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# Impact Of The Investment Environment On FDI Flow In Arab Countries: An Econometrics Study

# تأثير البيئة الاستثمارية على تدفق الاستثمار الأجنبي المباشر في الدول العربية: دراسة قياسية

**LAKHDIMI abdelhamid [1], LALMI fatima [2], BOUKAR abdelaziz [3]**

[1] University Of Adrar – Adrar (Algeria), lakhdimia1@univ-adrar.edu.dz
[2] University Of Mostaganem - Mostaganem (Algeria), lalmi.fatima2@gmail.com
[3] University Of Adrar – Adrar (Algeria), boukarahaziz@univ-adrar.edu.dz

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**Abstract:**

This paper aims to study the determinants of the investment environment and its impact on the flow of foreign direct investment in the Arab region. The study deals with the inflows of fictitious investments in global economies, and the rate of growth of foreign direct investment flows in the Arab countries. In addition to studying the relationship between investment environment indicators and foreign direct investment flows in the Arab countries using panel data during 2002-2018.

The study concluded that the Arab countries are classified into three types according to the average growth of foreign direct investment, while the degree of sensitivity of foreign direct investment in Arab countries is affected more by the political situation and the lack of transparency of laws and accountability. As for the econometric study, the appropriate model is the random effects model, with a long-term equilibrium relationship between the governance variables and the inflows of foreign direct investment.

**Keywords:** FDI inflows, The Investment Environment, Governance indicators, Panel Data.
**JEL Classification Codes**: E21, O16, C23, C33.

**ملخص**:

تهدف هذه الورقة إلى دراسة محددات بيئة الاستثمار وأثرها على تدفق الاستثمار الأجنبي المباشر في المنطقة العربية. تناولت الدراسة تدفقات الاستثمارات الوهمية في الاقتصادات العالمية، ومعدل نمو تدفقات الاستثمار الأجنبي المباشر في الدول العربية. بالإضافة إلى دراسة العلاقة بين مؤشرات بيئة الاستثمار وتدفقات الاستثمار الأجنبي المباشر في الدول العربية باستخدام منهج لوحة البيانات خلال الفترة 2002-2018.

وخلصت الدراسة إلى تصنيف الدول العربية إلى ثلاثة أصناف حسب متوسط نمو الاستثمار الأجنبي المباشر، في حين أن درجة حساسية الاستثمار الأجنبي المباشر في الدول العربية تتأثر أكثر بالوضع السياسي وعدم شفافية القوانين والمساءلة. أما بالنسبة للدراسة القياسية، فإن النموذج المناسب هو نموذج الآثار العشوائية، مع وجود علاقة توازن طويلة المدى بين متغيرات الحوكمة وتدفقات الاستثمار الأجنبي المباشر.

**كلمات مفتاحية**: تدفقات الاستثمار الأجنبي المباشر، بيئة الاستثمار، مؤشرات الحوكمة، لوحة البيانات.
**تصنيفات JEL** : E21، O16، C23، C33.

**Corresponding author**: LAKHDIMI abdelhamid, **e-mail:** lakhdimia1@univ-adrar.edu.dz

**INTRODUCTION:**

FDI attractiveness is considered one of the main fields of competition between most countries, both developed and developing, especially after the financial and economic global crisis, the recent political developments in Arab countries, the euro zone downturn, the recession witnessed by international investment markets, along with the latest trends of foreign capital, particularly the upward trend of inward FDI flows to developing countries. (Dhaman, 2015, p19).

The investment climate generally depends on the institutional and organizational situation and stability, especially laws and legislations and their implementation, continuity, endurance and consistence with the international trade laws as well as the monetary and financial policies. Many studies considered the investment environment Indicators as one of the prerequisites required to attract FDI. The eventual risks and costs decrease in the presence of clear laws and targeted investment climate work strategies (Dhaman, 2014, p 41).

This competition is the result of the central role played by FDI in the process of development and its sustainability, which goes beyond bridging the current account deficit or meeting local needs for financial resources. It includes supporting the movement and sustainability of commercial merger, integration and exchange between world countries, which gives international capital flows a strategic importance as a driving force for developing economies, including arab states, in order to enhance their capacity to grow, interact with the global economy and efficiently participate in the international production process (Dhaman, 2015, p19).

Based on the above, the problem of the study appears to us clearly in the following question:

What is the impact of determinants of the investment environment on the flow of the foreign direct investment in Arab countries?

Through the problem, the following hypotheses were formulated:

- Governance indicators are among the most important determinants of the flow of foreign direct investment in the Arab countries.
- Data panel tests are suitable models for studying the impact of an investment environment on foreign direct investment.
- Determinants of the investment environment greatly affect foreign direct investment flows in the long term.

The study aims to identify the nature of the specific investment environment for foreign direct investment and measure the impact of investment environment indicators on foreign direct investment in Arab countries.

Importance of the study lies in the fact that foreign direct investment is considered one of the most important sources of external financing for the development process, and a tool for introducing modern technologies and technical and administrative expertise to the Arab countries and increasing their competitiveness.

The curriculum used in the study is a mixture of curricula, where we used the analytical and descriptive approach and the econometric approach. As for the study data, it is a set of governance indicators issued by the World Bank data for the period 2002-2018.

