

## ALGERIAN FISCAL POLICY AND ITS IMPACT ON FOREIGN DIRECT INVESTMENT

\* **Mohammed DAOUDI**

*University center of Maghnia (Algeria)*  
[daoudim975@yahoo.com](mailto:daoudim975@yahoo.com)

**Miloud OUAFI**

*University center of Maghnia (Algeria)*  
[milouafi@yahoo.fr](mailto:milouafi@yahoo.fr)

**Received** 06/01/2021 **Accepted** 13/10/2022 **Published online** 24/10/2022

**ABSTRACT:** The aim of this article is to test empirically the impact of the fiscal policy on FDIs in Algeria. The short-term fluctuations are related to shocks in the same variable which is the FDI, with a significant percentage reaching a maximum of 95.56%. This continues in the medium and long term with a noticeable decrease to a minimum of 79.93%. The other variables in the medium and long term, things remain the same as a whole, and it is noted that the largest contribution is by the regular collection (10.88%), and the lowest contribution is by the balance of the budget S (0.83%).

**Keywords:** Foreign direct investment (FDI); Fiscal policy; Public spending; Taxes; Impulse response functions.

**JEL Classification:** F68 H10

### 1. INTRODUCTION:

Beginning in the 1990s developing countries have worked increasingly to liberalize and privatize their economic sectors, on top of which is the services sector, in order to facilitate their integration into the global economy. It has also adopted a more flexible policy towards foreign direct investment, by providing important facilities and incentives in order to attract it and increase its flows to their countries. The process of attracting foreign direct investment focuses strongly on the one hand, on tax exemptions, good regulatory treatment and subsidies provided in various fields at the level of all economic sectors. On the other hand, policies that restrict inbound foreign direct investment work, especially in the service sector. Hence, this situation created an atmosphere of increasing competition, and this increased competition created almost similar conditions for investors, especially with regard to the financial system, the qualified manpower and the required infrastructure. An

---

\*Author Corresponding

analysis focused on the impact of the fiscal policy on FDI is very important; they will lose the instruments of the monetary policy and will be based only on the fiscal policy. The recent financial crisis has clearly shown that monetary policy has shown great limitations in the face of economic recession and the revitalization of the global economy, and the reason for this is that businessmen in particular, and individuals in general, their behavior has become characterized by a great extent, whether it is related to investment or consumption.

FDI are the engine for economic recovery and economic growth. They are responsible for the technological spillovers in the host economy, by the increase of the labor productivity and of export competitiveness and the transfer of know-how. The aim of this article is to experimentally test the effect of fiscal policy on foreign direct investment in Algeria. Using linear regression, this article presents the impact of the fiscal policy on attracting FDI in Algeria, based on yearly data series during 1970–2018. Through this study, the effect of the financial policy on foreign direct investment flows in Algeria will be analyzed. Therefore, the analysis is based on the effect of financial factors on this phenomenon. However, there are also some important directions for future research. Some non-financial factors whose impact undoubtedly exists such as quality Infrastructure, legal and institutional stability on foreign direct investment, which could open new horizons for future research on this subject. The problem that can be raised is how the variables of fiscal policy in Algeria affect the increase in FDI inflows?

## **2. LITERATURE REVIEW:**

Fiscal policy uses public revenue and public expenditure as two means of achieving its objectives. On this basis, it can be said that fiscal policy has tools, the most important of which are public spending, collection and loans. It is therefore possible to speak of an expenditure policy (the different areas of public expenditure which are governed in the State budget for the different sectors) and of a fiscal policy (taxes and fees of various kinds and forms) and public debt policy (public loans of all kinds, management of public debt service and repayment of loan principal and its benefits and the granting of loans by the State to different groups in society).

So, what are the financial and non-financial factors that have a clear impact on increasing the attraction of foreign direct investment to a country? There is a considerable number of theoretical studies and standard models whose results indicated the existence of a significant number of variables that would affect the degree of attractiveness, whether at the level of developed or developing countries. On the basis of that, we will try to explain the variables that are related to our study and which will be based on determinants of foreign direct investment of a financial nature (fiscal policy) and which will be the focus of the analytical and econometric study.

