Foreign Direct Investment and Economic Growth

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Abstract

In this work we study the effect of FDI on the economies of the southern Mediterranean countries. Taking into account the positive effects and starting from the establishment of a simultaneous equation model applied to 8 countries, we have tried to demonstrate the mechanisms through which FDI affects economic growth. The estimation of our model shows that exports and, to a lesser extent, human capital and domestic investment are the most promising factors in the creation of positive effects. However, these results are weakly motivating to generate positive growth or at least to reduce the negative effects of FDI.

Keywords: Foreign Direct Investment, Economic Growth, Simultaneous Equation Model

1. Introduction

In a global context that is pushing towards greater economic openness and scarcity of resources to finance long-term development, countries are opening up to global markets in order to find opportunities and attract FDI flows. The Southern Mediterranean countries, like all the countries of the world, are very interested in FDI. Economic reforms initiated by these countries over the last twenty years to attract more FDI flows, with the aim of increasing the level of development and catching up in comparison with nearby countries and neighbouring countries in the north. Despite the fact that all SMCs have many advantages, such as geographical proximity, availability of labour and lower costs than EU countries, they remain at a distance from the influx of FDI in relation to emerging countries.

The objective of this chapter is to study the effect of FDI on the economies of 8 countries on the southern shore of the Mediterranean for the period 1980-2016. A simultaneous equation model applied to time series is developed to examine the mechanisms and the channels through which FDI affects the economy. The advantage of this model is that it has helped us to clarify the determinants of FDI moving to these Mediterranean countries.

2. Review of the empirical literature on the relationship between FDI and economic growth

Various factors, according to theories of endogenous growth, explain long-term growth, such as human capital factors, capital accumulation, international trade, government policy and the transfer of technology, all of which are brought by FDI. The latter stimulates growth through the creation of dynamic comparative advantages resulting from the transfer of technology, human capital accumulation and the intensification of international trade (Bende et al., 2000 and OECD, , 2002[1]). These dynamic benefits, often known as spillovers, are complementary, linked to each other, and should not be studied separately (Alaya, 2006)[2].

Indeed, the gain generated by FDI on a growth factor can stimulate the development of other factors and is a kind of synergy (Bende and al., 2000).

2.1. The effects of FDI training on the host economy

Developing countries see FDI as an important external source for capital, stimulating different macroeconomic indicators such as employment, exports, domestic investment and the integration of new technologies into the private sector. It is therefore a source of growth and productivity gains. In the presence of comparative wealth, developing countries are therefore trying to attract more FDI. However, the magnitude of these effects is unclear, heavily dependent on the quality of technology transferred by foreign companies and the capacity of the host country to absorb new knowledge and transfer of technology.

2.1.1. FDI and Economic Growth

In several cases studied, empirically the externalities of FDI have proved that they are very beneficial for the host countries. Thanks to a study of the manufacturing sector in countries such as Australia, Canada, Mexico and Venezuela, Aitken and Harrison (1991) found that the presence of FDI has a positive impact on firm productivity local. They concluded that the external effects are very important, especially on the economic growth of the host country.

Unlike these studies, Brewer (1991) has empirically demonstrated that there is a negative correlation between FDI and economic growth. This negativity is characterized by a dominant effect of foreign firms, which discourages local enterprises from developing their own research and

[1]OECD 2002, Foreign Direct Investment for Development: Maximizing Profits and Minimizing Costs, Paris.
[2]M. Alaya, (2006), "Foreign Direct Investment and Economic Growth: An Estimation from a Structural Model for Countries on the Southern Shore of the Mediterranean," 7th Scientific Meeting of the Network "Economic Analysis and Development of the AUF "Université Montesquieu Bordeau IV.

development activities. In turn, Singh (1988) and Hein (1992) found no significant effect of FDI on economic growth.

Hermes and Lensink (2003), and from a 1970-1995 study covering 67 developing countries, noted that there is a negative impact of foreign direct investment on economic growth. However, in the presence of two new variables integrated in the model, this impact is reversed and becomes positive. These two new variables are respectively the enrolment rates (indicating human capital) and the variable of the efficiency of the financial market.

To study the nature of the relationship between FDI and economic growth, Darrat and al. (2005) carried out a comparative analysis that involved 23 countries belonging to two different regions: Central and Eastern Europe, and on the other hand, the North Africa region and the Middle East (MENA). Using data for the period 1979-2002, and based on an estimate by ordinary least squares, they found that it is only in the EU candidate countries that economic growth is stimulated by the ' foreign direct investment, while it has no impact on growth at the level of MENA countries and non-candidate countries, or has adverse effects therein. Thus, according to Darrat and al, the candidature to become a member of the EU will have positive effects in relation to the influence of FDI flows on economic growth, through rigorous implementation and wider application and reforms.

Bashir (2001), and through a study of five Mediterranean countries (Tunisia, Algeria, Egypt, Jordan and Turkey) over the period 1975-2000, tried to test the relationship between foreign direct investment and GDP per capita growth in these countries.

Thus, and based on estimates derived from a random effect model, he found that the coefficient of FDI is positive but not significant. The author attributed this result to the low level of FDI flows channeled by these countries during the 1980s. In addition, Bashir reported a negative and significant coefficient of human capital (gross enrollment at the secondary level). This is expected by Bashir, it comes back to the low gross enrollment rates in secondary school that all these countries have.

For Bouklia and Zatla (2001), the level of FDI influence on economic growth in the southern Mediterranean countries is not significant.