## 1- Literature Reviews On FDI:

### 1-1 Definitions Of FDI :

FDI is regarded as the ownership or control of 10 percent or more of an enterprise's voting securities or the equivalent interest in an unincorporated business (Griffin & Pustay, 2007). (Farrell, 2008) defined FDI as a package of capital, technology, management, and entrepreneurship, which allows a firm to operate and provide goods and services in a foreign market. From a theoretical viewpoint, FDI can be divided into two categories, Horizontal and Vertical:

- Stated (Botrić & Škuflić, 2006, p 365) that FDI inflows to advanced countries are usually horizontal investments driven by market seeking strategies. And according to, Horizontal FDI replicates the whole production process of the home country in a foreign country.
- Vertical foreign direct investment is the opposite.

Foreign direct investment plays an active role in the economies of the developing countries, especially arab regions as an important source of funding and a means successful exploitation of natural resources untapped, as an effective channel for the transfer of technology and modern management techniques, also plays an important role in breaking the domestic monopoly and enhance national competitiveness by stimulating export and the opening of new markets. All those benefits of FDI that prompted all countries to compete in the field lured.

### 1-2 Experimental Studies :

Several studies have analysed the relationship between the investment environment and FDI inwards using different econometric methods and period, and the table below summarizes the empirical studies that have investigated the effect of the investment environment and their sub-indicators on FDI inflows:

**Table (1). Empirical Evidence On The Impact Of The Investment Environment And Their Sub-Indicators On FDI Inflows**

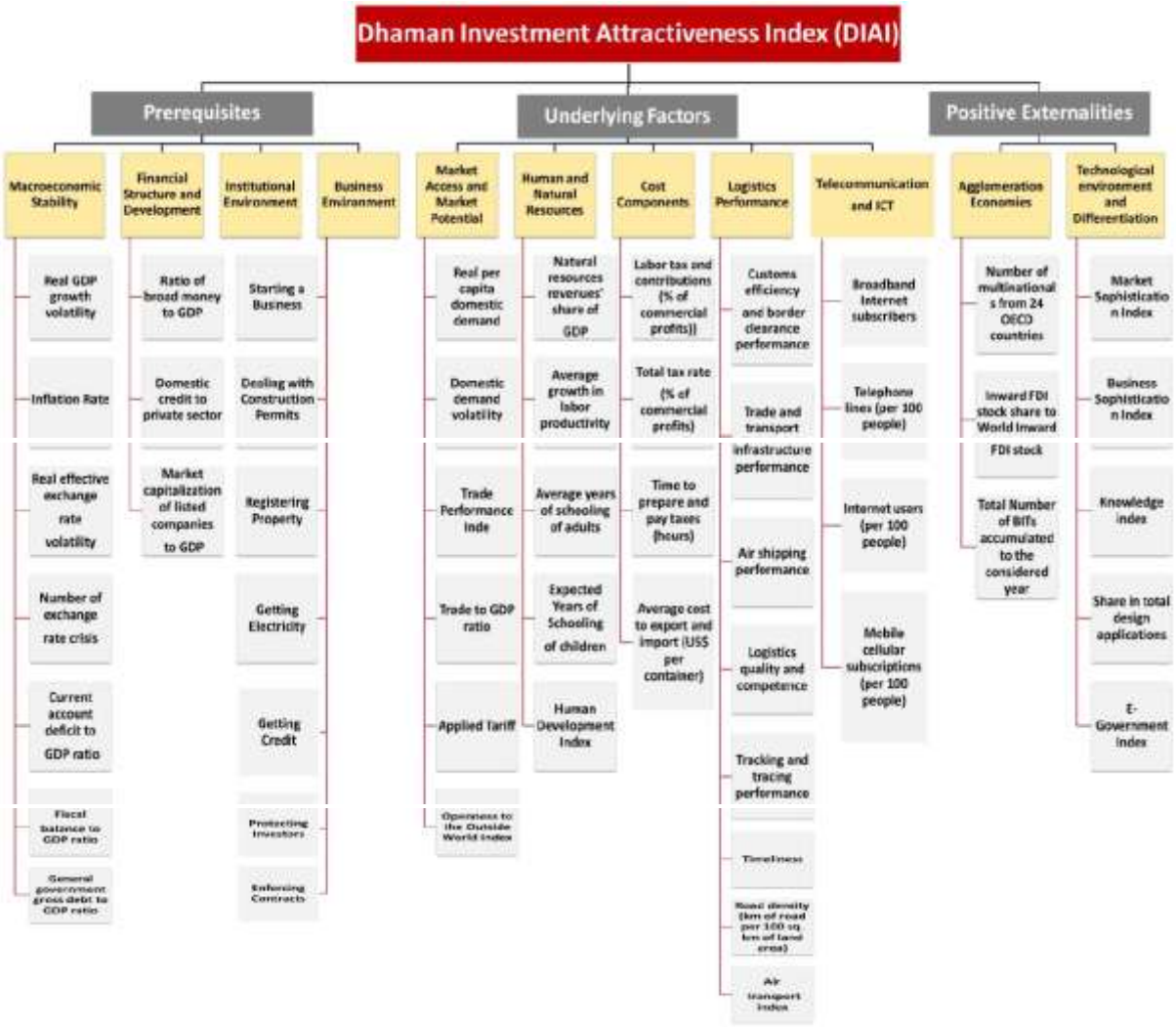
| ***Authors*** | ***Sample and Period*** | ***Empirical approach*** | ***Results*** |
|---|---|---|---|
| Jun and Singh, 1996 | 31 Developing countries ,1996 | Panel Data Analysis | The political risk coefficient indicates that the countries with higher political risk attract less FDI. |
| Stein and Daude, 2001 | Latin American countries, 1997-1999. | Fixed effects panel regressions | Political and institutional factors are necessary determinants of FDI movements to countries. |
| Alguacil, M., Cuadros, A. and Orts, V. 2005 | 26 Emerging countries from Latin America and Asia , 1976-2005 | Dynamic panel data and cross-section regressions | The institutional environment coefficient indicates that the countries with good institutional environment attract more FDI. |
| Likewise, Gastanaga et al, 1998 | 22 Developing countries 1998 | Panel data analysis | Lower corruption level is associated with higher FDI inflows. |
| Samimi and Ariani , 2010 | 16 Countries in the Middle East and North Africa (MENA) , 2001-2008 | Panel regression analysis | The three governance indicators used namely, political stability, control of corruption and rule of law have a positive impact on FDI inflows in MENA countries. |
| ***Authors*** | ***Sample and Period*** | ***Empirical approach*** | ***Results*** |
| Yosra Saidi, Anis Ochi & Houria Ghadri , 2013 | 20 Developed and developing countries 1998–2011 | Panel Data Analysis | Political stability and Regulatory quality have a significant impact on FDI inflows. |
| Anwar Zeshan, Afza Talat, 2014 | Pakistan , 1996 - 2010 | ARMA and Ordinary Least Squares (OLS) regression techniques | Voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, control of corruption and governance index have positive and significant relationship with FDI inflows in Pakistan. |

