# Determinants of FDI Inflows in the MENA Countries

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**ABSTRACT:**

Foreign Direct Investment (FDI) might bring positive effects such as market access, technology, capital and skills to the developing countries. Therefore, the developing countries' governments are progressively searching for best-practice policies to attract more FDI inflows. In this context, this research aims to investigate the relationship between FDI inflows and their determinants in MENA (region of the Middle East and the North Africa( during the period 1985-2010. The study employs dynamic panel data.

In the used model, the dependent variable is FDI and the independent variables are FDI in the previous year, GDP growth rate, inflation, Trade openness, External debt, Oil rent, Total population, Government capital expenditure and Exports of goods and services. According to the econometric results, FDI in the previous year and GDP growth rate are the potential determinants of FDI inflows of MENA region. The exchange rate, inflation, trade openness, external debt, oil rent, exports of goods and services, Government capital expenditure and Total population seem to be insignificant determinants of FDI inflows in the MENA countries.

**KEYWORDS:** FDI flows, determinants of FDI, MENA region and dynamic panel data.

**ملخص:**

يمكن للاستثمار الأجنبي المباشر أن يحدث آثارا ايجابية مثل الدخول الى السوق، التكنولوجيا، رأس المال والمهارات للدول النامية، عدا أن حكومات الدول النامية تبحث بصورة متزايدة عن تطبيق أحسن السياسات لجذب تدفقات أكبر للاستثمار الأجنبي المباشر. وفي هذا الصدد، تهدف هذه الدراسة الى تقصي العلاقة بين تدفقات الاستثمار الأجنبي المباشر ومحدداتها في دول المينا (دول منطقة الشرق الأوسط وشمال افريقيا) خلال الفترة من 1985 الى 2010. اعتمدت الدراسة على تطبيق نموذج بيانات بانل الديناميكي حيث يعتبر المتغير التابع هو الاستثمار الاجنبي المباشر FDI والمتغيرات المستقلة هي FDI للسنة السابقة، معدل النمو GDP، سعر الصرف، التضخم، الانفتاح التجاري، الدين الخارجي، عوائد النفط، اجمالي السكان، الانفاق الحكومي وصادرات السلع والخدمات. ووفقا للنتائج التجريبية ، تدفقات الاستثمار الاجنبي المباشر للسنة السابقة و معدل النمو هما المحددان الرئيسان لتدفقات الاستثمار الاجنبي لدول المينا . أما باقي المتغيرات فتبدو كمحددات غير مهمة لتدفقات الاستثمار الأجنبي المباشر في دول المينا.

**الكلمات المفتاحية:** تدفقاتالاستثمار الأجنبي المباشر FDI، دول المينا ونموذج بيانات بانل الديناميكي.

## .1Introduction:

International investments are classified as either foreign portfolio investment or foreign direct investment (FDI). Portfolio investments, as the name suggests, correspond to the entry of funds due to investors making purchases in the stock and bond markets, sometimes for speculation, which do not result in ownership or legal control of the company receiving the resources but

rather form a portfolio. (Mauricio Mesquita Bortoluzzo et al., 2013). Conversely, FDI is the ownership or control of some portion of companies or firms by foreigners in a domestic economy. (Oba, Unoiza Oregwu, MBA, M. Sc , B. Chima Onuoha, 2013)**.**

In today's world economy, foreign direct investments are considered as an important input of foreign capital, and an important component of the regional integration process and globalization of world economy; in the last three decades of XXI century, the FDI have pursued a strong impact on economic growth, foreign trade and production structures over the world (Tatiana Dãnescu and Paula Nistor, 2012), Foreign direct investment (FDI) was assumed having a progressive importance over time, for that it became important for policy makers and a trendy debatable topic for economists.

The FDI can have an impact on many aspects of a host country's economy (Manh Vu Le, Terukazu Suruga, 2005). It is important engine of technology transfer from developed countries to developing countries which mean that it contribute to build a strong economic links between advanced and developing countries. (Erdal & Tatoglu, 2002).

