An Econometric Study of The Impact of Corruption on The Foreign Direct Investment in Algeria using Autoregressive Distributed Lag (ARDL)

دراسة قياسية لأثر الفساد على تدفق الاستثمار الاجنبي المباشر في الجزائر باستخدام نموذج الانحدار الذاتي للفجوات الزمنية الموزعة المتباطئة

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ملخص

تهدف هذه الدراسة إلى قياس أثر الفساد على تدفق الاستثمار الاجنبي المباشر في الجزائر خلال الفترة 1995-2018 ولتحقيق هذا المبتغى تم استخدام نموذج الانحدار الذاتي للفجوات الزمنية الموزعة المتباطئة (ARDL/bounds)، وقد تم التوصل من خلال اختبار الحدود أنه توجد علاقة توازنية طويلة الاجل بين الفساد المعبر عنه بمؤشر مدركات الفساد وتدفق الاستثمار الاجنبي المباشر، كما تم التوصل أن للفساد أثر سلبي على تدفق الاستثمار الاجنبي المباشر في المدى القصير والطويل لدى فإن السيطرة على الفساد ستحسن من تدفق الاستثمار الاجنبي المباشر الى الاقتصاد الجزائري.

الكلمات المفاتيح: الفساد، الاستثمار الاجنبي المباشر، الجزائر، منهجية ARDL

تصنيف JEL: Q47; Q53.Q56

Abstract

The study aimed to examine of the impact of corruption on foreign direct investment for the period of 1995-2018 in Algeria by employing the ARDL/bounds test approach. The results of the bounds test suggest a long-run equilibrium relationship between foreign direct investment and corruption on the other hand the impact of corruption has a negative impact on foreign direct investment in the short-run and long-run in Algeria. Therefore controlling corruption may attract more foreign direct investment inflows to the Algeria economy

Key words: corruption; foreign direct investment inflows; Algeria; ARDL/bounds.
Jel Classification Codes : Q47; Q53.Q56.

Introduction:

Algerian governments have sought to implement a series of reforms since the early 1990s, amend investment legislation, and provide many guarantees and privileges to foreign investors in order to develop their investment climate, thereby motivating foreign investors to export their direct investments to them, especially in other non-hydrocarbon sectors. Nevertheless, there are a number of obstacles that have made most of the indicators in Algeria indicative of the fact of the past, and the absence of foreign direct investment in Algeria. Nevertheless, determination of macroeconomic and institutional determinants of FDI inflows also gained importance for the countries to attract more FDI flows. One of the important institutional determinants has been found to be corruption. There are two main views on the impact of corruption on FDI inflows. One view suggests that corruption affects FDI inflows negatively, because corruption increases the costs and weakens transparency, property rights and competitive environment and prevents efficiently functioning of the governments. On the other hand the other view suggests that corruption affects FDI inflows positively, because corruption can eliminate the problems arising from poor institutions and regulations (Bayar & Alakbarov, 2016), In this regard, this study will focus more on the Impact of Corruption on Foreign Investment.

- The hypotheses of the study:

There are different relationships of strength and direction and significant significance between foreign direct investment inflows and the variables explained and influential.

- The approach and objectives of the study:

This study followed a quantitative approach to test the existence of effects of corruption on direct investment inflows in Algeria during the period of 1995 to 2018 by using the Autoregressive distributed lag (ARDL) bounds approach for co- integration in order to test the long run relationship between the variables subject of study.

The rest of the paper is organized as follows. Section 2 provides a brief review of the literature. Section 3 explains the model specification, data and methodology. Section 4 discusses the empirical results. Section 5 concludes the research paper.

I- Literature Review:

In the corruption literature, most of the studies indicate that corruption has adverse effects on the investment environment and thus it diminishes foreign direct investment (FDI) inflows;(Ali, 2009)(Kartikeya & Aparna, 2013); (Egger & Winner, 2005) ; (Okada & Samreth, 2010) ; (Gehan, 2017); (Tosun & al, 2014).