2.1.2. The effect of FDI on human capital development

Borensztein, E. and al. (1998), being the first authors to analyze the effects of FDI on economic growth. Using the Romer model, they seek to explore the importance of technology transfer in the process of economic growth. By expanding the variety of capital goods available in the economy, they introduce FDI as capital goods produced by foreign firms imported from a host country. By reducing the cost of introducing new varieties of the capital good, FDI plays an important role in

economic growth. These authors have shown empirically that FDI has a positive impact if the host country's human capital exceeds a certain threshold[3] and that the positive effect of FDI on the economy will depend on its interaction with human capital.

According to Borensztein.E and al. (1998), and thanks to the integration of new technologies transferred by FMNs into worker training, FDI contributes to the accumulation of human capital.

Ben Abdallah.M and al (2001) have empirically demonstrated that FDI plays a catalytic role in the growth and development of countries that, over time, improve their stock of human capital. This is a minimum threshold of human capital, from which FDI will have a positive effect on growth.

Human capital is, on the one hand, an attractive factor for multinational companies, Lucas (1998), and on the other hand a stimulating factor for investment and promotes the transfer of technology, Meddeb.R and Drine.I (2000).

In a recent study, Blömstrom.M and Kokko.A (2003) point to the potential stimulating role of FDI in improving the quality and level of human capital. Indeed, demand for skilled labor by multinational enterprises and foreign companies allows the host countries to invest more in education, particularly in higher education.

Certainly, investment will generate growth, but both are often correlated with improved productivity and the quality of training and education. This encourages local people to improve their level of education, which results in improved stock and quality of human capital (Grier, 2001).

2.1.3. FDI and the development of foreign trade

Fontagné.L and Pajot.M (1999) [4] show that FDI improves the competitiveness of firms operating in the domestic market of the host country and has a positive impact on foreign trade, particularly exports. It also brings positive externalities through the effects of subcontracting and exploitation of technological progress.

In countries with a low capacity for innovation, the dominance of foreign firms can prevent local learning and discourage local firms from developing their own research and development. This does not mean that less developed countries cannot benefit from a transfer of technology, the out of phase local productive sector, may be slightly beneficial for growth. Findlay.R (1978) suggests that in order to catch up with FDI between underdeveloped and industrialized countries, the technological distance between these countries should not be too great.

In a comparative analysis of Hungary and Vietnam on the role of FDI in the development of foreign

[3]According to the OECD (2002), the minimum threshold differs across industries and is correlated with other characteristics of the host country.

[4]Fontagné.L and Pajot.M (1999), "Foreign direct investment and foreign trade: a stronger impact in the United States than in France, Economy and Statistics, (326-377): 31-52

trade in transition countries, Mainguy.C and Rugruff.T (2003) suggest that openness to FDI upsets integration and the specialization of Hungary, while the influence on Vietnam is rather modest. In 1993, foreign-owned firms accounted for more than half of Hungary's exports, but it was not until the second half of the 1990s that their influence became decisive. It is estimated that in 1998 they were responsible for 85.9% of exports

In an empirical study carried out by Menegaldo, F and Moustier (2002), on SMCs and Europe between 1985 and 1997, in order to demonstrate the effects of FDI on trade, the results indicate that there is a relationship of cointegration in the case of Morocco, Tunisia and Turkey, which made it possible to affirm the existence of a long-term relationship between FDI and trade, whereas for Egypt the result is rather mixed.

The results of an econometric model carried out by Soliman (2003) on four southern Mediterranean countries (Egypt, Morocco, Tunisia and Turkey) between 1975 and 1997 indicate that FDI has a positive effect on manufacturing exports. But in general, the magnitude of this effect is so low to take advantage of export performance.

Balasubramanyan et al, (1996) find that the effect of exports on growth is stronger in countries that have an export promotion policy than in countries that pursue import substitution policies.

2.1.4. The effect of FDI on domestic investment

FDI allow to create comparative advantages in the economy. It is therefore important for the State to encourage the establishment of these investments, which urges strong and favorable relations[5], and it will therefore be strongly recommended to ensure investment attractiveness and sustainability at the same time in the region. According to Bosworth.P and Collins.M (1999), FDI effectively stimulates domestic investment in the host country where asset inflows appear to have almost no significant effect on investment[6]. On the other hand, FDI is more resilient than economic capital. Indeed, FDI is generally in the form of machinery or infrastructure, it is difficult, if not impossible, to repatriate it during an economic crisis, and this is what makes the difference with portfolio investments which are characterized by high volatility and sensitivity to economic conditions.

Agosin.M and Mayer.R (2000) analyzed the effect of delayed FDI inflows on host country investment rates to examine the effect of FDI on domestic investment eviction or training effect) over the period 1970-1995. They found different results from one sample to another. Thus, it is a ripple effect in Asian countries, a neutral effect in Africa and a crowding-out effect in Latin

[5]These exchanges and technological cooperation between local and foreign companies.

[6]Bosworth and Collins (1999), capital flows to developing economies; implications for saving investment: Brookingpaper on EconomicActivity: Brooking Institution, 69-143.

American countries. These authors show that the effects of FDI are not always beneficial for all countries. For the SMC countries, Bouklia.F and Zatla.N (2001) exclude the existence of complementarity between FDI and domestic investment and have not eliminated the hypothesis of crowding out, which decreases the contribution of these two variables to economic growth.

2.1.5. The effect of FDI on technology transfer

According to Xu (2000), there may be economic divergence because of the effects of FDI, not only because of the lack of absorptive capacity of the host country but also partly because of the poor quality of technology transferred to developing countries. This contrasts with Romer (1993) who assumes that FDI has a positive impact on technology transfer through the role of MNFs in reducing the technological gap between countries at different levels; by providing new knowledge, which is an important factor for economic growth.