According to the International Monetary Fund, foreign direct investment "is a category of international investment that reflects the purpose of an entity resident in a country (direct investor) to obtain a long term interest in an enterprise resident in another country (direct investment). Long term interest involves the existence of a long term relationship between the direct investor and the company. It is considered that the participation is long-term if the investor holds more than 10% of the capital of the invested company or voting rights. The distinction between direct investor that follows a long term relationship in the entity, with significant participation in the capital (minimum 10%) and the portfolio investor which is a speculator who not intended to control the holding company in which it invests." (IMF 2011).

Foreign direct investment are defined, according to UNCTAD (United Nations Conference on Trade and Development), as those investment involving the transfer of a vast set of assets, including financial capital, advanced technology and know-how, better management practices, etc. This investment is carried out by an entity (a firm or an individual) in foreign firms, involving an important equity stake in, or effective management control (UNCTAD, 2007). OECD (2001) takes FDI in the sense of transformation of capital, knowledge and technology from home country to the other (foreign) country.

This paper aims to investigate the relationship between Foreign Direct Investment (FDI) inflows and their determinants in MENA (Middle East and North Africa) region during the period 1985- 2010. This paper is structured as follows: section 2 provides a review of the theoretical literature and Empirical studies of FDI determinants. A brief description of the MENA economies and the FDI is given in section 3; Section 4 discusses the methodology. Discussion of the results is presented in section 5; Section 6 conclusions.

## 2. Determinants of FDI:

### a) A brief review of the theoretical literature:

An increasing importance was given to the FDIs worldwide; many theories have been adopted to explain the reasons why some countries agree to invest abroad and others to receive FDIs.

Ohlin (1933), who argued that direct investments in foreign markets are important in order to guarantee access to the supply of inputs, to overcome barriers to trade as well as to explore higher rates of return in growing economies. Hymer (1960), in his doctoral thesis explained the concept of ownership advantage which states that in order to compete with domestic firms MNCs should have firm-specific advantages which include superior technology, brand name, managerial skills and scale economies, but this approach could not explains the actual decision about FDI. Another

approach focused on the product life cycle hypothesis (Vernon, 1966). In the early stage of its life, the product is produced by the innovating company in its domestic market. In the second stage, the company exports to other industrialized countries and probably invests in these countries. In the third stage, the product is completely standardized, and the rise of price competition leads the company to invest in developing countries to get cheaper labor. Robert Mundell (1957) has tried to explain the FDI through a model of international trade, involving two countries, two goods, two production factors and two identical production functions in both countries, where production of a good requires a higher proportion of a factor than the other. Neither Mundell's model could explain international production through FDI; because foreign investment incorporated were portfolio investment or short-term investment.

Japanese researchers Kojima and Ozawa (1984) have tried to create a model to explain both international trade and foreign direct investment. They started from the model developed by Mundell and tried to develop it and improve it. Thus, in the model developed by the two Japanese FDI takes place if a country has comparative disadvantage in producing a product, while international trade is based on comparative advantage.

**b) Empirical studies of FDI determinants:**

Some literature written on the determinants of FDI in the developing countries and more specifically in the MENA region are, for example: study of Seyed Mohammad Alavinasab aims to identify the economic determinants of foreign direct investment (FDI) in Iran for the period of 1991-2009. A simple econometric model and least squares technique have been used to determine the various economic factors that affect FDI inflows. The result found indicates significant positive effects of real GDP growth, the proportion of imports to GDP, return on investment and infrastructure on FDI, while the impact of government consumption on FDI inflows has been found insignificant with unexpected positive sign.

Mottaleb (2007) analyzed panel data from 60 less developed countries and found that market size and GDP growth rate, business environment, modern communication facilities significantly affect the FDI inflow and FDI positively and significantly affects the GDP growth of a country.

Asiedu (2006) found that the good infrastructure, an educated labor force, macroeconomic stability, openness to FDI, an efficient legal system, less corruption and political stability promote inward FDI.