(Nabila & al, 2015), investigate the relationship among Institutional Quality and Economic Growth for the period 1990 to 2013 for 13 developing economies of Asia. By applying Panel ARDL Approach.The results of Panel ARDL show that institutional quality has positive impact on economic growth. The results of panel causality test show that causality runs from institutional quality to economic growth.In Indonesia (Oktiani & Oktiani, 2016), explore the Impact of Corruption on Domestic and Foreign Investment for the period 2003 to 2015, are analyzed individually by simple linear regression method using SPSS software.the findings indicate that the corruption level which represented as the CPI of Indonesia has impact on investment, especially the FDI. The previous year CPI score and the same year CPI score have positive and significant impact on the FDI realization.

In the same line of research, (Matthias & Carsten, 2007) , estimated a long run among political risk, institutions, and foreign direct investment inflows For a data sample of 83 developing countries covering 1984 to 2003, they used a Panel Data. The results show that

government stability, internal and external conflict, corruption and ethnic tensions, law and order, democratic accountability of government, and quality of bureaucracy are highly significant determinants of foreign investment inflows. In the same research field (Heba E, 2013), investigate the relationship among corruption and FDI flows for the period 2003 to 2009 for 21 MENA countries. By applying Panel ARDL Approach.The results of panel data analysis show that FDI in MENA was found to vary positively with per capita income, openness, freedom and security of investments and negatively with the tax and homicide rates. Since corruption was not found to hinder FDI inflows, treating corruption should be based on sound legal procedures that infringe neither on the rights, freedom and security of FDI nor on the degree of openness and freedom of the economy, which are the real stimulants of FDI in MENA.In a study conducted by (Xingwang & Jesus, 2016), explore the Impact of "corruption distance," defined as the difference in corruption levels between country pairs on bilateral foreign direct investment (FDI). Using a "gravity" model and the Heckman (1979) two-stage framework on a data set of forty-five countries from 1997 to 2007, we find that corruption distance adversely influences both the likelihood of FDI and the volume of FDI. A novel finding in this study is that we identify the asymmetric effect of corruption distance and find that the positive corruption distance, defined as the corruption distance from a high corruption source to a low corruption host country, is the prominent one that affects the behavior of bilateral FDI.

II- Methods and Materials:

This research investigates the short-run and long-run effects of Corruption on FDI using linear and nonlinear autoregressive distributive lag (ARDL) models. Working with data availability, our empirical analysis is carried out over the period of 1995 to 2018, The variables used in this study are (FDI) net inflows as percent of (GDP) as a proxy for FDI inflows, the corruption level is measured as (CPI); The annual CPI, data are collected as the secondary data which published by Transparency International. and infation (inf) and international trade (OP) and broad money as a percentage of GDP (M2GDP) and Infrastructure (IS) and Human Capital (HC).

The data is derived from Transparency International , World Bank Data. Following (Ali, 2009);(Kartikeya & Aparna, 2013); (Egger & Winner, 2005) ; (Okada & Samreth, 2010) ; (Gehan, 2017); (Tosun & al, 2014)the model includes form as:

$$FDI = \alpha_0 + \alpha_1 CPI + \alpha_2 HC + \alpha_3 INF + \alpha_4 IS + \alpha_5 M2/GDP + \alpha_6 OP + \varepsilon_t \ldots..(1)$$

To reduce the variation and induce stationary in the variance-covariance matrix, the natural logarithmic form (Ln) is applied to all the variables. The log linear equation to examine the longrun relationship between variables is given as follow:

$$\ln FDI = \alpha_0 + \alpha_1 \ln CPI + \alpha_2 \ln HC + \alpha_3 \ln INF + \alpha_4 \ln IS + \alpha_5 \ln M2/GDP + \alpha_6 \ln OP + \varepsilon_t \ldots..(2)$$

To estimate equation (2) in the long run, we will use the ARDL model used by Pesaran and Shin (1999) and then extended by Pesaran et al. (2001), as the ARDL methodology does not require that the time series of the variables under study are not of the same rank, ie, both the I (0) and the I (1) Provided that the time series of the variables under study are not in the second difference I (2). The ARDL methodology is characterized by a set of characteristics that distinguish it from other standard methods. (Oktiani & Oktiani, 2016); (Emeka & Aham, 2016) .