The size of market demand is linked to the economic growth of the country, and in general the latter is defined as the continuous increase in the quantity of goods and services produced by the individual in a specific economic environment. It has also been defined as

the continuous increase in average real per capita income over time. Average per capita income is the total income distributed over the total number of the population, in other words it is an indicator to measure the average per capita income of the total income of the country, and Schumpeter knows it that economic growth can be inferred in the size of the increase in per capita national income, through the economic cycle of available resources. Rivoire defines it as the gradual transformation of the economy by means of an increase in production or welfare, so that the situation the economy reaches is in one direction towards the increase of the latter. Accordingly, economic growth is a quantitative phenomenon and a continuous and long-term process, since it is based only on the change in the quantity that the individual obtains from goods and services on average without concern for quality, and the aforementioned definition describes economic growth as expansion in real output or expansion. In per capita income from the real national product, and whoever increases the income of individuals will stimulate the demand for markets and if the market size will expand in a particular country, which will be a very important factor in increasing and stimulating investment.( Rivoire, 1994 p:70)

Therefore, the size of the market demand is a very important variable and it is determined on the basis of the GDP of each country, and it is considered one of the most important determinants and independent variables that affect the increase in the degree of attraction of foreign direct investment to a particular country.(Gonzalez-Vigil 2001 p:29-69), (Love ,Lage-Hidalgo2000 p:1259-1267). The variable in the various economic literature that has been concerned with this topic, and has highlighted it as the most important determinant of foreign direct investment, which clearly affects investment decision-making by multinational corporations.(Tsai 1994 p:137-163 )

The market size is a variable that is largely ineffective in the case of countries that are characterized by weak inflows of foreign direct investment( Singh , Jun 1995p: 213-240), and the growth of the market size was not variable or specific affecting the increase in the attraction of foreign direct investment(Kuemmerle 1999p: 1-24) , except Many studies have shown, that the growth of market size is a variable with a large weight in increasing attractiveness, the market size is variable in It is extremely important to increase the attractiveness of a given region for FDI inflows. Economic growth and market structure are two sides of the same coin that influence foreign companies decision to invest in a particular region. (Bardesi,Daviesand Ozawa1997p:93-106)

The various discussions related to the issue of the effects of public spending on aggregate production have been exposed, as we find that the economic analysis allows the presentation of two opposing positions: according to the Ricardienne Equivalence theory that was reintroduced by Barro 1974, public spending cannot significantly affect aggregate production due to Due to the phenomenon of crowding out for private spending. On the other hand, the Keynesians believe that public spending is the preferred means of stabilizing production at its optimum level(Barro 1988 p:1-24). And apart from discussions of economic schools, several empirical studies have studied the impact of spending on

production, as Aschauer 1989 and Munnell 1992 demonstrated the positive role of investment expenditures, as the elasticity of production in relation to year capital was 0.39 and 0.34 respectively, and the two authors justified the decline in productivity.(Aschauer 1989 p: 117-127), (Munnell 1992 p: 189-198)

In the United States of America in the 1970s, public investment decreased. This necessitated the necessity of introducing public capital into the formulation of production functions, according to Holtz 1988. And with the emergence of the Croissanceendogène, a new vision of the role of public expenditures appeared, where the production of collective goods creates a kind of positive effects in favor of the marginal productivity of private capital, as the increase in productivity led to a change in the production plan of the private agents, which became more productive, Consequently, this type of spending has become a necessity for the continuation of markets and in defense of property rights, and at the same time an important means of developing the basic infrastructure. On the other hand, investment expenditures directed to human capital have increased the effectiveness of the labor component, which in turn led to raising the marginal productivity of private capital. So far we still consider public spending as a mechanical variable to reach the ideal growth, but by browsing the economic studies, another vision emerges related to given the level of public spending and state intervention as an internal variable, where economic growth causes an increase in public spending and is thus the content of the Wagner Law.( Holtz 1993p:185-210)

One of the most important tools of fiscal policy is tax tools. Taxes can be a catalyst as well as a disruptor, and whoever is made, the tax rate plays an important and decisive role in the attractiveness of a particular country to foreign direct investment flows. There is an important number of studies that have shown the effectiveness of this tool in this area, and I considered it one of the most important determinants of foreign direct investment.(Hartman 1984p: 475 - 487),( Rice, Hines 1994p: 149-182), (Hines 1996p: 1076-1094), (Akçay 2001 p:27-34)