Oladipo (2008) examined the determinants of Nigeria's FDI inflow for the period 1970-2005 and found that the nation's potential market size, the degree of export orientation, human capital, providing enabling environment through the provision of infrastructural facilities, and macroeconomic stability are important determinants of FDI flows. The work of

Morisset (2000) showed a positive and significant correlation between trade openness and the investment climate for 29 African countries.

Hartman (1994), Cassou (1997) and Kemsley (1998) found that host country corporate income taxes have a significant negative effect on attracting FDI flows. However, Root and Ahmed (1979), Wheeler and Mody (1992), concluded that taxes do not have a significant effect on FDI.

The researches bearing on FDI determinants in the MENA region are very few. This is due mainly to data that are not generally available for countries and variables macroeconomic.

Mohamed and Sidiropoulos (2010), using a panel of 36 countries (12 MENA countries and other 24 developing countries), concluded that the key determinants of FDI inflows in MENA countries are the natural resources, the size of the host economy, the government size, and institutional variables. Another study conducted by Onyeiw (2000) shows that the foreign

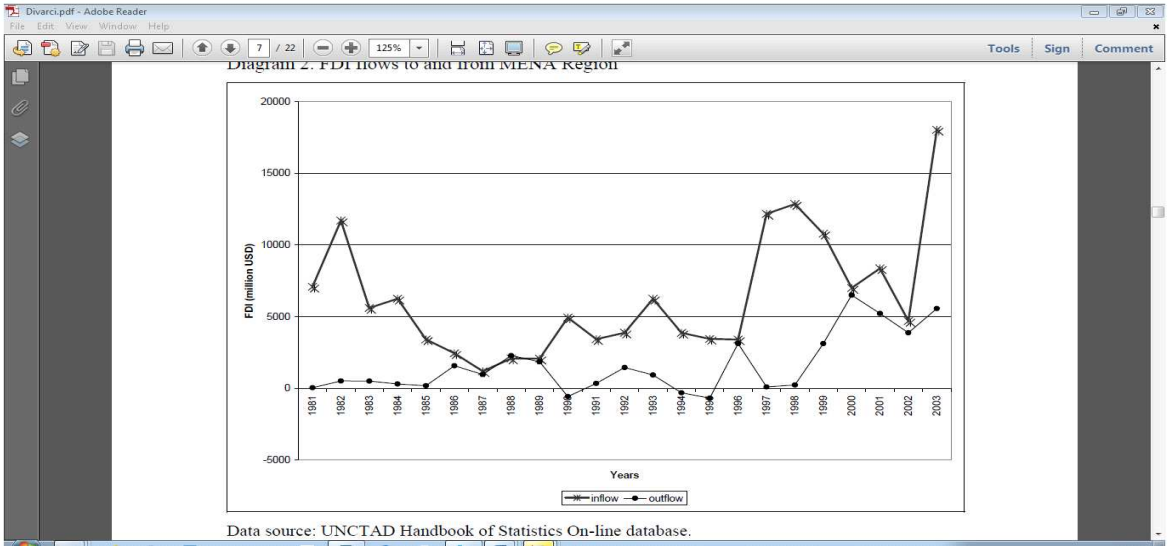
exchange interest rates and inflation are important factors for FDI flows in some MENA countries.

## 3. The MENA region:

If one analyzes the historical FDI inflows to MENA countries, there are some interesting features to be discovered. Regional inflows recently increased, but have not kept pace with global FDI inflows.

**Diagram 1** shows the inflow and outflow levels of FDI in the MENA region for the 1981-2003 period. While FDI inflows to the MENA region varies from year to year, there is an increasing trend particularly after 1990's in a parallel direction with the trend of increasing FDI flows to the developing countries in the world. However, in the period between 1980 and 2003 the inward FDI stock of the MENA countries have varied between 1.5% and 4.5% of world inward FDI stock and between 3.6% and 11% of developing counties' FDI stock. The region receives only one-third of the FDI expected to the region relative to the other comparable countries (IMF Survey, 2001).