Ben Abdallah.Met al (2001) also report that the volume and nature of technology transferred is largely influenced by the level of competitiveness of the host country. The competitiveness of a worker is in fact his ability to absorb and assimilate foreign technology. Cantwall (1989) examined, during the period 1955-1975, within the European market, that the most significant positive impact on local technology is observed in firms that have a technological adaptation barn in their production. He therefore concluded that the external effects are clearer in the industry with a low technology gap.

Haddad.M and Harrison.A (1993) have shown that a major technological gap hampers the external effects of FDI.

According to Chudnovsky.D and Lopez.A (1999), technology transfer in developing countries depends on local absorptive capacity, adaptation of technology to country needs, skills of employees, etc.

According to an endogenous growth model incorporating FDI, inspired by Romer (1990) and Berthelemy.J, C and Démurger.S (2000), the larger the technology gap, the higher the growth rate will be between foreign and local firms.

However, in the work of Blomstrom and Wolff on the Mexican case, the result of their research was theoretically unexpected. The authors indicate that the technological gap has clear external effects between firms that adopt technology in the production process and those that do not. Indeed, their interpretation is based on the influence of competition from foreign firms that may require the use of advanced technologies to local firms. The existence of technological capability and a stock of human capital therefore seem to condition the assimilation of knowledge developed elsewhere. Host countries must have a minimum stock of human capital and know-how that allows them to assimilate foreign technologies (Blomstrom et al., 1992; Borenszein et al., 1998).

Improved human capital stock and the development of learning activities are essential and generate the technological gap between different countries to achieve the most positive impact of FDI on growth. Today, human capital accumulation and learning are seen as essential factors in the process of technology transfer.

The empirical studies of Blomstrom and Kokko (1996) consider FDI as a vehicle for technology transfer for developing countries. This work shows that the importance of technology transfer depends on certain characteristics of the host country and its industrial sector. For example, intensified competition, greater fixed capital formation, higher levels of education and less restrictive conditions imposed on foreign companies are all factors that promote technology transfer.

A favorable effect of FDI on a host economy is first associated with the diffusion of spillovers to local firms by foreign firms. However, according to Kumar.N and Pradhan.J, P (2002), these externalities may not occur because of links with restrictive local businesses and / or low absorptive capacity.

All these empirical studies show that FDI accelerates growth and generates convergence effects if the host countries have a sufficient level of education and economic development. This shows that the empirical relationship between FDI and economic growth is not unambiguous. These various studies also point out that the effect of FDI depends on several specific characteristics of the host countries.

Finally, it can be argued that the impact of FDI depends in particular on the characteristics of the host country and that these results have in particular identified the existence of important factors and development thresholds for FDI a positive impact on the growth of the least developed countries.

All these elements show the desirability of foreign direct investment in developing countries. On the other hand, low levels of human capital and inadequate levels of development may hinder a beneficial effect of FDI. It is also possible that the regulatory and institutional[7]

framework is a particular place that hinders the exploitation of the benefits of society.

Consequently, of all the above, two problems arise through the double play of these obstacles. On the one hand, because of these constraints, FDI would not stimulate growth and contribute to poverty reduction in some host countries. On the other hand, these obstacles can also affect the attractiveness of a country.

The importance of FDI is evident and is no longer to be demonstrated, it will be interesting in the

[7]This framework allows the rules to clarify the relationship between competitors and investors in the market.

practice that follows to give a more precise framework for foreign direct investment by identifying its different determinants. Then we go on to demonstrate the importance of the attractiveness process, focusing on the basic conditions and principles that allow the host country to attract FDI. The interaction between the efficiency of financial market regulation, FDI and economic growth was the subject of an empirical study by Durham (2004) and Alfaro, L et al, (2004). The results of this study indicate that FDI flows are more oriented towards countries with better financial market regulation and subsequently achieving a higher growth rate.

3. Estimation method and presentation of variables

The structure of our model, which assumes a linear form, is represented as follows:
La structure de notre modèle, qui suppose une forme linéaire, est représentée comme suit :

$$
\begin{cases}
GDP_{it} = a_0 + a_1 FDI_{it} + a_2 HC_{it} + a_3 X_{it} + a_4 DI_{it} + a_5 TT_{it} + \varepsilon_{1it} & \text{(Eq 1)} \\
FDI_{it} = b_0 + b_1 GDP_{it} + b_2 COR_{it} + b_3 Infl_{it} + b_4 Infra_{it} + b_5 HC_{it} + b_6 Energ_{it} + b_7 Cred_{it} + b_8 Tax_{it} + \varepsilon_{2it} & \text{(Eq 2)} \\
HC_{it} = c_0 + c_1 FDI_{it} + c_2 DeKH_{it} + c_3 RD_{it} + c_4 Infra_{it} + \varepsilon_{3it} & \text{(Eq 3)} \\
X_{it} = d_0 + d_1 FDI_{it} + d_2 Exchgr_{it} + d_3 Tax_{it} + \varepsilon_{4it} & \text{(Eq 4)} \\
DI_{it} = e_0 + e_1 FDI_{it} + e_2 Cred_{it} + e_3 IR_{it} + e_4 DS_{it} + \varepsilon_{5it} & \text{(Eq 5)} \\
TT_{it} = g_0 + g_1 FDI_{it} + g_2 HC_{it} + g_3 Ouv_{it} + g_3 RD_{it} + \varepsilon_{6it} & \text{(Eq 6)}
\end{cases}
$$

With

The Endogenous variables

-**GDP**: Real Gross Domestic Product per capita
-**FDI**: Foreign Direct Investment
-**HC**: Human Capital
-**X:** Foreign Trade
-**DI**: Domestic Investments
-**TT**: Technology Transfer

The Exogenous variables

-**COR:** Commercial Opening Rate
-**Infl:** Inflation Rate
-**Infra**: Infrastructure
-**Tax:** Taxes on Exports
-**Cred:** Domestic credit provided to the private sector
-**Energ**: Energy production in 1000 TEP (tonne of oil equivalent)
-**Exchgr:** Real Effective Exchange Rate
-**IR:** Interest Rate

-**DS:** Domestic Savings
-**RD:** Research and Development
-**Deduc:** Education Expenditures

We try to estimate the determinants of growth (FDI, human capital, domestic investment, exports) and the factors that explain these same determinants, using the Ordinary Least Squares (OLS) method.