**Source:** Constructed By Authors

### 1-3 Dhaman Fdi Attractiveness Index :

The attraction of FDI, according to DHAMAN FDI attractiveness index, depends on the favorable investment climate which contains three main groups comprising 11 indicators which include 60 quantifiable variables, presenting in fig 01:

**Fig (1): DHAMAN FDI attractiveness index**




**Source:** Investment Climate in Arab countries report, Kuwait, 2015, www.dhaman.org, p22

There are three pillars in DHAMAN FDI index, representing:

- The set of prerequisites.
- The underlying factors affecting the MNEs.
- The set of positive externalities.

Each pillar gives details of countries' positions on the DHAMAN FDI index as follow:

A. **Prerequisites:** they represent the required prior conditions to attract FDI, they include four sub-indicators: macroeconomic stability, financial structure and development, the investment environment and business environment.

B. **Underlying Factors:** they represent the standards followed by multinational companies in order to choose their location and in turn contain five sub-indicators: market access and market potential, human and natural resources, cost components, logistics performance and telecommunication and ICT.

c. **Positive Externalities:** they represent the different factors that determine the differences between host countries, they contain two sub-indicators: agglomeration economies, technological environment and differentiation.

Each pillar contains sub-indicators and each sub-indicator contains variables for example: the investment environment is one of sub-indicators of the first pillar, it includes six variables are: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption.

**2- Fdi Inflows In The Arab World:**

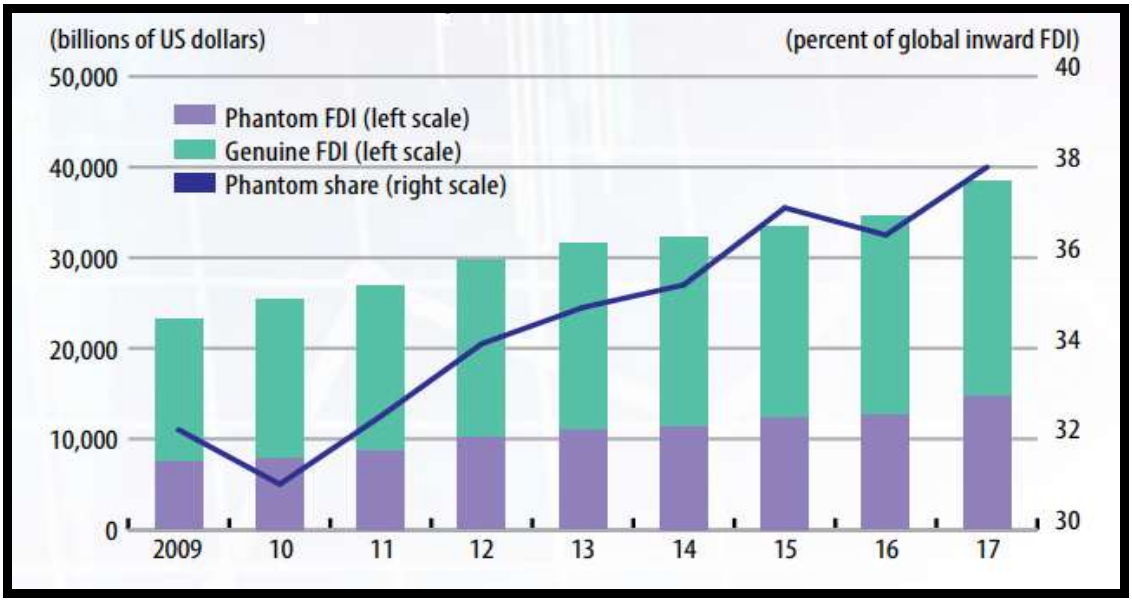
**2-1 Fdi Between The Phantom And The Genuine:**

The dilemma of corruption is in its cost that exceeds the total wasted money. Distortions caused by spending priorities weaken the state's capabilities to promote continuous and comprehensive growth, as long as these resources are spent away from education, health care and effective basic infrastructure as investments that flow in a direction Improving the economic performance of the country and raising the living standards of the members of society as a whole (Paolo et al., 2019, p 28), because effective infrastructure is a capital investment that contributes to the production process such as transportation, m communication ... It contributes to finding interactive local and external links that guarantee the local economy integration in global hunted. Usually, it relies on foreign direct investment as a basic engine for real international economic integration, starting with its stimulation of growth and job creation and increased productivity. However, the reality proves otherwise. Fake foreign direct investment does not necessarily bring increased productivity to the host country. Such investments often aim to enable international companies to evade tax, benefiting from financial and tax engineering in this regard through the use:

- Intangible asset management,
- Provide internal financing,
- Carrying out the activities of the holding companies.

