

## The impact of Business environment on foreign direct investment attractiveness in Algeria

أثر بيئة الاعمال على استقطاب الاستثمار الأجنبي المباشر في الجزائر

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**Abstract:** The study aims to focus on the effectiveness of business environment in helping of facilitating the influx of foreign direct investment (FDI) to Algeria for the period of 2008 to 2018. To critically examine the topic, we used correlation and regression analysis. Form the methodologies used; it is conclude that the business environment matters significantly for FDI inflows. Moreover, was found that statistically, more ease of starting business and lower corruption score decrease the FDI inflow to the country. However, economically more free country with higher score does attract more FDI to Algeria. This paper is the first to examine the quantitative impact of business environment on FDI attractiveness in Algeria.

**Keywords:** Business environment, business environment indicators, foreign direct investment (FDI), linear regression, Algeria.

**Résumé :** L'étude vise à mettre l'accent sur l'efficacité de l'environnement des entreprises pour faciliter l'afflux d'investissements directs étrangers (IDE) en Algérie pour la période 2008-2018. Former les méthodologies utilisées; On peut en conclure que l'environnement commercial revêt une grande importance pour les entrées d'IED. En outre, il a été constaté que, statistiquement, une plus grande facilité de création d'entreprises et un score de corruption plus faible réduisent les entrées d'IED dans le pays. Cependant, un pays économiquement plus libre avec un score élevé attire plus d'IED en Algérie. Ce document est le premier à examiner l'impact quantitatif de l'environnement commercial sur l'attractivité des IDE en Algérie.

**Mots-clés :** Environnement des entreprises, indicateurs de l'environnement des entreprises, investissement direct étranger (IDE), régression linéaire, Algérie.

**ملخص:** تهدف الدراسة إلى التركيز على فعالية بيئة الأعمال في المساعدة على تسهيل تدفق الاستثمار الأجنبي المباشر إلى الجزائر للفترة من 2008 إلى 2018. لدراسة الموضوع بشكل نقدي، استخدمنا تحليل الارتباط و الانحدار. و بعد تشكيل المنهجيات المستخدمة ؛ يستنتج أن بيئة الأعمال تم تدفقات الاستثمار الأجنبي المباشر. علاوة على ذلك ، وجد إحصائياً أن المزيد من سهولة بدء الأعمال التجارية وانخفاض درجة الفساد تقلل من تدفق الاستثمار الأجنبي المباشر إلى البلاد. لكن من الزاوية الاقتصادية، فإن رصيد البلد من مؤشر الحرية الاقتصادية بدرجة أعلى يجذب المزيد من الاستثمار الأجنبي المباشر إلى الجزائر. مع الإشارة ان هذه الورقة هي الأولى التي تدرس التأثير الكمي لبيئة الأعمال على جاذبية الاستثمار الأجنبي المباشر في الجزائر.

**الكلمات المفتاح :** بيئة الأعمال؛ مؤشرات بيئة الاعمال؛ الاستثمار الأجنبي المباشر؛ الانحدار الخطي؛ الجزائر.

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## **I- Introduction :**

As the world village races to its globalization, we are living in an era of multinational corporations which evolve international as well as domestically in search for comparative competitiveness. Meanwhile, strategic selection of foreign capital was proposed as a new direction of foreign investment policy, with more emphasis on its level of contribution to the competitiveness of Algerian Economy than on just size of the inflow of the capital.

In reality, efforts to attract foreign investment is very competitive even among developed countries, to takes advantage of the positive aspects of foreign investments for the development of their own economy, such as expansion of investment fund and introduction of new technology, and their efforts are even intensifying for the improvement of their competitiveness, balanced regional development of their countries and the creation of new jobs and so forth of economic benefits .

Of course, foreign investment had both positive and negative aspects, however if foreign investment is an inevitable choice for economic development of Algeria, there should be a good system that can support foreign investment, maximizing the positive aspect while minimizing the side effects .

### **I.1. Objectives**

The study of the role of business environment in promoting FDI aims to analyze the issues that may arise in the context of in international approaches to investment rulemaking and their impact on development. In addition, as international agreements have a vital role in attracting foreign investors in the host country, it is important to set out the role which such factors through indicators play and whether the impact of the agreements depends on the specific type of business environment indicators.

### **I. 2. Research question:**

For the analysis part of the research, the selected country is Algeria. In a contextual approach, the study sets out the various endeavors put forward by Algerian legislator to encourage FDI in Algeria with a view to boost the economic development of the country.