- ✓ All variables of the model are assumed to be endogenous.

- ✓ Bounds test method for cointegration is being applied irrespectively the order of integration of the variable.
- ✓ There may be either integrated first order I(1) or I(0).
- ✓ The short-run and long-run coefficients of the model are estimated simultaneously. An ARDL representation of equation (1) is formulated as follows:

$$\begin{aligned}\Delta \mathrm{LNFDI}_t = {} & c + \alpha_1 \mathrm{LNFDI}_{t-1} + \alpha_2 \mathrm{LNCPI}_{t-1} + \alpha_3 \mathrm{LNHC}_{t-1} + \alpha_4 \mathrm{LNINF}_{t-1} \\ & + \alpha_5 \mathrm{LNIS}_{t-1} + +\alpha_6 \mathrm{LNM2/GDP}_{t-1} + \alpha_7 \mathrm{LNOP}_{t-1} + \sum_{i=1}^{p} \beta_{1i} \Delta \mathrm{LNFDI}_{t-i} \\ & + \sum_{i=0}^{p} \beta_{2i} \Delta \mathrm{LNCP\ddot{I}}_{t-i} + \sum_{i=0}^{p} \beta_{3i} \Delta \mathrm{LNHC}_{t-i} + \sum_{i=0}^{p} \beta_{4i} \Delta \mathrm{LNINF}_{t-i} \\ & + \sum_{i=0}^{p} \beta_{5i} \Delta \mathrm{LNIS}_{t-i} + \sum_{i=0}^{p} \beta_{6i} \Delta \mathrm{LNM2/GDP}_{t-i} + \sum_{i=0}^{p} \beta_{7i} \Delta \mathrm{LNOP}_{t-i} \\ & + break_t + \gamma_t + \varepsilon_t\end{aligned}$$

…..(03)

Where Δ denotes the first difference operator ; break is the dummy varaible that captures the regime change in the model, c is an intercept, t refers to time period in years from 1995 to 2018 and ε_t is the usual white noise residuals. The left hand side is the **Foreign Direct Investment**, the first until fourth expressions ($\alpha_1 - \alpha_7$) on the right hand side correspond to the long run relationship. the remaining expressions with the summation sign (β_1-β_7) represent the short run dynamics of the model, to investigate the presence of long relationships among the (FDI, CPI, HC, INF, IS, M2/GDP, OP), the lag (p) is determined using the VAR optimal model, which means that the lag minimizes the Akaicke (AIC), Schwarz (SIC) and Hannan-Quinn (HIC) information criteria.

After regression of Equation (03), the Wald test (F-statistic) was computed to differentiate the long-run relationship between the concerned variables, bound testing under Pesaran et al (2001) procedure is used , the bound testing procedure is based on the F test. The F test is actually a test of the hypothesis of on coinetegration among the variables against the existence or presence of cointegration among the variables denoted as : Ho: $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = \alpha_7 = 0$, i.e., there is no cointegration among the variables Ha : $\alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq \alpha_6 \neq \alpha_7 \neq 0$, i.e., there is cointegration among these varibles. Therefore, if the computed F-statistic is smaller than the lower bound value, then the null hypothesis is not rejected and we conclude that there is no long-run relationship between. Conversely, if the computed F-statistic is greater than the upper bound value, then **Foreign Direct Investment** and its determinants share a long-run level relationship. On the other hand, if the computed F-statistic falls between the lower and upper bound values, then the results are inconclusive.