The volume of fictitious investments, despite the measures limiting them globally, amounts to 15 trillion dollars, which is equivalent to the total domestic product of two giant economies, China and Germany (jannik Damgaard et al., 2019, p 12), This is equivalent to 17.24% of global GDP, which amounted to 87 trillion dollars in 2018. The following figure (1) shows the difference between fake and real foreign direct investment.

**Fig (1): Phantom FDI Has Outpaced The Growth Of Genuine FDI**




**Source**: Jannik Damgaard et al., (2019), "The Rise Of Phantom Investmets", journal of Finance & Development, Volume 56, Number 3, P: 12.

### 2-2 Inflows Of Foreign Direct Investment In The Arab Countries:

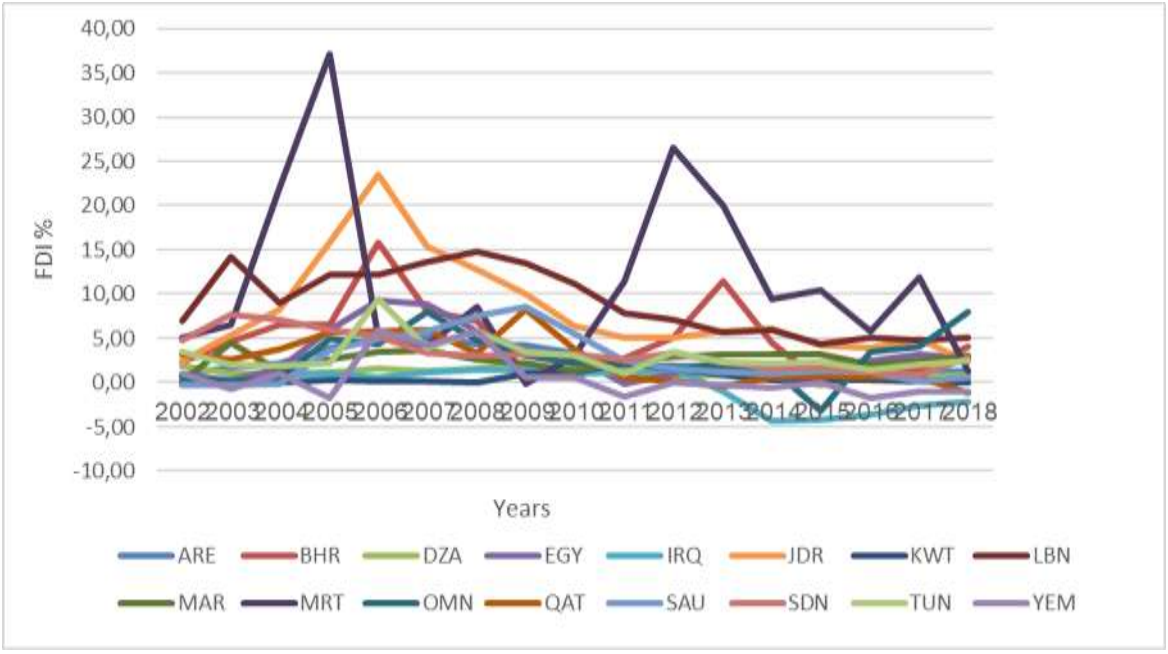
The economies of arab countries as a whole are characterized by the fragility of their institutional structure, which has affected development efforts and the sustainability of economic growth in these countries, which is reflected in the decline in the adjusted net saving (Aolgusted net Saving), which measures the total wealth of the country, specifically changes in economic capital and human and natural. Perhaps one of the main reasons for this decline in growth rates at the level of the arab region is the problem of financing.

The Arab countries have strived to solve the problem of financing by attracting foreign direct investments by providing them with the appropriate climate and environment for such investments in order to benefit from capital flows outside the framework of external indebtedness, and desiring to promote economic growth and attract more technology and increase productivity. And international organizations are classified; including the International Monetary Fund (IMF) the following operations within the foreign direct investment:

- Profit reinvestment operations,
- Transfer of capital within the company,
- Hiring private capital abroad.

Perhaps one of the most important institutional factors expelling foreign investment, we find the widespread prevalence of corruption in Arab countries and its penetration into the joints of public and private institutions alike, and in all sectors, foremost of which is administrative corruption, as well as the costs of doing business and increasing risks despite its decline In countries from Morocco, Jordan, Qatar, and Kuwait, according to the arab competitiveness (Arab Planning Institute, 2012, p 62).