There is an abundant literature available with regards to the economic side of FDI Algeria, but very little studies have been portrayed to focus on business environment both micro and macro sides, through their international indicators produced by international institutions and foundations. This research is set to analyses the business environment for attracting FDI in Algeria with a particular attention on the business environment indicators. The main question to which this study seeks to address is as follows :

*How could business environment indicators helping Algeria to attract foreign investment?*

This rest of the paper is organized as follows: section 2 reviews the previous literature theories and gives an overview of the business environment. Section 3 provides an analysis of the methodology that used in this study. Section 4 discusses the results of empirical implication section 5 concludes the paper.

## **II –Literature review:**

There are quite remarkable studies in the literature that concerns business environment linkages to FDI attractiveness. Earlier studies have been focused on improvement of Investment environment especially investment Incentive on national economy the first decade following the 1997 crisis. (Jae-Young moon & others, 2008) in their study on the evolution of dynamic linkages across eight developed national stock indices using autocorrelation function and dynamic simultaneous equations model revealed that market interdependence was growing within the same geographical region through the period of study alongside with a high level of international market efficiency.

More recent study about this topic was done by Kiichi Tokuoka (2013) inspected whether the business environment especially costs of doing business affects corporate investment in India. The study used micro panel regression to estimate the impact of costs of doing business on corporate investment. He concluded that improving the business environment by reducing costs of doing business, improving financial access, and developing infrastructure could stimulate corporate investment. More specifically, the estimate suggest that reducing the average of each cost of doing business to the lowest among Indian cities could boost aggregate corporate investment by as much as 10 percent .

Another topic that has received significant attention in the literature was done by Aneta Bobenič Hintošová and others (2016), which focused on influence of business environment on foreign direct investment inflow to Visegrád countries to the period of 2005-2015. They used correlation and regression analysis of five selected business environment indicators as independent variables and FDI inflow in the counterpart of equation. They found significant matters of business environment for FDI inflow, although the direction and strength of dependence differs according to analyzed factors. Moreover, the results showed empirically that better global competitiveness index leads to higher volume of inward FDI. However, economically more free country, which more globalized, with better ranking, does not attract more FDI inflows, but rather the opposite.

Finally, the latest study was done by Manu K.S & Vivek Patel (2018) attempted to investigate the dynamic linkage between Corruption Index (CPI) as the main indicators of business environment and Foreign Direct Investment of 15 developed and developing countries based on the highest GDP for the period of 21 years from 1996-2016 . The study used correlation, regression and granger causality test to analyze the relationship. The study found high positive correlation between

FDI and CPI for developing countries. In the reverse for developed countries, where observed low negative and positive correlation between FDI and CPI. Further the study found uni-directional causality from corruption index to FDI of India .

It is generally agreed that none of previous studies has done in Algeria or even in more recent period. As a result, it leads to a contextual gap. Moreover, methodologically our study used score of business indicators instead of ranking, which leads to more relevant data.

### **III– Methods and Materials:**

To answer the research question, we have examined the effects that widely used indices of the business environment and institutions. Business environment can be explained by a number of factors. Foreign investors are assumed to make their decision of investment both from the micro and macro sides.

In particular, in the empirical analysis that follows in this study we are particularly interested in the question of which of the selected explanatory variables that support with relative most influential power to explain the variation in FDI in the countries.

It should also be mentioned that other types of circumstances may have influence on business environment, for example macro-indexes such as standard & Poors, Moody's and Fitch ratings etc or Country risk indexes like PRS, Coface . However, in this study, a choice has been made to limit the empirical analysis and focus the variable identified below.

Our indicators of business environment regulations come from the Starting a business (ISB) section of the World Bank's Doing Business database, which provides country-level indicators to measure the efficiency of the business registration process. The first indicators, Starting Costs, capture all official fees and additional fees for the legal and professional services involved in incorporating a business, and are measured as percentage of the economy's income per capita. The second indicator is the Number of Procedures necessary to incorporate a business. Third, Starting days, measures the time required to start a business, which is defined as the number of days that incorporation lawyers indicate is necessary to complete all required procedures with minimum follow-up with government agencies and no extra payments. Fourth, paid-in minimum capital requirement captures the amount that an entrepreneur needs to deposit in a bank or with a notary before or shortly after registration and its recorded as a percentage of income per capita (Leora Klapper,2011).

In case of Index of Economic Freedom (IEF) by the heritage foundation. The index values are used and higher values are associates with higher quality of business environment. This index measures the impact of liberty and free markets around the globe (Aneta Bobenic, 2016). The index is mainly based on a variety of other indicators (including the World Bank's doing business ranking). Moreover, qualitative information is converted into quantitative measures, as is the case

with as for trade restrictions. Finally, some components, especially fiscal and macrocosmic variables, are calculated from basic economic figures (World Economic Forum, 2011).

Corruption Perception Index (CPI) by Transparency International is used as characteristic of institutional business environment, and it is scoring countries on how corrupt their public sectors are seen to be. The higher score represents more corruption in country, and it captures the informed views of analysts, business people and experts in countries around the world.