3.1. Classification of countries into homogeneous groups and interpretation of results

3.1.1 Classification of countries in a homogeneous group

Before going on to the econometric analysis, we try to compose our sample into three "homogeneous" groups, in that these countries have heterogeneous characteristics in terms of population, GDP and per capita income, based on the classification established by the Inheritance Foundation, according to the index of economic freedom (see the following table). This approach helps us to better interpret our results with a comparative approach between these homogeneous countries.(see appendix table1)

3.2. Results interpretation

3.2.1. The effect of FDI on economic growth

	Dependent variable: GDP growth rate per head							
	PANEL 1				PANEL 2		PANEL 3	
countries / Variables	Libanon	Morocco	Tunisia	Turkey	Algeria	Egypt	Israël	Jordan
	Coef	Coef	Coef	Coef	Coef	Coef	Coef	Coef
FDI	**3.409*** **	**0.857**	**0.277**	**-0.032**	**1.977** **	**0.307** **	**1.086*** **	**0.255**
DI	-1.14***	-0.253	0.096	0.186	0.040	0.044	0.050	0.496***
X	-0.136	-0.150	-0.019	-0.130	0.023	0.042	0.014	-0.303***
TT	-0.751	0.197	-0.571	0.421	0.389	0.068	0.116	0.155
HC	-0.118	0.106	0.057	0.013	-0.052**	-0.021	-0.307***	0.244
C	9.483	5.795	-0.270	-2.2614	-1.070	1.294	26.79**	-19.805
R^2	0.0781	0.0456	0.0324	0.1207	0.2726	0.2484	0.2785	0.3677
$\chi 2$	15**	3	6	3	17***	14**	46***	31***
N	35	35	35	35	35	35	35	35

C; Constant N ; number of observations,$\chi 2$, chi-two, ** and ***; significant variables at 5% and 1% respectively.

For Panel 1, the estimates show that only FDI contributes positively and significantly to economic growth for the Lebanon case. This contribution is estimated at 3.409 in terms of elasticity. Indeed, the variable IDE has a positive and significant coefficient at 1%. Thus, a 1% increase in FDI leads to an increase in economic growth of 3,409%. For other countries (Morocco and Tunisia), FDI has a positive and not significant sign. This is explained by the decline in the share of EU countries in FDI inflows to SMCs against an increase in these flows for the countries of Central and Eastern Europe due to the contribution of the bid for to become a member of the EU to create positive effects of FDI flows on economic growth, in line with the results of Darrat and al. (2005), who add that these countries go through a period of economic recession years. These results can also be explained by the high concentration of FDI in the primary sector of these countries and particularly the hydrocarbon sector.

For Turkey, FDI has a negative and not significant impact. This can be explained by the effects of the two major financial crises that hit Turkey in 1994 and 2002, resulting in more than twenty bank failures and perverse effects of investor discouragement. This situation has been changed since 2005, and Turkey has become the first recipient of FDI in the SMC region.

The other variables (domestic investment, exports, human capital and technology transfer) are not significant for all countries except for Lebanon, which has a significant 1% negative sign for the impact of domestic investment on economic growth. Indeed, domestic investment in Lebanon has low rates. It is insufficiently stimulated by national policies, it is very fragile and significantly influenced by the geopolitical characteristics linked to this country (such as the oil shock in 1978, during this period the oil demand of the foreign labor force increased because of rising prices, the outbreak of the Lebanese civil war, and its conflicts and wars with Israel and the continuing disruption of the past years), which have a profound and direct impact on the development of domestic investment in spite of the efforts of the Lebanese government.

For the case of panel 2 of the countries of Algeria and Egypt, the results are more significant. Indeed, FDI has a positive and significant impact at 5% for both countries. Thus a 5% increase in FDI generated an increase in economic growth of 1.977% and 0.307% respectively in Algeria and Egypt.

Investments in these two countries are concentrated mainly in hydrocarbons, which clarifies the significance and nature of the relationship between FDI and economic growth. Such results confirm the conclusion of Meschi (2006).

Human capital has a significantly negative sign at 5% in Algeria. This unexpected sign has just been explained by the inadequacy of human capital which has not reached a certain threshold in order to act positively on economic growth. The other variables have expected signs not significant for the

two countries.

In the Southern Mediterranean countries, where education systems can be characterized as non-mature, the negative effect of human capital on economic growth is explained by the inadequacy of material means and the rather fundamental research applied , concentrated in universities and with a weak university-enterprise link, and weak research at the enterprise level. This result is generalized for all countries in the sample.

For the third panel, the results show the importance of the role of FDI for Israel and the role of domestic investment for Jordan on economic growth. Indeed, this is a positively significant impact of 1% for FDI and domestic investment respectively in Israel and Jordan.

Exports have a significant negative impact on economic growth at 1% for Jordan. This is mainly due to the shrinking of competitiveness for products with a strong specialty (textiles and clothing) for the benefit of Asian countries. Indeed, the Mediterranean textile and clothing sector is currently in a very difficult position, its price competitiveness is too low to be able to confront the Asian industrialists. In 2008, European imports of textiles and clothing from SMCs fell by 4.5%. The suppliers that score points are China and Vietnam, but also Egypt with more than 7%. While Morocco's sales to Europe fell by 3.8%, those of Turkey decreased by 11%. In Tunisia, exports of clothing products fell by 28.6% in volume terms and by 7.3% in value terms.