**Fig (2): The growth of inflows FDI in the Arab countries during 2002-2018**




**Source**: the World Development Indicators database, world bank, site: http://databank.worldbank.org/data/download/WDI_excel.zip

The hat we notice through all the above, most Arab countries have known stability in the growth rate of the inflow of foreign direct investment during the study period between 0 and 0.5, except for some countries that were characterized by some sharp rises and sometimes a decrease in the rate below zero, depending on the circumstances that each country knows separately. For example, Mauritania, where the growth rate increased to 37.17% In 2005, it decreased sharply in the following year, then increased again in 2012, at a rate of 26.5%, And then it gradually decreases until the end of the period. As for Jordan, it also witnessed a rise, which reached 15.32% In 2006, it gradually decreased and returned to a stable situation starting in 2011. As for Lebanon, the peak growth rate of the inflow of foreign direct investment was in 2008, when it recorded 14.54.%As for the State of Bahrain, its growth rate has reached 15.75% In 2006, to rise again in 2013, but at a lower rate, reaching 11.46%As for the State of Iraq, it recorded a sharp decline near - 0.5% Starting from the year 2013, when it was recorded 4.34 -% In 2014, it is the lowest rate among all Arab countries.

Finally, countries can be classified according to the average strength and weakness of the growth rate of FDI flows into three categories during the period 2002-2018:

**Table (2). Classification of Arab countries according to the flow of FDI**

| | **Countries with weak growth rates in the flow of foreign direct investment** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Countries** | Yemen | | Kuwait | | Iraq | | Algeria | |
| **Average** | 0.60 | | 0.48 | | -0.53 | | 1.09 | |
| | Countries with moderate growth rates in the flow of foreign direct investment | | | | | | | |
| **Countries** | Tunisia | Sudan | Saudi | Qatar | Amman | Morocco | Egypt | UAE |
| **Average** | 3.07 | 3.51 | 2.63 | 2.57 | 2.85 | 2.60 | 3.13 | 2.45 |
| | Countries with strong growth rates in the flow of foreign direct investment | | | | | | | |
| **Countries** | Mauritania | | Lebanon | | Jordan | | Bahrain | |
| **Average** | 11.06 | | 9.02 | | 8.07 | | 4.87 | |

**Source**: the World Development Indicators database, world bank, site: http://databank.worldbank.org/data/download/WDI_excel.zip

## 3- Methodology Of Panel Data:

The modern approach proposes the basic formula for the regression of the panel data presented by (W. Green, 2003, p 283) as follows:

$$y_{it} = x'_{it}\beta + z'_i\alpha + \varepsilon_{it} \dots\dots\dots\dots\dots\dots (1)$$

There are K regressors in $x_{it}$ , not including a constant term. The heterogeneity, or individual effect is $z'_i\alpha$ where $z_i$ contains a constant term and a set of individual or group specific variables, which may be observed, such as race, sex, location, and so on or unobserved, such as family specific characteristics, individual heterogeneity in skill or preferences, and so on, all of which are taken to be constant over time *t*. If $z_i$ is observed for all individuals, then the entire model can be treated as an ordinary linear model and fit by least squares. The various cases we will consider are:

**3-1 Pooled Regression:** If $\mathbf{z}_i$ contains only a constant term, then ordinary least squares provides consistent and efficient estimates of the common $\alpha$ and the slope vector $\beta$. (Baltagi, Badi H. 2013, p 75).

**3-2 Fixed Effects:** If $\mathbf{z}_i$ is unobserved, but correlated with $\mathbf{x}_{it}$, then the least squares estimator of $\beta$ is biased and inconsistent as a consequence of an omitted variable. However, in this instance, the model:

$$y_{it} = x'_{it}\beta + \alpha_i + \varepsilon_{it} \dots\dots\dots\dots\dots\dots (2)$$

where $\alpha_i = z'_i\alpha$, embodies all the observable effects and specifies an estimable conditional mean. This fixed effects approach takes $\alpha_i$ to be a group-specific constant term in the regression model. It should be noted that the term "fixed" as used here indicates that the term does not vary over time, not that it is nonstochastic, which need not be the case.

**3-3 Random Effects:** If the unobserved individual heterogeneity, however formulated, can be assumed to be uncorrelated with the included variables, then the model may be formulated as:

$$\begin{aligned} y_{it} &= x'_{it}\beta + E[z'_i\alpha] + \{z'_i\alpha - E[z'_i\alpha]\} + \varepsilon_{it} \\ &= x'_{it}\beta + \alpha + u_i + \varepsilon_{it} \dots\dots\dots\dots (3) \end{aligned}$$

That is, as a linear regression model with a compound disturbance that may be consistently, albeit inefficiently, estimated by least squares (Erik biorn, 2017, p 14). This random effects approach specifies that $u_i$ is a group specific random element, similar to $\varepsilon_{it}$

except that for each group, there is but a single draw that enters the regression identically in each period.

According to (Cheng Hsia, 2014, p 327), the analysis of the panel data is characterized by high efficiency and a large number of degrees of freedom, in addition to its control of individual variance, which may appear in the case of cross-sectional or temporal data, which leads to biased results, and also has a better potential for dynamic study Modification, which cross-sectional data may hide, and the link between sample vocabulary behaviors from one point of time to another.

**4- Empirical Results Analysis:**

In order to estimate models for panel data, the methodology used requires us to start first with a study of the stability of time and cross-sectional chains for the various variables of the model for this study, then we move on to the study of long-term relationships and simultaneous integration tests of variables that have the same degree of differentiation, so that this is done by using a number of developed tests to analyze and check the unit root for the panel data.

**4-1 The Study Data And Modeling:**

The study is based on The Worldwide Governance Indicators (WGI) project reports aggregate and individual governance indicators for over 200 countries and territories over the period 1996–2018. Our empirical investigation focuses on the study of the impact of the six sub-indicators of institutional environment on inputs flows of foreign direct investment (FDI). Our sample is a panel data of 16 arab countries namely: Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Mauritania, Morocco, UAE, Oman, Yemen, Soudan, Tunisia, Qatar, Saudi over the period between 2002-2018 consisting of 270 observations.