**Diagram 1. FDI flows to and from MENA Region**




**Data source:** UNCTAD Handbook of Statistics Online database.

Despite the fact that these FDI outflows have been modest at the global level, they are particularly important for some countries in the MENA region. As it was mentioned earlier, more than one third of these FDI outflows had another MENA country as a destination. Oil importing countries in the MENA region such as Egypt, Morocco, Jordan and Tunisia depend heavily on these intra-regional FDI flows to finance their infrastructure projects. Most of the FDI outflows in the region are concentrated among a few countries. In 2008, six countries (UAE, Kuwait, Qatar, Libya, Saudi Arabia, and Egypt) accounted for 91% of the FDI outflows in the region. The same six countries accounted for 83% of all FDI outflows in MENA in 2010 **(Figure 1)**. Five of those six countries are leading oil exporters, and the expansion of their FDI can be interpreted as a natural consequence of the accumulation of financial resources generated by high

oil prices coupled with the diversification strategies followed by their Sovereign Wealth Funds (SWFs).

Although the outflow FDI level varies during the period from 1980 to 2003, the outward FDI remains below the inward FDI level (see Diagram 1). Outward FDI level from the MENA region is below 1% of world outward stock and below 5% of developing countries' outward FDI stock during the same period. Among the MENA countries Bahrain, Saudi Arabia, Turkey and United Arab Emirates are the most important countries as the source of outward FDI. Especially Saudi Arabia is one of the emerging investors abroad (UNCTAD, 2003).

A recent World Economic Forum global opinion survey stated three major factors companies look for before investing in a foreign country. These factors are: 1) the ability to repatriate capital and remit profits 2) the predictability and reliability of government policies in the country and 3) their access to local markets. Other factors such as low labor costs and investment incentives such as tax breaks played a smaller role.

## 4- MODEL

### 4.1 Data and the Definition of Variables:

This study uses the dynamic model of panel, that included 5 countries of MENA during the period 1985-2010. The data source of the dependent variable was collected from the United Nations conference of trade and development (UNCTAD) and the data of independent variables were obtained from the World Bank.[3] From previous studies, it seems to us more appropriate to introduce change in the basic regression equation estimated by Arellano-Bond which takes in account slowing down delaying one internal variable (FDI in the previous year) and enter it into the model in order to estimate the influence of the previous values of FDI on its present value.

The further detail definition and explanation of the institution variables are as follow:

**Inflation:** is a proxy for macroeconomic stability in the economy. A higher inflation rate is an indicator of lower macroeconomic stability and real incomes, and therefore discourages FDI flows. A negative coefficient is expected MENA FDI.

**Exchange rate:** It is another variable to capture the macroeconomic instability effect. The theoretical literature is uncertain about the relationship between the exchange rate and FDI. If the exchange rate in the host country is high, this will motivate investors to make more investments in order to make more profits if, of course, the goods and services are sold in the country. Nevertheless, if that production is oriented to others foreign territories through exports, this will have the opposite effect and lead to a harmful situation. Subsequently, it cannot be concluded for the sign for the exchange rate.

**Trade openness:** Measured as the ratio of total trade (export plus import) to GDP, openness of the domestic country is one of the traditional determinants of FDI. As the degree of openness can encourage or can constitute a stimulus for the entry of multinational companies, and therefore more inflows of FDI, it is expected that openness (open) has a positive impact on FDI. Previous papers found that openness could promote FDI (Jun and Singh, 1996; Balasubrabramanyan and Salisu, 1991).

**External debt:** Debt may be a result of non-appropriate macroeconomic policies that do not encourage FDI. Debt service burdens limited the ability of countries to provide basic

infrastructure such as roods, phone, water and electricity. Therefore, we expect a negative sign of the relationship that this variable can have the IDE.

**The GDP growth rate:** Is very important for any country for foreign investors to invest the relationship between the GDP and FDI and vice versa is always a main track of focus assumed by the researches in economic literature. We assume the existence of a positive relationship between the increase with GDP growth rate and the flows of investment.

**Oil rent:** it represent the difference between the value of crude oil production at world's prices and total costs of production. It is expected to have a positive significant relationship between oil rent and FDI.