Human capital has a significant negative impact on economic growth at 1% for the case of Israel. This can be explained by the lack of maturation of the youth class (secondary education) to become a productive class.

Regarding the non-significance of human capital or its negative significance, Pritchett (2001), in a study for a sample of developing countries, found no relationship between the increase in human capital and the growth rate of GDP per capita . "He explains that this could be justified for three reasons. First, the political and institutional environment may be bad enough for the accumulation of human capital to weaken economic growth. Second, the quality of education could be so low that years of study ultimately create no level of human capital. Finally, he argues that returns to education may have declined rapidly, as the supply of educated labor has increased while demand has remained stagnant. In his literature review on human capital, Dessus (2000) suggests that a plausible explanation could be that the quality of the education system evolves differently from one country to another and that, as a result, accumulating human capital crude at the same rate could produce different results. Boccanfuso D and al. (2015).

Aitken and al. (1997) conclude that these countries have not succeeded in improving their production facilities in order to cope with the rise of China and Vietnam which partly explains their growing structural problems. Indeed, Southern Mediterranean countries do not succeed in

ascending the range, as the countries of South-East Asia have diversified their economic activities and are increasingly concentrating in the technological-intensive sectors where demand is stable and competition with other developing countries has not reached significant levels. The latter have already begun to gradually abandon traditional sectors such as low-tech textiles and are starting to have dynamic comparative advantages in so-called promoters such as electronics, biotechnology, computing , etc.

3.2.2. FDI determinants

	Dependent variable: Foreign Direct Investment (FDI)							
	PANEL 1				PANEL 2		PANEL 3	
Pays / Variables	Libanon	Morocco	Tunisia	Turkey	Algeria	Egypt	Israël	Jordan
	Coef	Coef	Coef	Coef	Coef	Coef	Coef	Coef
GDP	**0.043**	**0.036**	**0.0182**	**-0.0123**	**-0.002**	**0.211**	**0.524*** **	**0.26*** **
HK	-0.029	5.06	0.0399	-0.06***	0.008	-0.10**	0.242***	0.294
Cor	0.039	0.146*	0.1374	0.0722**	0.074***	0.23***	0.008	0.117
Infra	-0.003	0.005	0.0013	0.0186***	-0.004	-0.011	0.007	0.004
Energ	12.147	-5.88*	0.1619	0.0495	0.007	0.147***	-0.225	-11.1**
Cred	-0.069	-0.049*	-0.0737	-0.092***	-0.002	0.056	-0.031	0.4***
Txinf	-0.058	0.014	-0.0353	-0.0067	-0.015*	-0.028	0.0009	0.101
Tax	-0.167**	0.035	0.0512	1.338**	0.507*	-0.072	-0.230	0.103
C	16.11***	-0.44	-3.3410	0.8344	-4.34***	-5.724	-20.33***	-55***
R^2	0.4969	0.5836	0.1826	0.7240	0.6869	0.4882	0.6304	0.7905
$\chi 2$	53***	83***	28***	121***	143***	64***	110***	174***
N	35	35	35	35	35	35	35	35

C; Constant, N; 2;χnumber of observations, chi-two, *, ** and ***; significant variables at 10%, 5% and 1%, respectively.

The results for the second equation of our model, for Panel 1, show that economic growth is not a factor in attracting foreign direct investment. The impact of economic opening is positively significant on foreign direct investment at 10% and 5% respectively for Morocco and Turkey. This variable has an expected sign, not significant for Lebanon and Tunisia, this reflects the extension of internal markets to international markets. This variable explains the effect of global economic integration through agreements signed with various partners, although it remains very low. Opening up would be an opportunity for companies in developing countries to modernize their production activities through access to goods and / or new services, but for Lebanon and Tunisia it is still weak, not significant.

Human capital is significant with a negative effect on FDI at 1% for Turkey. This may be due to the

nature of education, which may be of poor quality, and to the weakness of research at the enterprise level as well as applied basic research; concentrated in universities and with a weak university-business link. This result is of equal importance to all countries in the sample.

The infrastructure variable has a significant positive effect at 1% for Turkey. The energy variable has a negative and significant sign at 10% for the case of Morocco and positive and not significant signs for the rest of the countries in Panel 1. This is due to the inadequacy in these countries of natural resources (energies) attracting FDI. This variable is not a determinant in the decision to locate FDI in these countries.

The credit variable has a significantly negative effect on FDI at 5% and 1% for Morocco and Turkey respectively, which explains why these countries have not yet developed and liberalized their financial system.

The tax variable has a positive effect on FDI at 5% for Turkey and negatively significant at 5% for Lebanon. This explains why the latter country imposes high taxes on imported or exported products despite its efforts to become a better partner with the EU countries.

For panel 2, the human capital variable has a negative and significant impact on the attractiveness of FDI to 5% for Egypt. It seems that FDI, which is concentrated mainly in the primary sectors (hydrocarbons), depends essentially on capital intensity rather than on labor.

It is for this reason that the needs of foreign investors are negative. The variable opening rate has a significantly positive impact on the attractiveness of FDI at 1% for the countries of this panel. As for the energy variable, it has a non-significant positive impact on the attractiveness of FDI for Algeria and significantly positive at the 1% threshold for Egypt, as well as for this variable; to point out that FDI is concentrated in the hydrocarbon sectors of these two countries. The inflation rate variable contributes significantly and negatively to the FDI at 10% for the case of Algeria. This result is expected since Algeria suffers from an excessive inflation problem.