Foreign institutions are interested in maximizing their profits and working to reduce Its expenses to the maximum extent possible, and from that it is trying to invest in areas that are characterized by low tax rates (tax havens), especially those related to profits (Boskin, Gale 1986p:1-21). Tax incentives have a clear effectiveness in increasing the attraction of foreign direct investment by easing the accompanying administrative and regulatory measures, and the tax incentives in attracting foreign direct investment have had great importance at the level of the European Economic and Monetary Union region.(Morisset, Pirmia 1999p:1-30), (Bénassy-Quéré, FontagnéandLahrèch-Revil 2006p: 1-45)

However, fiscal incentives based on European fiscal cooperation appeared with less weight and a modest effect on increasing foreign direct investment flows into the region compared to some other determinants such as the quality of the infrastructure.(Hubert , Pain 2002 p: 336-363)

The high rates of external indebtedness would reduce the rates of private investment and economic growth rates in developing countries as a result of the effect of the lack of incentive. (Cohen 1993p: 437-449), (Cohen 1995 p: 1141-1163) thus reducing their private spending and thus lowering private investment in general, as reducing the debt rates on PNB by 10% would lead to an increase in the growth rate of 0.3% and an increase in the investment rate of 0.4%. (Ojo, Oshikoya 1995 p: 163-191)

The fiscal policy of a country often shows its general budget features, and through the balance of the general budget we can observe the direction of the state's fiscal policy. Is it an expansionary spending policy, or is it a contractionary austerity policy? Is there a rationalization and rationalization of public spending, or not? The more severe and structural the deficit is, the more this will affect the state's budget balances in terms of spending and revenues, which will inevitably be reflected in the country's macroeconomic balances. The exacerbation of the deficit may lead to an increase in the external debt to cover it, or to more than that raise the rates Taxes, and these two factors would negatively affect the investment decision for a foreign company, and clearly, they could also be alienating factors for foreign companies present in the country. (Schoeman, Robinson and Wet 2000p: 235-244)

### 3. METHODS AND MATERIALS:

Classical economic modeling consists of several structural equations, and several criticisms of Granger 1969 and Sim 1980 have been known for the imbalances contained in their content that have failed to explain a very volatile economic environment. VAR models (Vector Auto Regressive) are a generalization of AR models (Auto Regressive) in highly variable situations, where they were able to statistically respond to most of the criticisms of classical models.

In the VAR model, two variables change and each of these variables is a function of its own past values as well as the values of other variables. For example, the VAR model of  $p = 4$  can be written on the following mathematical formula:

$$y_{1t} = a_1 + \sum_{i=1}^4 b_{1i} y_{1t-i} + \sum_{i=1}^4 c_{1i} y_{2t-i} - d_1 y_{2t} + \varepsilon_{1t}$$
$$y_{2t} = a_2 + \sum_{i=1}^4 b_{2i} y_{1t-i} + \sum_{i=1}^4 c_{2i} y_{2t-i} - d_2 y_{1t} + \varepsilon_{2t}$$

The variables, which are stable variables, fluctuations and (regenerations and shocks) represent white noise of fixed variations and are not self-associated.

The structural form of the VAR model can be written as the following matrices:

$$B y_t = A_0 + \sum_{i=1}^4 A_i y_{t-i} + \varepsilon_t$$

With:

$$A_i = \begin{bmatrix} b_{1i} & c_{1i} \\ b_{2i} & c_{2i} \end{bmatrix}, \quad B = \begin{bmatrix} 1 & d_1 \\ d_2 & 1 \end{bmatrix}, \quad y = \begin{bmatrix} y_{1t} \\ y_{2t} \end{bmatrix}, \quad \varepsilon = \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{bmatrix}$$

$$Y_t = A_0 + A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + v_t$$

With:

$$v_t = \begin{bmatrix} v_{1t} \\ v_{2t} \\ \cdot \\ \cdot \\ v_{kt} \end{bmatrix}; \quad A_0 = \begin{bmatrix} a_1^0 \\ a_2^0 \\ \cdot \\ \cdot \\ a_k^0 \end{bmatrix}; \quad A_p = \begin{bmatrix} a_{1p}^1 \dots a_{1p}^2 \dots a_{1p}^k \\ a_{2p}^1 \dots a_{2p}^2 \dots a_{2p}^k \\ \cdot \\ \cdot \\ a_{kp}^1 \dots a_{kp}^2 \dots a_{kp}^k \end{bmatrix}; \quad Y_t = \begin{bmatrix} y_{1t} \\ y_{2t} \\ \cdot \\ \cdot \\ y_{kt} \end{bmatrix}$$

Then the number of delays in the model is determined in order to determine the degree of p for the VAR model where the number of delays is determined based on the criteria Akaike and Schwarz.