The Global competitiveness index (GCI) of the World Economic Forum, defines (World Economic Forum, 2011) competitiveness as the set of institutions, policies and factors that determine the level of productivity of a country. It comprises institutions, infrastructure, education, health, innovation and the efficiency of goods, labor and financial markets. The GCI is mainly based on an annual survey of business executives and thus presents a qualitative picture of each country's economic and business environment. Additionally, other indicators or macroeconomic data play a role in determining each country's ranking. The indicator is divided into three sub-indexes ranging from basic requirements to sophistication factors and the weight of these sub-indexes varies across countries depending on the actual development stage.

KOF index of Globalization (KOFG) by Swiss Federal Institute of technology Zurich measures economic, social, and political dimension of globalized country.

We investigated the effect of the business environment on FDI inflows using pooled annual data for the period of 2008 to 2018 for Algerian case.

In order to process the empirical analysis, linear regression has been used, which estimates the coefficients to the linear equation. Also, that will allow seeing the potential correlation. The main purpose of the correlation is to see how the change in different factors impacts the level of the FDI. In this model of the regression, different variables will be used which have direct or indirect impact on the Foreign Direct investment inflow, which will be the dependent variable.

Below is an explanation of linear regression, which estimates the coefficients of the linear equation:

$$FDI_t = \alpha_t + \beta X_t + \varepsilon_t$$

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In equation, t denote a time subscripts,  $\alpha$  is constant, and  $\varepsilon$  is the error term. The dependent variable  $FDI_t$  refers to the FDI inflow in time t, which is expected to be influenced by the vector of the independent variables observed in the previous period (t-1) is the vector of parameter

coefficients to be estimated. Before conducting the regression analysis, the correlations between all pairs of variable is performed.

Table 1 introduces the Pearson correlation coefficients between pairs of all variables. We did not find high correlation between pairs of independent variables, what leads to no suspicion of multi-collinearity problem in the model. Albeit, we use the no suspicion of VIF ( Variance Inflation Factors) to test a possible collinearity problem in the Model. Based on correlation coefficients, the positive effect of the variable Ease of doing business, Index of Economic Freedom, Global competitiveness Index while the negative effects of the variables Index of Economic Freedom, and KOF index of Globalization on FDI inflow are expected in the regression model.

**Table (1) : Pearson Correlation matrix**

	fdi	isb	ief	GCI	CPI	kof
fdi	1	,703* (,016)*	-,539 (,087)	,054 (,875)	,636* (,036)*	-,527 (,096) **
isb	,703* *,016	1	-,795** (,003)*	,396 (,228)	,650* (,031)*	-,658* (,028)
ief	-,539 (,087)	-,795** (,003)*	1	-,089 (,795)	-,836** (,001)*	,708* (,015)*
GCI	,054** (,875)	,396 (,228)	-,089 (,795)	1	,053** (,876)	-,101 (,767)
CPI	,636* (,036)	,650* (,031) *	-,836** *(,001)	** ,053 (,876)	1	-,349 (,293)
kof	-,527 (,096) **	-,658* (,028) *	,708* (,015)	-,101 (,767)	-,349 (,293)	1

Notes: The values in parentheses are the p-value for the Pearson correlation coefficient. According to p-values \*, \*\* denotes a statistical significance at the level of 10, 05 respectively.

**IV- Results and discussion :**

In order to make it easier to understand the results of the paper and review the empirical analysis here will be presented descriptive statistical with visual representation of results in form of plots and Table 1, which will include mail statistical indicators in Table 2

**Table (2) : Summary statistics .**

	FDI	ISB	IEF	GCI	CPI	KOFG
Mean	1705.574	75.00000	51.24545	3.905455	23.25455	50.46455
Median	1637.040	73.74000	50.80000	3.960000	34.00000	61.56000
Maximum	2753.760	78.04000	56.90000	4.080000	36.00000	63.30000
Minimum	-584.4600	72.48000	44.70000	3.710000	2.800000	0.000000
Std. Dev.	931.1922	2.117905	4.020787	0.134191	16.12572	24.96134
Skewness	-1.209752	0.490966	0.082650	-0.313652	-0.556529	-1.646477
Kurtosis	4.419872	1.536539	2.033108	1.677418	1.324138	3.716865
Jarque-Bera	3.607102	1.423542	0.441010	0.982086	1.855062	5.205496
Probability	0.164713	0.490774	0.802114	0.611988	0.395529	0.074070
Sum	18761.31	825.0000	563.7000	42.96000	255.8000	555.1100
Sum Sq. Dev.	8671189.	44.85520	161.6673	0.180073	2600.387	6230.685
Observations	11	11	11	11	11	11

Source; Authors' calculation

Table 3 shows the empirical results of pooled OLS parameter estimation of the model (1). The reported numbers for each variable are coefficients and their p-values, and asterisks denoting levels of statistical significance, based on p-values. The variables Index of starting business and Corruption Perception Index, and constant are statically, significant at the level of 0.1.