In the case of panel 3, the results from our model indicate that economic growth has a positive and significant impact on the attractiveness of FDI to 1% for the case of the two countries. Human capital has a positive and significant impact on the attractiveness of FDI at 1% for Israel and a non-significant positive for Jordan. The energy variable has a negative and significant sign, expected for the case of Jordan at 5%, since this country is not endowed with natural resources (oil), which explains the negative sign. The variable financial development (credit) has a positive impact on the attractiveness of FDI at the 1% threshold for Jordan.

3.2.3. The effect of FDI on human capital

	Dependent variable: foreign direct investment (FDI)							
	PANEL 1				PANEL 2		PANEL 3	
Countries / Variables	Libanon	Morocco	Tunisia	Turkey	Algeria	Egypt	Israël	Jordan
	Coef	Coef	Coef	Coef	Coef	Coef	Coef	Coef
GDP	0.043	0.036	0.0182	-0.0123	-0.002	0.211	0.524***	0.26***
HC	-0.029	5.06	0.0399	-0.06***	0.008	-0.10**	0.242***	0.294
COR	0.039	0.146*	0.1374	0.0722**	0.074***	0.23***	0.008	0.117
Infra	-0.003	0.005	0.0013	0.0186***	-0.004	-0.011	0.007	0.004
Rd	-89.7**	5.888*	6.716	-86.3***	25.285	-177***	3.32***	57.2***
Infra	0.223***	0.158***	0.176***	0.21***	0.23***	0.219***	0.05***	-0.04***
C	78.83***	62.035***	-118***	68.1***	88.62***	94.7***	65.5***	60.32***
R2	0.3966	0.9431	0.8932	0.9211	0.8760	0.5738	0.8255	0.8537
$\chi 2$	39***	656***	307***	454***	257***	45***	201***	220***
N	35	35	35	35	35	35	35	35

C; Constant, N; 2;χnumber of observations, chi-two, *, ** and ***; significant variables at 10%, 5% and 1%, respectively.

For the first panel, the estimate indicates that FDI contributes positively and to a significant 1% to the development of human capital in the case of Morocco. For Lebanon, it has a negative sign of 10%. This negativity is due to the fact that the human capital that this country possesses has not yet reached a threshold level to satisfy the needs of foreign investors. As for the development of infrastructure, it has a positive impact on human capital at 1% for this same group of countries.

For the education expenditure variable, a positive and significant impact recorded at 1% for Tunisia and Turkey, while for Morocco this variable has a negative impact at 1% on the development of human capital. This could be explained by the inadequate spending on education and / or mismanagement of it. The research and development variable has a significant negative impact of 5% and 1% respectively for Lebanon and Turkey, this is explained by the lack of research and development expenditure to improve the quality of education. For Morocco, this variable is weakly significant.

In the case of Panel 2, FDI contributes significantly and significantly to the development of human capital at 5% in Egypt, and positively and non-significantly in the case of Algeria. As I said earlier, this means that investments in these two countries are investments that do not require too much labor. This explains the negative impact of FDI on the development of their human capital.

The education expenditure variable has a significant negative impact at 1% for Algeria and a positive impact that is not significant for Egypt. This is explained by the mismanagement of educational spending and the corruptions affecting the education system in the Arab countries.

The infrastructure variable has a positive 1% impact on the development of human capital for the countries of this panel. For the research and development variable, it has a significant negative impact on the development of human capital at 1% for the case of Egypt, and not significant for Algeria. This is due to inadequate spending on education and / or poor management of education, as well as corruptions to the education system. This is why institutes in these countries are not included in the academic ranking of the 2015 world universities in Shanghai.

For panel 3, all variables have their expected signs, positively significant except for the infrastructure variable which contributes significantly to Jordan's development of human capital at 1%. Despite the fact that it has one of the highest enrollment ratios in the Middle East and North Africa region and relatively low illiteracy rates, it is probably competition for the use of infrastructure, which translates into high costs for service providers. Moreover, the slow and unreliable relations and connections in schools, the problems of non-quality education and the inadequacy of incentives to motivate citizens because of the high level of unemployment are as much additional factors that represent major obstacles and challenges for Jordan's economic growth. The same conclusion can be generalized for all the other countries of the region.

3.2.4. The effect of FDI on trade

	Dependent variable: Export (X)							
	PANEL 1				PANEL 2		PANEL 3	
countries / Variables	Libanon	Morocco	Tunisia	Turkey	Algeria	Egypt	Israel	Jordan
	Coef	Coef	Coef	Coef	Coef	Coef	Coef	Coef
FDI	**-1.29**	**1.488*** **	**1.798*** **	**5.169*** **	**12.738*** **	**1.437*** **	**-0.13**	**0.457***
txchnge	-0.002	-0.3655	13.303	2.151	-0.057	2.34***	5.575**	28.233
tax	-0.638	-0.342***	0.055	3.109	-18.72***	-0.037	-1.178	-0.207
C	46.61***	35.011***	19.268	5.85	97.675***	2.945	15.94	24.974
R^2	0.1290	0.7250	0.2157	0.3210	0.5857	0.42	0.0519	0.1127
χ^2	8*	113***	26***	34***	101***	58***	6	9**
N	35	35	35	35	35	35	35	35

C; Constant, N; 2;χnumber of observations, chi-two, *, ** and ***; significant variables at 10%, 5% and 1%, respectively.

For the first panel, FDI contributes positively and significantly to exports at the rate of 1% for the case of Morocco, Tunisia and Turkey. This is an expected result, since a large number of subsidiaries in these countries have played a motivating role in exporting, as they re-export their production to

their countries of origin or to their parent companies . All of their activities contribute to the increase in the volume of exports from host countries. These results confirm the conclusion of Menegaldo.F and Moustier.E (2002).