**Exports of goods and services:** comprise all transactions between residents of a country and the rest of the world involving a change of ownership from residents to nonresidents of general merchandise, goods sent for processing and repairs, nonmonetary gold, and services. Data are in current U.S. dollars.

**Government capital expenditure*:*** Government spending is a complement to private investment, especially when the capital expenditure is invested in infrastructure projects as roads, transportation, telecommunication, water and electricity. Therefore, the increase of government investment may attract the FDI flows.

**Total population:** The population as income is a measure of market size and generally, a country with a high population attracts more FDI than a country low inhabited.

We have entered the FDI-1 in the previous year in the model in order to estimate the influence of the previous values of FDI on its present value. Estimations are conducting dynamic panel model.

The fixed effects of dynamic panel model are:

$$Y_{it} = \gamma Y_{it-1} + B' x_{it} + \alpha^*_{it} + U_{it} \qquad i = 1.....N \quad t = 1.....T \qquad (1)$$

Where $\sigma_i^*$ denotes the unobserved country –specifically which are assumed to be fixed over time and different cross country i. The error term $U_{it}$ is assumed to be independently distributed across i and over t with mean Zero and variance $\sigma_i^*$

The random effects dynamic panel model is:

$$Y_{it} = u + \gamma y_{it-1} + B' x_{it} + V_{it} \qquad i = N \quad t=1.....T \qquad (2)$$

Where $V_{it} = \alpha_i + U_{it}$ and $\sigma_i$ are assumed to be independently distributed across i with mean Zero and Variance $\sigma_\alpha^2$ and uncorrelated with $X_{it}$ the error term $U_{it}$ is assumed to be independently distributed across i and over t withe mean Zero and Variance $\sigma^2$.

In the next section we demonstrate that the random effects are preferred for fixed effects in our panel data. Generalized least squares method is used in the random effects approach to provide the best linear unbiased estimate.

| | | **FEM regression model** | **REM regression model** |
|---|---|---|---|
| **FDI $_{t-1}$ (FDI in the previous year)** | Coef. | 959007 | 1.056984 |
| | Std. Err. | 0436311 | 0271999 |
| | t | 21.98 | 38.86 |

| | | | |
|---|---|---|---|
| **Government capital expenditure** | P>\|t\| | 0.000 | 0.000 |
| | Coef. | 4,84E-08 | 1,17E-08 |
| | Std. Err. | 1,89E-08 | 1,25E-08 |
| | t | 2.56 | 0.94 |
| **Oil rents** | P>\|t\| | 0.012 | 0.349 |
| | Coef. | 23.42833 | 36.56766 |
| | Std. Err. | 49.76802 | 46.81496 |
| | t | 0.47 | 0.78 |
| **External debt** | P>\|t\| | 0.639 | 0.435 |
| | Coef. | 1,87E-07 | 2,44E-08 |
| | Std. Err. | 1,08E-07 | 6,25E-08 |
| | t | 1.73 | 0.39 |
| | P>\|t\| | 0.087 | 0.696 |
| **Trade openness** | Coef. | -2,58E-08 | 1,19E-07 |
| | Std. Err. | 1,60E-07 | 1,21E-07 |
| | t | -0.16 | 0.99 |
| **GDP growth rate** | P>\|t\| | 0.872 | 0.324 |
| | Coef. | 78.18514 | 86.53947 |
| | Std. Err. | 36.59924 | 37.30749 |
| | t | 2.16 | 2.32 |
| | P>\|t\| | 0.035 | 0.020 |
| **exchange rate** | Coef. | 14.19483 | -9.030866 |
| | Std. Err. | 20.54543 | 11.55107 |
| | t | 0.69 | -0.78 |
| **Exports of goods and services** | P>\|t\| | 0.491 | 0.434 |
| | Coef. | -9,11E-09 | 1,77E-08 |
| | Std. Err. | 3,14E-08 | 2,81E-08 |
| | t | -0.29 | 0.63 |
| | P>\|t\| | 0.772 | 0.528 |
| **population** | Coef. | 0001318 | -0000226 |
| | Std. Err. | 000098 | 0000185 |
| | t | 1.34 | -1.22 |
| | P>\|t\| | 0.181 | 0.000 |
| **Inflation rate** | Coef. | 4.52981 | -4.78116 |
| | Std. Err. | 9.988665 | 8.134475 |
| | t | 0.45 | -0.59 |
| | P>\|t\| | 0.651 | 0.557 |