Once the null hypothesis of no cointegration is rejected, and cointegration is established, in the second step, the conditional ARDL long-run model that captures the long-run dynamic may be estimated as (04) where the orders of the ARDL(q1,q2, q3, q4,q5,q6, q7) model are selected by using AIC.

$$\mathrm{LNFDI}_t = c + \sum_{i=1}^{q1} \alpha_{1i}\,\mathrm{LNFDI}_{t-i} + \sum_{i=0}^{q2} \alpha_{2i}\,\mathrm{LNCPI}_{t-i} + \sum_{i=0}^{q3} \alpha_{3i}\,\mathrm{LNHC}_{t-i} + \sum_{i=0}^{q4} \alpha_{4i}\,\mathrm{LNINF}_{t-i} + \sum_{i=0}^{q5} \alpha_{5i}\,\mathrm{LNIS}_{t-i} + \sum_{i=0}^{q6} \alpha_{6i}\,\mathrm{LNM2/GDP}_{t-i} + \sum_{i=0}^{q7} \alpha_{7i}\,\mathrm{LNOP}_{t-i} + break_t + \gamma_t + \varepsilon_t \dots\dots\dots (04)$$

Finally, the end step aims to estimate the error correction model for the short-run by using the ordinary least squares method and the AIC and SIC to select the order of the ARDL (p1, p2, p3, p4, p5, p6, p7). This model may be written as follows:

$$\Delta\mathrm{LNFDI}_t = c + \alpha_1 + \sum_{i=1}^{p1} \beta_{1i}\,\Delta\mathrm{LNFDI}_{t-i} + \sum_{i=0}^{p2} \beta_{2i}\,\Delta\mathrm{LNCPI}_{t-i} + \sum_{i=0}^{p3} \beta_{3i}\,\Delta\mathrm{LNHC}_{t-i} + \sum_{i=0}^{p4} \beta_{4i}\,\Delta\mathrm{LNINF}_{t-i} + \sum_{i=0}^{p5} \beta_{5i}\,\Delta\mathrm{LNIS}_{t-i} + \sum_{i=0}^{p6} \beta_{6i}\,\Delta\mathrm{LNM2/GDP}_{t-i} + \sum_{i=0}^{p7} \beta_{7i}\,\Delta\mathrm{LNOP}_{t-i} + \Delta break_t + \gamma_t + \mu\mathrm{ECM}_{t-1} + \varepsilon_t \dots\dots\dots (05)$$

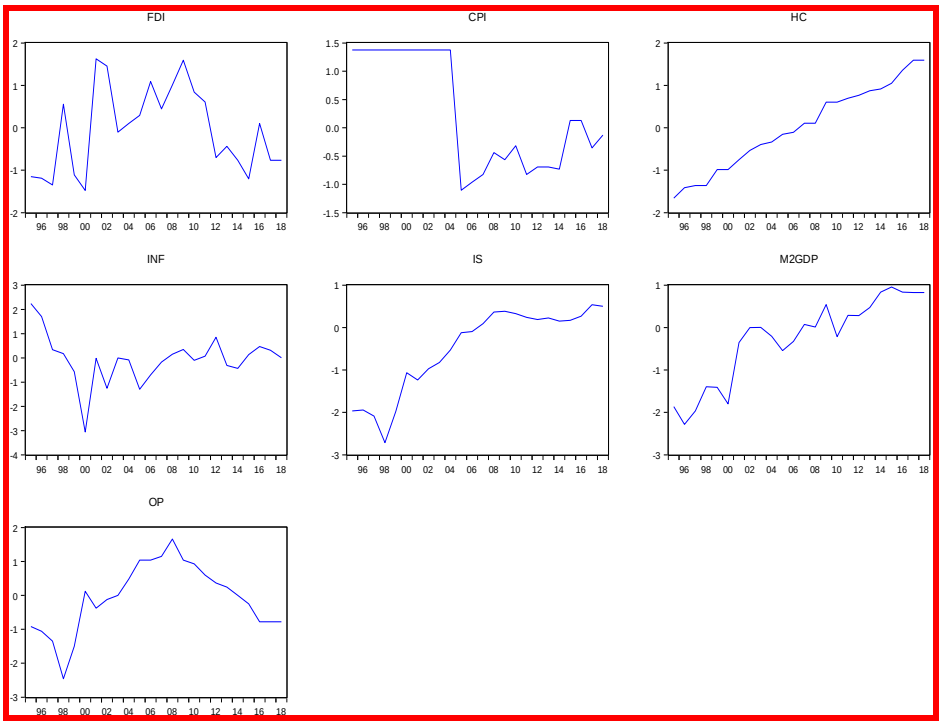
In addition, the stability of the error correction model (eq.05) was checked by the Cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests.