To complete the study, FDI was selected for the countries concerned as a dependent variable, while many of the variables of good governance were included as determinants in the model.

Accordingly, the static panel model of the determinants of FDI for arab countries becomes as follows:

$$FDI_{it} = \alpha_i + \beta_1 VA_{it} + \beta_2 PV_{it} + \beta_3 GE_{it} + \beta_4 RQ_{it} + \beta_5 RL_{it} + \beta_6 CC_{it} + \varepsilon_{it} \dots\dots\dots (3)$$

Where the dependent variable (FDI) represents the flow of investment in Arab countries. Represent the independent variablesare the six sub- indicators of institutional environment, namely : Voice and accountability (VA), political stability and absence of violence (PV), government effectiveness (GE), regulatory quality (RQ), rule of law (RL) and control of corruption (CC).

**4-2 Estimate Models Of Panel Data:**

To achieve this goal, which is to estimate the model and thus reach the results through which the nature of the relationship between FDI and its determinants is explained, time and cross-sectional data approach were used through the application of three models: the random effects model and fixed effects model we obtained the following Table 3. results:

**Table (3). Estimate Models Of The Fixed Effects, Random Effects And Pooled**

| Dependent Variable: FDI_? | | | | | | |
|---|---|---|---|---|---|---|
| Method: Pooled Least Squares | | | | | | |
| Variables | Pooled Model | | Fixed Effects Model | | Random Effects Model | |
| | Coefficient | t-Statistic | Coefficient | t-Statistic | Coefficient | t-Statistic |
| C | 5.184155 | 7.172443* | 4.053818 | 3.066881* | 4.053818 | 3.066881* |
| CC_? | -3.697143 | -2.766260* | -1.039529 | -0.724663 | -1.039529 | -0.724663 |
| GE_? | 0.758350 | 0.545970 | 1.841754 | 1.146828 | 1.841754 | 1.146828 |
| RL_? | -2.069500 | -1.662103** | -3.152201 | -1.972698* | -3.152201 | -1.972698* |
| PV_? | 0.974780 | 1.563949 | 0.631739 | 0.863672 | 0.631739 | 0.863672 |
| RQ_? | 4.169497 | 3.548622* | 2.217412 | 1.539108 | 2.217412 | 1.539108 |
| VA_? | 1.387910 | 2.025620* | 0.249299 | 0.248543 | 0.249299 | 0.248543 |
| $R^2$ | 0.096689 | | 0.033421 | | 0.033421 | |
| Adjusted $R^2$ | 0.076081 | | 0.011370 | | 0.011370 | |
| F-statistic | 4.691850 | | 1.515622 | | 1.515622 | |
| Prob(F) | 0.000148 | | 0.173147 | | 0.173147 | |
| D-W stat | 0.712788 | | 1.056729 | | 1.056729 | |

**Source:** Outputs Of EViews 9.

**Note:** * Significantat at 1%.

** Significantat at 5%.

The first step is to test between the fixed effect model and the random effect model. If the fixed effect model is the appropriate model after the test, if the random effect model is the appropriate model then a further test would not be required. But if the fixed effect model is appropriate, testing must be conducted between the fixed effect model and the pooled OLS regression model. If the pooled OLS regression model is preferred then a further test would not be necessary.

Although econometric analyzes indicate that fixed effects are most appropriate for cross-sectional data across countries, this can only be confirmed after test (Hausman J.A., 1978, p 817).

This is used as a test to determine the right model between the fixed and random effects model hypothesis:

- Null hypothesis (H0): Random effects model is appropriate.
- Alternative hypothesis (H1): Fixed effects model is appropriate.

Decision criterion: reject (H0) if the probability value is less than 5%, accept (H0) if the probability value is greater than 5%.

The following table 4. Shows Hausman test of differentiation between fixed effect model and random effect.

**Table (4). Hausman Test**

| Correlated Random Effects - Hausman Test | | | |
|---|---|---|---|
| Test cross-section random effects | | | |
| **Test Summary** | **Chi-Sq. Statistic** | **Chi-Sq. d.f.** | **Prob.** |
| Cross-section random | 2.398898 | 6 | 0.8796* |

**Source:** Outputs Of EViews 9.

* Probability value not significant at 5%.

From the results of Table 4. it turns out that the calculated probability value is greater than the tabular probability value, and this leads us to accept the null hypothesis, meaning that the random effects model is the appropriate model. Therefore, there is no reason for any other test to compare the estimated models.

**4-3 Variability Stationarity Test And Cointegration:**

In order to reveal the properties of the time series of the studied variables of the panel model, we applied ADF test (Maddal and Wu, 1999), IPS test (Im,Pesaran and Shin, 2003), LLC test (Levin, Lin and Chu, 2002) to each variable separately and reached the results shown in the following table 5.:

**Table (5). Unit Root Test Result For Panel Data**

| Variables | Test type*** | Level | | 1st Difference | |
|---|---|---|---|---|---|
| | | Statistic | Prob.** | Statistic | Prob.** |
| FDI | Levin, Lin & Chu | -1.97801 | 0.0240 | -8.91977* | 0.0000 |
| | Im, Pesaran and Shin | -1.30415 | 0.0961 | -5.75811* | 0.0000 |
| | ADF - Fisher Chi-square | 42.3327 | 0.1047 | 92.7748* | 0.0000 |
| GE | Levin, Lin & Chu | -2.17415 | 0.0148 | -12.3379* | 0.0000 |
| | Im, Pesaran and Shin | 0.02511 | 0.5100 | -8.90844* | 0.0000 |
| | ADF - Fisher Chi-square | 39.3067 | 0.1752 | 123.500* | 0.0000 |
| RL | Levin, Lin & Chu | -2.10674 | 0.0176 | -11.3054* | 0.0000 |
| | Im, Pesaran and Shin | 0.43424 | 0.6679 | -7.74398* | 0.0000 |
| | ADF - Fisher Chi-square | 31.1176 | 0.5110 | 115.387* | 0.0000 |
| RQ | Levin, Lin & Chu | -2.98595 | 0.0014 | -12.8569* | 0.0000 |
| | Im, Pesaran and Shin | -0.45536 | 0.3244 | -7.48406* | 0.0000 |
| | ADF - Fisher Chi-square | 39.7710 | 0.1625 | 116.828* | 0.0000 |
| VA | Levin, Lin & Chu | -4.49711* | 0.0000 | - | - |
| | Im, Pesaran and Shin | -2.72124* | 0.0033 | - | - |
| | ADF - Fisher Chi-square | 60.7138* | 0.0016 | - | - |
| PV | Levin, Lin & Chu | -0.53153 | 0.2975 | -10.2577* | 0.0000 |
| | Im, Pesaran and Shin | 0.16955 | 0.5673 | -7.47658* | 0.0000 |
| | ADF - Fisher Chi-square | 31.9169 | 0.4709 | 112.920* | 0.0000 |
| CC | Levin, Lin & Chu | -4.85509* | 0.0000 | - | - |
| | Im, Pesaran and Shin | -2.64891* | 0.0040 | - | - |
| | ADF - Fisher Chi-square | 56.7421* | 0.0045 | - | - |

**Source:** Outputs Of EViews 9.

**Note:** * Significantat at 1%.

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

*** Automatic lag length selection based on Modified AIC.

**LLC test: Null**: Unit root (assumes common unit root process).

**IPS and ADF test**: Null: Unit root (assumes individual unit root process).

After making sure that there are five integrated panel variables of the first degree, with the exception of the two variables VA and CC, this leads us in the next step to verify the existence of a common integration between the panel variables, that is, the existence of a long-term balanced relationship between fdi and its determinants across the arab countries during the study period. By applying (pedroni P., 2004) test to cointegrtion, which is an extended test for the Engel-Grager test of cointegration, Pedroni provides a number of tests for the cointegration of the panel data, allowing disconnection variances according to the following formula:

$$FDI_{it} = \alpha_i + \delta_i t + \beta_{1i} RL_{1i,t} + \beta_{2i} PV_{2i,t} + \beta_{3i} GE_{3i,t} + \beta_{4i} RQ_{4i,t} + \varepsilon_{it} \dots\dots\dots (4)$$

Where (x) and (y) are assumed to be first degree integral I (1) and the parameters represent individual effects and direction effects respectively, and the regression residues are obtained as follows:

$$e_{it} = \rho_i e_{it-1} + \sum_{j=1}^{\rho_i} \varphi_{ij} \Delta e_{it-j} + v_{it} \dots\dots\dots\dots\dots (5)$$

It is suggested Pedroni several statistics to examine the null hypothesis, the absence of a cointegration $\rho_i = 1$, compared to two alternative hypotheses: the homogenization hypothesis $((\rho_i = \rho) < 1 \; for \; all \; i)$ for all countries, which Pedroni describes by internal dimension testing, or the panel statistic, and includes four statistics, and the hypothesis of heterogeneity $(\rho_i < 1 \; for \; all \; i)$ for each country, and describes it as an interface dimension test or group statistic and includes three statistics.

**Table (6). Pedroni Residual Cointegration Test**

| Series: FDI_? GE_? PV_? RL_? RQ_? | | | | |
|---|---|---|---|---|
| Null Hypothesis: No cointegration | | | | |
| Trend assumption: Deterministic intercept and trend | | | | |
| Automatic lag length selection based on SIC with lags from 1 to 2 | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | |
| **Alternative hypothesis: common AR coefs. (within-dimension)** | | | | |
| | Statistic | Prob. | Weighted Statistic | Prob. |
| Panel v-Statistic | -1.565136 | 0.9412 | -2.172628 | 0.9851 |
| Panel rho-Statistic | 3.478381 | 0.9997 | 2.554095 | 0.9947 |
| Panel PP-Statistic | 0.600486 | 0.7259 | -2.914434* | 0.0018 |
| Panel ADF-Statistic | -0.058354 | 0.4767 | -3.098280* | 0.0010 |
| **Alternative hypothesis: individual AR coefs. (between-dimension)** | | | | |
| | Statistic | Prob. | | |
| Group rho-Statistic | 3.899895 | 1.0000 | | |
| Group PP-Statistic | -4.035994* | 0.0000 | | |
| Group ADF-Statistic | -4.927667* | 0.0000 | | |

**Source:** Outputs Of EViews 9.
**Note:** * Significantat at 1%.

The results shown in table 6., indicate the absence of cointegration relationships between the studied differential variables of the same degree represented in Foreign Direct Investment (FDI), Political stability and absence of Violence (PV), Government Effectiveness (GE), Regulatory Quality (RQ), Rule Of Law (RL), and this is what we observe through a statistic panel V and panel RHO, except for the panel ADF and panel PP statistic, which shows acceptance of the alternative hypothesis and rejecting the null hypothesis and consequently the existence of cointegration relationships within the basket singularities (Com.AR). It also shows the statistic of the RHO group accepting the null hypothesis and the absence of cointegration relationships. As for the ADF statistic, PP shows the acceptance of the alternative hypothesis and thus the existence of cointegration relations between first-class differential basics (Indiv.AR) For Pedroni Test.