The values of the criteria Akaike and Schwarz are calculated as follows:

$$AIC_{(p)} = Ln[\det|\sum e|] + \frac{2k^2 p}{n}$$

$$SC_{(p)} = Ln[\det|\sum e|] + \frac{2k^2 Ln(n)}{n}$$

k: Number of form variables

n: Number of observations

p: The number of delays, p must be the lowest value of the AIC and SC coefficients. (Bourbonnais2002p:257-262)

The sample study consists of 48 yearly observations; the data in this study was obtained from the statistics the Algeria's ONS (Office National des Statistiques), the international financial statistics of IMF, UNCTAD, and world developing indicators of the world bank WDI. All the variables are in logs, the data used is annual covering the period 1970 to 2018. The variables of study are:

FDI: direct foreign investment ratio of real GDP.

GDP: real Gross domestic product.

G: Public expenditure (percentage of real GDP.)

TAX: ordinary taxation (percentage of real GDP.)

S: Budget balance (percentage of real GDP.).

DEBT: external debt ratio of real GDP

Causality test: Theoretically, showing the causal relationships between economic variables helps explain and explain economic phenomena in a good and effective way, and this helps to activate economic policies, more than that, the direction of the causal relationship between economic variables explains the best economic phenomenon under study. Granger proposed concepts of causation and external verbs, explaining it as follows, the variable causes a change in the variable if the predictability of the evolution of the variable will improve when the information or data for the variable are included in the analysis.

The composition of the variables  $y_{2t-1}, y_{2t-2}, \dots$ , is considered external to the  $y_{2t-p}, \dots$  composition of the variables  $y_{1t-2}, y_{1t-1}, \dots, y_{1t-p}$  if the increase in the combination does not significantly improve the identification of the variables. This requires a test of constraint parameter variables to be VAR (to become RVAR: Restricted VAR). Determination of delay or delay periods  $p$  is based on the AIC and SC criteria where if:

$y_{2t}$  It does not cause if the next nihilistic hypothesis is acceptable  
 $H_0 : b_1^1 = b_2^1 = \dots = b_p^1 = 0$

$y_{1t}$  It does not cause if the next nihilistic hypothesis is acceptable  
 $H_0 : a_1^2 = a_2^2 = \dots = a_p^2 = 0$

If we come to accept the two nihilistic assumptions together, that is, cause and cause, in the case of what is known as the effect feedback loop. The Granger Causality Test is used to confirm the extent to which there is a feedback or reciprocal relationship between two variables.(Granger, Newbold 1974 p:111-120)

#### **4. RESULTS AND DISCUSSION:**

##### **4.1. Test of Stationary:**

The first step of our methodology is to test the order of integration, that it is the stationary of our variables,with the ADF test;PP test and KPSS test. The second step is to test for cointegration. The Johansen procedure was also used to test the existence of long run equilibrium relationship between the variables of series.

**Table N° 1: Test of Stationary**

Variables	KPSS		PP		ADF		Ordre of integration
	First difference	level	First difference	level	First difference	Level	
FDI	0.159	0.491	-22.394	-1.406	-6.081	-1.735	I(1)
GDP	0.352	2.032	-4.328	-0.714	-2.308	-1.089	I(1)
G	0.179	1.858	-6.726	-0.474	-6.071	-0.610	I(1)
TAX	0.370	0.712	-7.002	-1.370	-5.143	-1.360	I(1)
DEBT	0.389	0.618	-18.662	0.010	-2.338	-0.883	I(1)
S	0.323	1.913	-5.245	0.899	-4.655	1.665	I(1)

Critical value 5% :ADF:-1,950394 ,PP: :-1,950394 , KPSS:0,463000

Source: Eviews programoutputs

The results of our unit root tests analysis according to the ADF;PP test and KPSS test are showed in the table n°1.