III - Results and discussion:

The results of the analysis are organized in a sequential order as first some importante descriptive stats are presented second the test of Stationary is applied through (ADF), we have to check for the lag selection criteria and in the end we examine the long-run relationship of the model through (ARDL) and short-run relationship of the variables through (ECM), and stability of the functions was also tested by CUSUM and CUSUMSQ.

The series for (FDI) net inflows, and corruption. (CPI), are presented in the figure1.

Figure n°1: (FDI) net inflows, and corruption (CPI), in Algeria,



The source : Eviews 09 output

III.1.Result of Descriptive Statistics :

Table 01 ; Shows the descriptive statistics of the variables used in our study, the mean of FDI inflows is a amounted to 0.21 percent of (GDP) with the standard deviation 0.054 percent over the period of 1995-2018, the FDI inflows can achieve as high as 1.626 percent or as low as 1.476 percent throughout these 24 years. The statistic of Skewness reveals that FDI, CPI,. are skewed to right while, HC, INF, IS, M2/GDP, OP has the left side skewness. Furthermore the natural logarithmic form (Ln) is applied to all the variables to reduce the variation and induce stationarity in the variance covariance matrix.

Table n°1: Descriptive Statistics

	FDI	CPI	HC	INF	IS	M2GDP	OP
Mean	0.054	0.265	0.009	0.051	0.502	0.267	0.071
Median	0.000	9.99	0.000	1.45	0.000	0.000	0.000
Maximum	1.626	1.374	1.593	2.241	0.539	0.954	1.662
Minimum	1.476	1.105	1.658	3.060	2.712	2.284	2.459
Std. Dev.	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Skewness	0.214	0.109	-0.055	-0.573	-0.808	-0.676	-0.379
Kurtosis	1.748	1.245	1.833	5.658	2.259	2.233	2.664
Jarque-Bera	1.748872	3.125	1.372	8.380	3.163	2.419	0.687
Probability	0.417	0.209	0.503	0.015	0.205	0.298	0.709
Sum	1.298	6.370	0.230	1.237	12.06	6.412	1.721
Sum Sq.	23.00	23.00	23.00	23.00	23.00	23.00	23.00

Dev. Observations	24	24	24	24	24	24	24

The source : Eviews 09 output

III.2.Result of Unit Root Test :

Although ARDL bound testing approach is applicable regardless of co-integration order of the variables (whether variables are I(0), I(1), or are integrated in different order), unit root test is conducted to avoid spurious regression results. Augmented Dickey and Fuller (Dickey and Fuller, 1979) (ADF) test is performed1. Results of unit root test confirm the absence of I(2) for all the variables; hence utilizing ARDL is feasible. We start by applying the Augmented Dickey-Fuller (ADF), unit root tests to each individual series, in order to conclude whether the series are stationarity or not.

Table 02 and **Appendice 01**; presents the results of the ADF unit root tests for the seven variables both at level and first difference of the natural log values. Interestingly, all the variables in ADF test are nonstationarity at level except for FDI and INF and OP. while other variables such as CPI, HC, M2/GDP, OP; become stationary at first difference with 5% significance level. As all the variables are found to have the order of I(0) and I(1), we choose to employ ARDL bound test in order to determine the long-run cointegration between CPI, INF, HC, IS, M2/GDP, OP with FDI inflows in Algeria.