**4-4 Vector Correction Error Model**:

In the presence of a common integration between FDI and its determinants, the next step is to estimate the error correction model for the panel data (ECM) In the form of a vector system of correction error model (VCEM), during the study period (2002-2018) using equation (6):

$$\Delta FDI_{it} = \theta_i\left(FDI_{i,t-1} - \beta_i' X_{i,t-1}\right) + \sum_{j=1}^{p-1} \delta_{ij}^{*} \Delta FDI_{i,t-j} + \sum_{j=1}^{q-1} \gamma_{ij}^{*\prime} \Delta X_{i,t-j} + \mu_i + \varphi_i + \varepsilon_{it} \dots\dots\dots (6)$$

Then get the Pooled Mean Group (PMG) parameters, for the error correction model parameters (M. Hashem Pesaran, 2015, p 124), which are the long and short-run parameters and the modulation speed parameter. By estimating the error correction model for the determinants of FDI, after calculating the Pooled Mean Group Estimator, we obtained the results as in following Table 7.

**Table (7). Vector Correction Error Model (VCEM)**

| Dependent Variable: D(FDI) | | | | |
|---|---|---|---|---|
| Method: ARDL | | | | |
| Model selection method: Akaike info criterion (AIC) | | | | |
| Dynamic regressors (2 lags, automatic): GE PV RL RQ | | | | |
| Selected Model: ARDL(2, 2, 2, 2, 2) | | | | |
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **Long Run Equation** | | | | |
| GE | -7.354082 | 0.840079 | -8.754040 | 0.0000 |
| PV | 0.910178 | 0.185979 | 4.893976 | 0.0000 |
| RL | -10.86413 | 0.435665 | -24.93688 | 0.0000 |
| RQ | 12.15116 | 0.950056 | 12.78994 | 0.0000 |
| **Short Run Equation** | | | | |
| **COINTEQ01** | -0.447228 | 0.206800 | -2.162607 | 0.0332 |
| D(FDI(-1)) | 0.039195 | 0.155207 | 0.252537 | 0.8012 |
| D(GE) | -1.896903 | 2.495483 | -0.760135 | 0.4492 |
| D(GE(-1)) | -6.685820 | 3.594379 | -1.860077 | 0.0661 |
| D(PV) | 0.562488 | 2.646212 | 0.212563 | 0.8321 |
| D(PV(-1)) | -0.937877 | 2.276717 | -0.411943 | 0.6814 |
| D(RL) | 5.342281 | 3.414594 | 1.564544 | 0.1212 |
| D(RL(-1)) | 5.219333 | 3.190461 | 1.635918 | 0.1053 |
| D(RQ) | -6.533100 | 3.434631 | -1.902126 | 0.0604 |
| D(RQ(-1)) | -0.976938 | 3.345025 | -0.292057 | 0.7709 |
| C | 0.936032 | 1.146137 | 0.816684 | 0.4163 |
| Mean dependent var | -0.086092 | S.D. dependent var | | 3.799435 |
| S.E. of regression | 2.982631 | Akaike info criterion | | 3.031298 |
| Sum squared resid | 800.6481 | Schwarz criterion | | 5.430246 |
| Log likelihood | -229.2253 | Hannan-Quinn criter. | | 3.994611 |

**Source:** outputs of EViews 9.

**Note:** * Significantat at 1%.

*Note: p-values and any subsequent tests do not account for model selection.

**Conclusion:**

Foreign direct investment is considered one of the most important sources of external financing at present that will provide capital for the development process, and a tool for introducing modern technologies and technical and administrative expertise to the arab countries under study, increasing the workforce skills and introducing modern methods of production, and raising the efficiency of local products and increasing their competitiveness. Therefore, the study aims to identify the nature of the specific investment environment for foreign direct investment and to measure the impact of investment environment indicators on foreign direct investment in arab countries using the Panel Data methodology, The study reviewed the literature on foreign direct investment and previous studies of the subject and the methodology of econometrics used in the study. The study reached the following results:

- That there is a value of phantom FDI that has a large share of total investments, the purpose of which is tax evasion and money laundering.
- FDI inflows rates differ in Arab countries and are classified into three categories.
- Most Arab countries have moderate growth rates in the inflow of foreign direct investment.
- Foreign direct investment in Arab countries is subject to many factors, most notably the political situation and regulatory laws that encourage the investment environment, and this proves **the first hypothesis**.
- The econometric study concluded that the appropriate model is the random effects model, and this proves the validity of **the second hypothesis**.
- The unit root test results indicate that five complementary variables are of the same degree, except for only two variables: control corruption (CC), and voice and accountability (VA).
- The study also found, through the Pedroni test, that there is a long-term equilibrium relationship between the independent variables and the inflows of foreign direct investment, and this proves **the third hypothesis**.

Recommendations:

- Work to issue more legislations and laws to encourage the flow of foreign direct investment.
- Promote the principles of governance and e-government and the transparency of administrative procedures in bodies related to facilitating foreign investment.
- The development of the banking system because of its role in financing investment projects.

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