is the Durbin-Wu-Hausman for endogeneity test.

* Indicates significant at 10% level. ** Indicates significant at 5% level. *** Indicates significant at 1% level.

The second column of Table 1 provides us with the results of the estimation of equation 1 that studies the impact of FDI, as well as traditional factors of production (human capital, physical capital, labor, capital) and corruption on economic growth.

Beginning with the first equation, the FDI variable measured by (foreign direct investment, net inflows (% of GDP)) has a positive and significant impact on real GDP as shown in the table above. The positive sign of this relationship is justified by the importance of foreign direct investment by the transfer of skills and technology from foreign firms as well as capital inflows to the host country and access to new markets, which stimulates economic growth. This is affirmed by

Borensztein et al. (1998) find that foreign direct investment can be an important tool for the transfer of contemporary technology. As a result, the MENA region will be encouraged to focus on policies that promote the attractiveness of this type of investment to become an attractive destination for FDI.

This result corroborates those of (Soltani and Ochi (2012); Anwar and Sun (2011), Adams (2009), Belloumi (2014)), but it is in opposition with those of others who found that FDI can negatively affect economic growth (Balasubramanyam et al (1996). Lipsey (2000), De Mello (1999), Xu (2000)). Based on the results of Blomström et al. (2000), the experience of many countries shows that a significant amount of FDI alone is not sufficient to generate economic growth and economic prosperity in a host country. Boyd and Smith (1992) see that because of the misallocation of resources or some distortions that exist in trade, foreign direct investment can negatively affect economic growth. However, several work, such as those of (Meschi, 2006. Bashir, 2001) showed that there is no significant relationship between FDI and economic growth.

Our results show that the variable of human capital, which is approximated by enrollment in secondary schools, is important in determining growth. Our results confirm those of several empirical studies demonstrating the importance of this factor (Barro, 1991; Levine & Renelt, 1992; Mankiw et al. 1992, Fleisher and Chen, 1997; Wang and Yao, 2003; Altinok, 2006; H. Li & Huang, 2009; Li and Liu, 2011).

This also reinforces the idea of Krueger and Lindahl (2001) is that human capital is related to the growth of positive and significant for countries that have low levels of education. According to Becker, there is "a strong causal relationship between better education and human capital and economic growth. This relationship of cause and effect also exists between economic growth and development "(Keeley, 2007).

The variable of corruption (CPI) has a significant negative impact on economic growth of our sample. Indeed, the negative impact of the rise of corruption on economic growth may be due to the importance of corruption in the countries of the MENA region that undermines a just and stable governance and leads to a lower quality of public services. This result reinforces the idea of Avnimelech and Zelekha (2011), Dzhumashev (2009), and Blackburn et al. (2008) that corruption leads to an increase in inflation, which in turn reduces capital accumulation and economic growth.

Similarly, Gerlagh Pellegrini (2004) studied the effect of corruption on economic growth, directly and through its impact on investment, schooling, trade openness and political instability. Their results show that corruption has a negative effect on economic growth.

Moreover, Tanzi and Davoodi for (2000), Johnson, and LaFountain Yamarik (2011), corruption undermines growth because it has a negative impact on the quantity and

quality of public investment. It erodes the efficiency of public investment decisions, particularly because it induces a preference for larger projects likely to generate substantial private gains for policymakers. Oludele and Rano (2008) studied the effect of corruption on economic growth in Nigeria for the period 1986 to 2007. They sought to show that corruption can affect economic growth through three channels: expenses on government's investment, the development of human capital and employment. They showed that corruption has a negative and significant effect on human capital and employment, but it has a positive impact on public investment spending. The authors also directly tested the relationship between corruption and economic growth and found that this relationship is negative. Such results support good governance reforms (Seligson, 2002), the recommendation is not to spend more but to reduce corruption to avoid the relative shortage of resources in some areas of the administration.

In the second equation, the variable of real GDP reflecting the country's economic growth is positive and statistically significant. This result is consistent with previous studies (Hejazi, 2009; Medvedev, 2012; Kahouli & Kadhraoui, 2012), which confirmed that the GDP of host countries attracts FDI.

For institutional and business profile of the countries studied, the variable institutional quality (IQ) is the six ACP institutional variables (Representation and participation, political stability and absence of violence, government effectiveness, regulatory quality, Rule of Law, Corruption control) Kaufman et al. (2011) of the WGI database. Adequate institutional environment would positively on the attractiveness of FDI. Institutional development is therefore considered as a direct determinant of FDI and as an indirect determinant of economic growth.

5. Conclusion and Recommendations

The main findings for 12 countries in the MENA region for the period 1998-2011 show signs of bi-directional causality between economic growth and FDI flows. The presence of bidirectional and positive causal relationship between FDI inflows and economic growth implies that increasing the stock of FDI promotes economic growth, which creates favorable conditions to attract FDI flows for the regions.

In order to achieve rapid economic growth, countries of the MENA region should strengthen their macroeconomic policies and the fight against corruption. In addition, it is important for the host country to promote and develop programs to attract FDI.

The results provide some suggestions for the policy makers to make their country more attractive for investment, by promoting and developing programs and supporting economic development. Encouraging FDI to improve institutions could be an effective way to accelerate growth and development. Indeed, the institutional

quality of the host country must be good because it has a decisive influence on the choice of the location of the country and is an essential element to create a favorable climate for foreign direct investment.

Regarding the framework of the determinants of FDI, this work opens the way for other research to examine the measures and solutions that countries can adopt to improve the quality of their institutions and promote FDI and benefit from it. Therefore, governments should improve political stability, socio-economic conditions and investment profile and reduce the level of corruption to attract more FDI.

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