Table n°2: Unit root test;(ADF)

Variables	FDI	CPI	HC	INF	IS	M2/GDP	OP
results	I(0)	I(1)	I(1)	I(0)	I(1)	I(1)	I(0)

The source : Eviews 09 output

4.3.Result of ARDL Bound Test

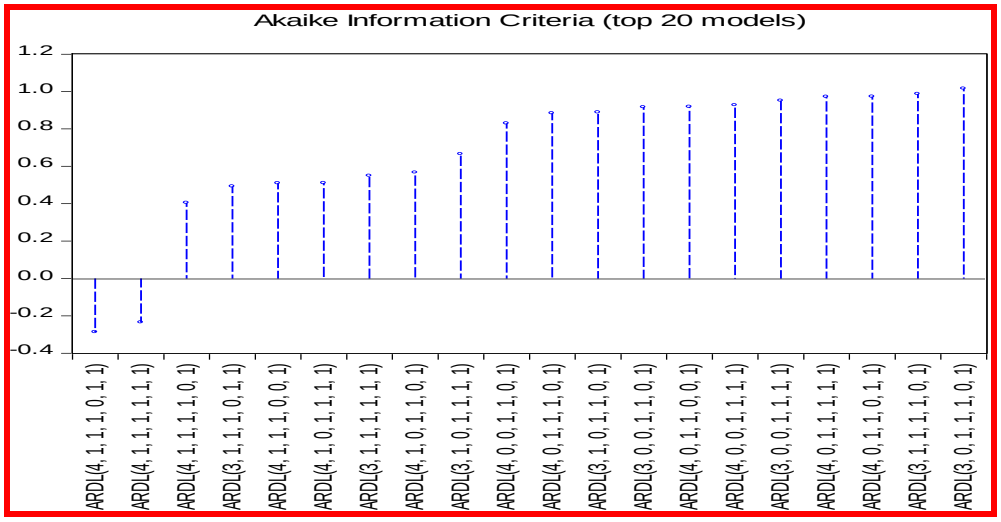
The second step was the estimation of a basic ARDL model that explains FDI inflows and its determinants. To determine the lag structure for the regressors in the model, the ARDL(4.1.1.1.0.1.1) model is chosen that minimizes the Schwarz criterion (SC). (Table 03, figure 02); shows the estimates of the selected parsimonious ARDL model specification. It is important to have statistically desirable parameter estimates for the further steps of the analysis. For this purpose, a number of diagnostic tests were performed for the modem. The diagnostic tests results are provided in the bottom panel of table 03; The selected ARDL(4.1.1.1.0.1.1) model passes the reported diagnostic tests (JB normality test, ARCH test, Breusch–Godfrey serial correlation LM).

Table n°3: The estimates of the ARDL(1.0.1.1.0) model,by Akaike criteria

max lag x	*max lag y*	*ardl*	*Sc*	*R2*	*prob-F*	*dw*
4	**1**	**(4.1.1.1.0.1.1)**	**0.50**	**0.99**	**0.002**	**2.37**
BOUND	NORMALITE	LM1	LM2	ARCH	BOUND	NORMALITE
oui	0.68	0.12	0.0288	0.97	oui	0.68

The source : Eviews 09 output

Figure n°2: The lag order selection by Akaike criteria



The source : Eviews 09 output

In the third step, the estimated ARDL(4.1.1.1.0.1.1) model was used as basis for applying the bounds test to examine the lon-run cointegration relationship among FDI inflows and its determinats. The results of the bounds test are presented in Table 04.

In Table 04 ; the results of the bounds cointegration test demonstrate that the null hypothesis of against its alternative is easily rejected at the 5% significance level, the computed F-statistic of 16.79 is greater than the lower critical bound value of 2.27 thus indicationg the existence of a steady state long-run relationship among FDI inflows and its determinats.

Table n°4: The results of the ARDL/bounds test**.**

Test Statistic	**Value**	**k**
F-statistic	**16.79596**	**6**
Critical Value Bounds		
Significance	**I_0 Bound**	**I_1 Bound**
10%	**1.99**	**2.94**
5%	**2.27**	**3.28**
2.5%	**2.55**	**3.61**
1%	**2.88**	**3.99**

The source : Eviews 09 output

III.4.Result of Long and short-Run relationship

In long-run models (**Appendice** 02),the variables (HC, IS, M2/GDP, OP) appear to have a positive impact on FDI inflows. that is, an increase by 1% in real HC, IS, M2/GDP, OP leads to (1.9; 1.6; 0.3 ; 0.17)% increase in FDI inflows.