**Table 1. Regression on the dependent variable $FDI_t$**

*Significant coefficients are in bold character*

After estimating the fixed effects model (FEM) and the random effects model (REM) the Hausman test was applied. The null hypothesis underlying the Hausman test is that the FEM and REM estimators do not differ substantially. (Gujarati, 2003, p651). The null hypothesis was accepted in all the model estimations with the conclusion that the random effects model is appropriate in all estimations, the Results of the $\chi^2$ test are presented in the following table:

**Table 2. Hausman statistic $\chi^2$**

| | ***b* (FE)** | ***β* (RE)** | **(*b* - *β*) Difference** | **sqrt(diag(V_*b*-V_ *β*))** |
|---|---|---|---|---|

| | | | | **S.E.** |
|---|---|---|---|---|
| $FDI_{t-1}$ | 959007 | 1.056984 | -0.979768 | 0.34115 |
| gne | 4,84E-08 | 1,17E-08 | 3,68E-08 | 1,42E-08 |
| oilrent | 23.42833 | 36.56766 | -13.13932 | 16.88833 |
| exdebt | 1,87E-07 | 2,44E-08 | 1,62E-07 | 8,80E-08 |
| tropen | -2,58E-08 | 1,19E-07 | 1,45E-07 | 1,04E-07 |
| gdpgr | 78.18514 | 86.53947 | -8.354333 | - |
| exra | 14.19483 | -9.030866 | 23.2257 | 16.9908 |
| exp | -9,11E-09 | 1,77E-08 | -2,68E-08 | 1,40E-08 |
| pop | 0.001318 | -0.000226 | 0.001544 | 0.000963 |
| infla | 4.52981 | -4.78116 | 9.31097 | 5.796873 |

## 5. Findings and discussion:

Based on the results shown into the random regression model, there are some variables that have a positive association with FDI as external debt and inflation rate. About the government spending, the results show its insignificant positive correlation with the foreign direct investment, which means that increasing the expenditure, does not positively affect the investment climate; But the increase's parameter of foreign direct investment flows by one year lagged value, was significant positive which mean that the foreign direct investment flows to the Mena countries during the period studied were tending towards the increase. The results also show that the relationship between FDI and both of the external debt variables and the inflation rate is positive but insignificant what indicates that these variables are not important in attracting the FDI to the MENA countries.

The results have also shown a significant positive correlation between the growth rate of GDP and FDI which means that the MENA countries were managed to attract a significant quantities of FDI flows to them, therefore the variable of GDP growth rate has had a significant positive impact in attracting FDI during the period studied. Also an insignificant negative correlation was found between the population variable and the FDI which indicate that the increase in the host country's population does not attract the FDI.

About the inflation, it has an insignificant negative relationship with FDI and this result indicates that the decreased inflation rates are not effective in attracting foreign direct investment to the MENA countries.

For the exchange rate, its relationship with FDI has been negative but insignificant, because the devaluation of currencies by the MENA countries was led to a rise in the cost of goods, which was negatively reflected on the purchasing power of individuals and their spendings, which will necessarily affect the size of market demand; the results have also shown an insignificant positive correlation between external debt and FDI which indicates that the variable of external debt is not an important factor in attracting FDI to the MENA countries.

## 6. Conclusion:

The aim of this study was to know the FDI determinants of MENA countries during the period1985-2010. And after applying both of fixed and random tests, we choose the second test methodology according to Hausman. The experimental results have shown that a one year lagged values of FDI flows and the GDP growth rate are important variables for attracting foreign direct investment, while government spending, oil rents, trade openness, exchange rate, exports of

goods and services, inflation, external debt and population are insignificant variables in attracting FDI.

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