The tax variable, which indicates barriers to trade and the costs of export transactions, has a significant negative impact on foreign trade at 1%, in the case of Morocco, despite the fact that Morocco has entered into a process of " opening up with the EU countries. Moreover, barriers to trade do not appear to constitute a major obstacle to the development of exports.

For the second panel, the estimate shows that FDI contributes positively and significantly to the increase in exports to 1% for both countries; Algeria and Egypt. These results are expected as a large number of subsidiaries set up in these countries adopt export strategies and large investments are made in the hydrocarbon sectors of these two countries. These results also confirm the study by Soliman (2003).

The depreciation of the local currency has a positive and significant impact at 1% for the case of Egypt, it is adopted by the monetary authorities by acting on the exchange rate in order to improve competitiveness with similar products on the market international.

The tax variable has a negative and significant impact on the increase in foreign trade to 1% for the case of Algeria. This goes back to the high rate imposed by the Algerian government on imported products, either because of the agreement with the EU countries or to protect certain sectors that are not ready to compete.

For the third panel, FDI has a significant positive impact on foreign trade at 10% for the case of Jordan, while the depreciation of the currency has a positive impact on trade at 5% for the case of Israel.

3.2.5. The effect of FDI on domestic investment

	Dependent variable: Domestic Investment (DI)							
	PANEL 1				PANEL 2		PANEL 3	
Countries / Variables	Libanon	Morrocco	Tunisia	Turkey	Algeria	Egypt	Israel	Jordan
	Coef	Coef	Coef	Coef	Coef	Coef	Coef	Coef
FDI	1.019***	1.076***	-0.311	0.022	-0.1984	0.063	-0.342	1.12***
cred	-0.192***	0.157***	0.180***	0.083***	0.132***	-0.21***	-0.019	-0.698
txi	0.024	-0.213**	-0.505***	0.0004	0.0273	0.147	-0.021	-0.153
eprg	0.135***	0.101	1.222***	0.929***	0.13908*	1.104***	-0.069	0.102

C	29.204***	17.114***	-10.713	2.009	19.83***	2.699***	23.69***	69.58***
R^2	0.5164	0.7171	0.5750	0.70	0.2998	0.5027	0.1839	0.3273
χ^2	46***	101***	55***	113***	36***	40***	11**	41***
N	35	35	35	35	35	35	35	35

C; Constant, N; 2;χnumber of observations, chi-two, *, ** and ***; significant variables at 10%, 5% and 1%, respectively.

For the first panel, FDI contributes positively and significantly to domestic investment at 1% for the case of Lebanon and Morocco. The credit variable contributes positively to the 1% threshold for Morocco, Tunisia and Turkey, while the same variable has a significant negative impact at 1% for the Lebanese case. This is explained by the great difficulties that local investors encounter in accessing credit, and because of the unstable geopolitical situation in this country. Thus, thanks to the superiority of their guarantees and their profitability, MNFs have easier access to local banks, to the detriment of local businesses.

The interest rate variable has a significant negative impact of 5% and 10% respectively for Morocco and Tunisia. This is due to the high rates available to the banks of both countries in the case of loans and the obligation of collateral to have credit, which discourages local investment. The savings variable contributes significantly to domestic investment at 1% for the countries in Panel 1 except in the case of Morocco; for which it is not significant.

In the case of the second group, the FDI has a not significant evading effect for the Algerian case, as much as for Egypt this variable has a positive and not significant impact. This is understandable, as investments are focused more in the hydrocarbon sector and they do not have a significant impact on local investments.

The variable credit attributed to the private sector has a positive impact at 1% in the case of Algeria, while the same variable contributes significantly 1% in the case of Egypt. This could be explained by the fact that the MNFs, thanks to their investment weight, have the privilege of having easier access to banks, to the detriment of local businesses. For the savings variable, it contributes positively and significantly to the threshold of 10% and 1% respectively for Algeria and Egypt.

For the third panel, the results indicate that only FDI contributes significantly to 1% in the case of Jordan, while it has negative effects not significant in the case of Israel. The weak effect of FDI on domestic investment for Israel can be explained by the dominance of the role of the state in local investment, as well as the Israeli-Palestinian conflict that discourages local investors from taking investment initiatives.

The works of Bouklia and Zatla (2001) on the Mediterranean countries supports the lack of complementarity between FDI and domestic investment in these countries, and does not exclude the hypothesis of crowding out of domestic investment by FDI, thus reducing their contribution to economic growth. These authors indicate that an effect of foreclosure of domestic investment by FDI in SMCs necessarily reduces their contribution to economic growth. Alaya, M (2006).

3.2.6. The effect of FDI on technology transfer

	Dependent variable: Technological transfer (TT)							
	PANEL 1				PANEL 2		PANEL 3	
	Libanon	Morrocco	Tunisia	Turkye	Algeria	Egypt	Israel	Jordan
Countries / Variables	Coef	Coef	Coef	Coef	Coef	Coef	Coef	Coef
FDI	**-0.19****	**0.05**	**-0.162***	**-0.231**	**0.759**	**-0.01**	**0.032**	**0.19*****
HC	0.022	-0.016	0.023**	0.145***	0.036***	0.084***	0.563***	0.275***
COR	-0.016	0.127	-0.033	0.017	0.073	-2.223	0.25	-0.033
DR	1.871	-1.348	5.894***	-5.886**	1.893	0.078*	0.145**	-0.065
C	4.666*	4.610*	2.194	-0.491	-0.466	-1.164	-54.7***	-18.1***
R^2	0.1986	0.0359	0.8081	0.70	0.4031	0.3680	0.794	0.7507
χ^2	12**	3	167***	75***	33***	26***	157***	114***
N	35	35	35	35	35	35	35	35

C; Constant, N; 2;χnumber of observations, chi-two, *, ** and ***; significant variables at 10%, 5% and 1%, respectively.