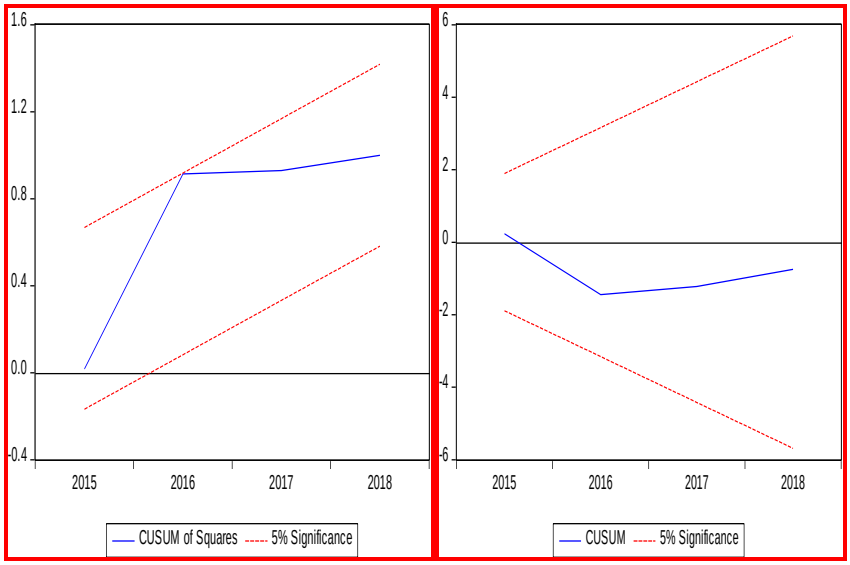
while, CPI and INF seem to have a negative effect. The model is valid for predicting FDI. CPIt has a negative and significantly influence the FDI. The increasing of 1 point CPI score will reduction the FDI (-0.074) within a year.. This result is consistent with the finding of (Xingwang & Jesus, 2016) ; (Oktiani & Oktiani, 2016) ; (Egger & Winner, 2005) (Okada & Samreth, 2010) ; (Gehan, 2017).

The short run results of ARDL method of estimation is displayed in Table 06. The findings displayed a valid short run relationship between carbon dioxide emissions (CO2) and its determinats in Germany. the coefficient of error term is displaying the value of around -0.76 propose that around 76% of instability is adjusted in the present year. Results also error correction coefficient (ECTt-1), is negative and significant at 5%, the coefficient indicates the adjustment speed to restore equilibrium in the dynamic model, that is the effect of a shock will be corrected by 76% with a year.

III.5.Result of Stability Test

The results of the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) of the standardized recursive residuals are used to check the stability of the ARDL error-correction model as proposed by (Brown & Evans, 1975) The plots of both CUSUM and CUSUMSQ statistics are provided in Figure 03. As it is clear from Figure. 03, the plots of both the CUSUM and CUSUM square within the boundaries and hence these statistics confirm the stability of the long run coefficients of regressors.

Figure n°3: Plot of cumulative sum (CUSUM) and CUSUM of squares tests for the equation of foreign direct investment (FDI)



The source : Eviews 09 output

IV - Conclusion:

Many recent FDI studies have focused on the effects of corruption on FDI inflows. Theoretically, corruption can act as either a grabbing hand by raising uncertainty and transaction costs, which should impede FDI, or a helping hand by "greasing" the wheels of commerce in the presence of weak regulatory framework, which should facilitate FDI. This study analyzes the impact of corruption on FDI inflows in Algeria by using time series data from 1995-2018 by employing ARDL and Error Correction Model approach. The analysis demonstrates that in the long-run, show that corruption has a negatively impact on foreign direct investment (FDI). The short run results show tha relationship between foreign direct investment (FDI) and its determinats in Algeria.This is consistent with the "Grabbing Hand" hypothesis of corruption.

Therefore, controlling corruption may attract more FDI inflows to the Algeria economy.In order to benefit more from FDI, Policy recommendations for Algeria should focus on improving the investment climate for all kinds of capital, foreign as well as domestic.