**4.2. Cointegration analysis:**

The co-integration test of Johansen 1988 makes it possible to calculate the number of co-integration relationships between the variables of the model by calculating the number of co-integration vectors. This test is based on the estimation of the following model:

$$\Delta Y_t = A_0 + A_1 \Delta Y_{t-1} + A_2 \Delta Y_{t-2} + \dots + A_p \Delta Y_{t-p+1} + \Pi Y_{t-1} + \varepsilon$$

Where the matrix  $\Pi$  it is formulated as follows:  $\Pi = \sum_{i=1}^P A_{i-1}$

$P$  :The number of lags in the model

$r = R(\Pi_p)$  :Matrix rank, which represents the number of co-integration relationships.

From the eigenvalues of the matrix  $\Pi$ , we calculate the following  $\lambda_{trace}$  to test the null hypothesis according to which there exist at most  $r$  co-integrating vectors.(Johansen1988 p:231-254)

$$\lambda_{trace} = 2(\log(L_{nc}) - \log(L_c)) = -T \sum_{i=r+1}^M \log(1 - \hat{\lambda}_i)$$

$r = 0,1,2, \dots, M - 2, M - 1$ ;  $T$ :Sample size

From table n° 2 it is clear that smaller than the critical values at the 5% level of significance and therefore accept the numeric hypothesis  $H_0$ , that is, there is a relationship of simultaneous integration, since the number of cointegration vectors is  $r = 6$  at the 5% level of significance, which indicates that the structure of FDI is integrated in parallel with



the rest of its determinants in terms of fiscal policy, indicating a long-term equilibrium relationship between variables, they do not move too far away from each other in the long run to show similar behavior.

**Table N° 2: Johansen cointegration test**

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.848411	175.7299	95.75366	0.0000
At most 1 *	0.718204	111.5861	69.81889	0.0000
At most 2 *	0.553951	68.52263	47.85613	0.0002
At most 3 *	0.467139	41.07350	29.79707	0.0017
At most 4 *	0.317579	19.67069	15.49471	0.0111
At most 5 *	0.178351	6.679012	3.841466	0.0098
trace test indicates 6 cointegratingeqn(s)				
* de notes rejection of the hypothesis at the 0.05 levell				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Eviews programoutputs

We now turn to the number of delays in the first VAR (6 variables). The results of this test are as shown in table n° 3. The number of delays in this model is estimated by two time periods, as shown in figure n° 1, it is clear that the estimated model fulfills the stability conditions (VAR satisfies the stability condition.) Since all coefficients are smaller than one, and all roots are located within the unit circle, which means the model does not have a problem with the correlation of errors or the inconsistency of the variance.

**Table N°3: The number of delays in the VAR model**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-501.6157	NA	374216.2	29.85975	30.12911*	29.95161
1	-445.4825	89.15284*	118657.9*	28.67544*	30.56094	29.31845*
2	-414.9545	37.71099	201910.2	28.99733	32.49898	30.19149
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 0.05 level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Source: Eviews programoutputs

### 4.3. FDI responses to the structural shocks of the identified variables:

As such, the VAR model will enable us to identify structurally economically traumatic shocks, using the Cholesky decomposition or what we call trigonalisationprocessus for variance. From an economic point of view, we are looking to estimate the impact of a structural shock in the various model variables on the dependent variable, which is FDI

here, and we can only do so statistically by evaluating Impulse response functions. The dynamics of the VAR model will then allow us to obtain the value of FDI at every moment following the initial shock, and as a result of this transformation we have obtained all the dynamic responses of FDI resulting from a structural shock estimated by one unit across all independent model variables. Variance decomposition analysis will allow us to clarify the role of each shock in interpreting the situational fluctuations of FDI.

According to the estimates of the 10-year batch response functions described in Figure n° 1 a single positive structural shock of public expenditure estimated at 1% will have a significant negative effect on FDI in the short term until the second year after the shock (0.2342%), in the medium term, a positive significant effect will be generated from the third year and the maximum of the fourth year after the shock (0.114%) will soon translate into a negative impact more important in relation to a long-term negative impact (0.3213%). A positive effect was very low (0.0051%) until the seventh year after the shock, whereas in the long term it is negative but also low (0.0439%) compared to the short and the middle term. Thus, public spending in Algeria remains limited between negative and positive flows on FDI, but the positive impact remains low compared to the negative impact, which confirms that public spending in Algeria remains limited, or even absent, in the face of a growing attract for FDI.