Over the past few years, investments have become increasingly specialized in the information and communication technologies (FIPA, 2012). This brings an important advantage to all economies through the transfer of a new technology for countries that seek to develop by adopting a policy of promotion and attractiveness. The results of the sixth equation show that, for the first panel, FDI has a negative and significant impact for Lebanon and Tunisia at 5% and 10% respectively. These results reflect the lack of real absorption and the lack of appropriation of technology, unlike the developed countries, which, on the other hand, have a substitution effect and diffusion of new technologies compared to existing ones.

The human capital variable has a positive impact on technology transfer at 5% and 1% for Tunisia and Turkey respectively. Regarding the research and development variable, it has a positive and significant effect on the technology transfer to 1% for the case of Tunisia. The same variable has a negative and significant impact at 5% in the case of Turkey. This may be due, on the one hand, to the weakness of national innovation systems, which does not encourage MNFs to make links with

local laboratories because of the large technological gap and knowledge, and on the other hand to the activities of MNFs in these countries, where there is no adaptation effort by these firms to local markets expressed by activities closely linked to those of the subsidiary, and which are not very sophisticated and do not require adaptation to the local market.

According to FIPA (Foreign Investment Promotion Agency "FIPA-Tunisia"): "The communication technology sector has benefited from an important investment of 6.3 billion Dinars during the period 2007-2011 against 430 million Dinars only the period 1992-1996. This strong growth is mainly due to the strengthening of infrastructure, in particular telecommunications ... "

This result can be interpreted by the inadequacy of the budget devoted to the field of scientific research and / or the poor management of this budget and by the limited funding for scientific research laboratories.

For Panel 2, human capital contributes positively and significantly to 1% in technology transfer for both countries; Algeria and Egypt. Research and development has a positive and significant impact on technology transfer at a rate of 10% for the case of Egypt.

For Panel 3, FDI has an impact; respectively positive and significant on technology transfer to 1% for the case of Jordan; and positive and non significant for the case of Israel.

Human capital contributes positively and significantly to technology transfer at 1% for Israel and Jordan; the two countries of this panel. Research and development have a positive and significant impact on technology transfer at 5% for Israel.

4.Conclusion

While these results do not appear to be sufficiently significant to generate positive growth or at least to weaken the perverse effects of FDI, it is of great importance to note that the study of the impact of FDI and its relationship to economic growth is very complex, as there are direct and indirect effects in this relationship. This difficulty becomes even more complicated by the fact that these effects are directly linked to the mode of installation of the multinationals (greenfield or acquisition), the the nature and characteristics of the sector of activity, the competition between these multinationals and domestic firms and the host country’s level of development.

This analysis is generally opposed to the idea that the impact of FDI is obvious. If this is not the case, how can we explain the yachting of FDI-receiving countries in their efforts to attract as much foreign investment flows as possible? Consequently,, it can be said that it is much more difficult to have the beneficial effects of FDI, since foreign investors always seek their profits at the expense of the interest of the country where they settle.

However, for SMCs, a major challenge that must be overcome stems mainly from how they take

advantage of these investments and the strategy to ensure that FDI becomes an active component of economic growth and development."Many weaknesses should be overcome by the countries of this region to improve their business climates and attract more FDI", Alaya, M (2006).

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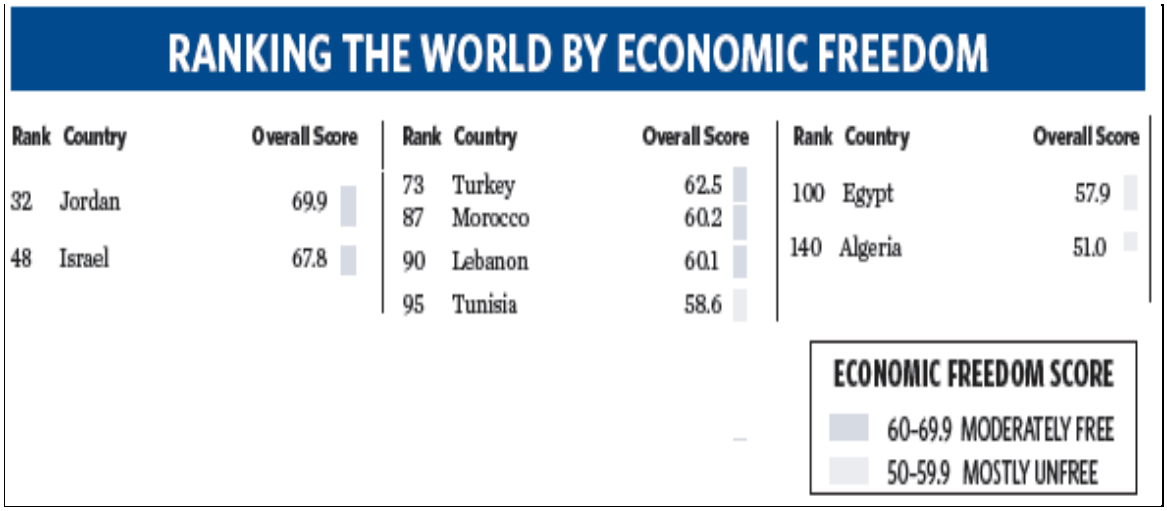
Appendix

Table 1



Source: Index of Economic Freedom (2012)

Three groups of countries are classified according to economic freedom:

The 1st group: Lebanon, Morocco, Tunisia and Turkey,

The second group: Algeria and Egypt,

The third group: Israel and Jordan.