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Appendices:

Appendice01: Unit root test;(ADF)

UNIT ROOT TEST TABLE (ADF)

	At Level							
		FDI	**CPI**	**HC**	**INF**	**IS**	**M2GDP**	**OP**
With Constant	**t-Statistic**	**-3.0104**	**-1.6093**	**-0.0699**	**-3.8655**	**-1.5739**	**-1.4191**	**-1.3807**
	Prob.	***0.0488***	***0.4620***	***0.9414***	***0.0078***	***0.4777***	***0.5552***	***0.5736***
		**	n0	n0	***	n0	n0	n0
With Constant & Trend	**t-Statistic**	**-2.8869**	**-1.8922**	**-4.1291**	**-4.1465**	**-0.9524**	**-2.7734**	**-0.6049**
	Prob.	***0.1843***	***0.6259***	***0.0182***	***0.0199***	***0.9297***	***0.2198***	***0.9676***
		n0	n0	**	**	n0	n0	n0
Without Constant & Trend	**t-Statistic**	**-3.0825**	**-1.7384**	**-0.3958**	**-3.8684**	**-1.3769**	**-1.7627**	**-2.6748**
	Prob.	***0.0036***	***0.0778***	***0.5289***	***0.0005***	***0.1507***	***0.0742***	***0.0106***
		***	*	n0	***	n0	*	**
	At First Difference							
		d(FDI)	**d(CPI)**	**d(HC)**	**d(INF)**	**d(IS)**	**d(M2GDP)**	**d(OP)**
With Constant	**t-Statistic**	**-5.9223**	**-4.9562**	**-7.3178**	**-2.8288**	**-4.2167**	**-5.9562**	**-4.2094**
	Prob.	***0.0001***	***0.0007***	***0.0000***	***0.0730***	***0.0037***	***0.0001***	***0.0038***
		***	***	***	*	***	***	***
With Constant & Trend	**t-Statistic**	**-6.3217**	**-4.8910**	**-7.1355**	**-2.6842**	**-4.1952**	**-6.0290**	**-4.3869**
	Prob.	***0.0002***	***0.0039***	***0.0000***	***0.2526***	***0.0165***	***0.0004***	***0.0112***
		***	***	***	n0	**	***	**
Without Constant & Trend	**t-Statistic**	**-6.0600**	**-5.0019**	**-1.5051**	**-2.9547**	**-1.7731**	**-5.4136**	**-4.3115**
	Prob.	***0.0000***	***0.0000***	***0.1208***	***0.0054***	***0.0728***	***0.0000***	***0.0002***
		***	***	n0	***	*	***	***

The source : Eviews 09 output

Appendice 02: Results using ARDL Approach (Long and short-Run relationship)

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI(-1))	1.579386	0.090218	17.506398	0.0001
D(FDI(-2))	1.037235	0.070413	14.730641	0.0001
D(FDI(-3))	0.368012	0.043918	8.379523	0.0011
D(CPI)	-0.423204	0.059669	-7.092497	0.0021
D(HC)	9.090447	0.763727	11.902742	0.0003
D(INF)	-0.462781	0.048982	-9.448008	0.0007
D(IS)	4.262686	0.771681	5.523899	0.0052
D(M2GDP)	0.305585	0.120842	2.528802	0.0647
D(OP)	4.192574	0.419582	9.992258	0.0006
CointEq(-1)	-0.765822	0.113348	-24.401171	0.0000

Cointeq = FDI - (0.0747*CPI -1.9007*HC + 0.6858*INF + 1.6991*IS - 0.3400

*M2GDP -0.1751*OP + 1.4929)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-0.074711	0.092051	-0.811620	0.4625
HC	1.900665	0.922495	2.060352	0.1084
INF	-0.685824	0.089868	-7.631500	0.0016
IS	1.699059	0.971017	1.749773	0.1551
M2GDP	0.339996	0.108244	3.141029	0.0348
OP	0.175089	0.453939	0.385710	0.7193
C	1.492884	0.574674	2.597793	0.0602

The source : Eviews 09 output