The variables with the statistical significance in the model are *Index of Starting a business (ISB)* at 10 % of significance, *Index of Economic Freedom (IEF)* and *Corruption Perception Index (CPI)* at 5% of significance. On the contrary, *Corruption Perception Index (CPI)* and *KOF index of Globalization (KOFG)* are expected as non-statistical significance in the model at the level of 0.1 or even 0.5.

**Table (3) : OLS estimation of coefficients**

Dependent variable: FDI					
variables	Constant	coefficients	R <sup>2</sup>	F-statistic	Prob (F-statistic)
ISB	21218.12 *(0.0403)	-260.1672 **(0.0552)	0.350138	4.849096	0.055154
IEF	-5817.172 **(0.0905)	146.7983 (0.0362)	0.401777	6.044569	0.036244
GCI	7325.289 ( 0.4288)	-1438.940 ( 0.5407)	0.042999	-90.04351	0.404375
CPI	2704.297 *(0.0000)	-42.94745 *(0.0087)	0.553139	11.14049	0.008691

KOF	-22277.21 (0.4412)	390.0444 ( 0.4072)	0.099952	0.777362	0.407203
Note: the values in parentheses are the p-values for the Pearson correlation coefficient. According to p-values, *,** denotes a statistical significance at the level of .10 and .05 respectively.					

**Source; Authors' calculation**

The value of the coefficient of determination indicates that the model can explain 70% of the variation in the dependent variable. The low p-value of F-statistic confirms the significance of the regression model. Reported Durbin-Watson statistic does not indicate serial autocorrelation problem in the model. The White's test for heteroskedasticity with a high p-value does not lead to rejection of the null hypothesis that there is no heteroskedasticity problem in the model.

In case of *Index of Starting a business (ISB)* has a negative and low (35%) impact on FDI inflow. That means the country-level indicators to measure the efficiency of the business registration process in Algeria are very low. When country, increase in this index by one point, the volume of FDI inflow decrease by 260 Mil. USD per year.

The second highest statistical significance has *Index of Economic Freedom (IEF)*, with positive impact on the dependent variables, as well. When country, increase in this index by one point, the volume of FDI inflow increase by 146 Mil. USD. Higher values of the index, indicating economically free society, are associate with lower value of inward FDI a-vise-versa.

Negative, high, and statistically, significant impact has also been found for the variable corruption Perception Index, where one point increase in index led to decrease in FDI inflow by 42.92 million USD.

Positive, but, statistically not significant impact is found for the variable KOF, where score of country was used and better position by one level from the globalization indicates lower FDI inflow by 390 Million USD.

### **V- Conclusion:**

It has become fashionable in recent years to argue that the business environment plays a major role in determining the overall strength of the FDI attractiveness .Throughout the course of this empirical study, the impact of business environment on attracting FDI in Algeria has been assessed, measured by different composite indicators, leads higher inward FDI in conditions of Algeria. Our results rather controversial, we found higher index of starting business in the country, the lower volume of inward FDI receive. However, economically, higher score of index of starting business does attract more FDI inflows, in public or private sector as well. Similarly, in case of corruption Perception Index, higher score leads to lower FDI inflows, but rather the opposite. To sum up, it is important for the Algerian policymakers to improve overall business environment indicators.



## **VI- Appendices:**

**Table (1) : variables time series**

Years	FDI (million USD)	ISB (score)	IEF (score)	GCI (score)	CPI (score)	KOFG (score)
2008	2631.71	72.48	56.2	62.24	3.2	62.24
2009	2753.76	73.32	56.6	61.56	2.8	61.56
2010	2301.23	73.5	56.9	63.3	2.9	63.3
2011	2580.35	73.53	52.4	62.02	2.9	62.02
2012	1499.45	73.74	51	60.95	34	60.95
2013	1696.86	73.61	49.6	60.38	36	60.38
2014	1506.73	74.57	50.8	61.27	36	61.27
2015	-584.46	76.59	48.9	61.57	36	61.57
2016	1637.04	78.04	50.1	61.82	34	61.82
2017	1232.31	77.86	46.5	-	33	-
2018	1506.31	77.76	44.7	-	33	-

**Source: Authors' selection based on:**

- <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx> (31/08/2019)
- <https://www.doingbusiness.org/en/data/exploretopics/starting-a-business/score> (04/09/2019)
- <https://www.heritage.org/index/country/algeria> (06/09/2019)
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