According to the estimates of the 10-year batch response functions illustrated in Figure n° 1, a single positive structural shock on the 1% tax would have a short-term negative moral effect of 0.5238% which would remain unchanged. Very important and impact, followed by a significant positive moral impact estimated at 1,042%. In the medium term, it varies between negative and positive, while in the long term, the impact is negative from the eighth year after the shock, but it remains somewhat weak (0.0092%), which indicates the negative role played by the collection. This is mainly due to weak FDI flows to Algeria and the limited number of foreign companies active in sectors other than hydrocarbons, but the overall effect remains negative due to the complexity of the Algerian tax system. Despite the known reforms of the Algerian tax system and the rise of the tax pressure, which does not stimulate much to attract investment in other sectors apart from hydrocarbons, if compared to the fiscal environment of the countries neighbors such as Tunisia and Morocco.

According to the estimates of the 10-year push response functions illustrated in Figure n° 1, a single positive structural shock to real GDP ((market size) of 1%) will have a significant positive effect (0.2706 %) up to the third year after the shock (the majority of foreign companies present are oil companies), however, it decreases to a negative impact (0.494%) and is larger than the positive impact. In the medium and long term, there is a positive but low effect (0.0839%), and in the seventh year after the shock, a negative impact (0.0101%) quickly turns into a positive effect from the eighth year after the shock, but it is very weak (0.0012%). These results confirm that the economic growth in Algeria has a limited impact on attracting and raising foreign direct investment, mainly due to the

nature of the structure of the Algerian economy, which is a rentier economy (the income of hydrocarbons from oil and gas), which does not reflect good The demand of the Algerian market, which suffers from a continuous decline in the purchasing power of consumers.

According to the estimates of the 10-year thrust response functions shown in Figure n° 1, a single positive structural shock in external debt estimated at 1% will have a positive but non-significant effect (0.2890%) in the short term. In the medium term there is a significant negative moral effect (0.5202%) followed by a positive effect from the fifth year after the shock until the sixth year (0.0677%). In the long run, the negative impact is back but not significant (0.0156%). As a result, the exacerbation and exacerbation of external debt would affect the country's financial credibility and thus play a negative repulsive role for the FDI, and despite the decline in the Algerian external public debt in recent years, it did not have any significant positive impact on the attract of the FDI in Algeria.

According to the estimates of the 10-year batch response functions shown in Figure n° 1, a single positive structural shock in the S balance of 1% would have a positive significant effect (0.191%). Negative effect at the end of the fifth year, following the shock (0.196%) to continue the negative impact in the long term, but less severe (0.0310%), as of the eighth year after the shock, there is a positive but very weak effect (0.0046%). This shows that Algeria's fiscal policy as a whole has not played a significant role in raising the value of FDI flows even in recent years, which has seen Algeria open to the world and adopting stimulus policies to attract foreign direct investment.

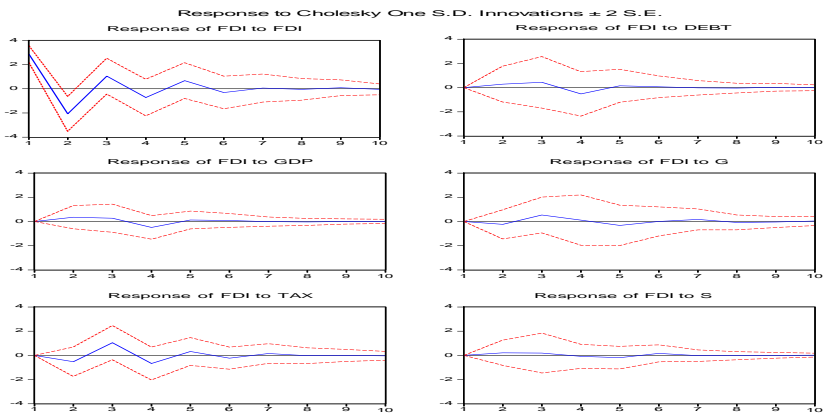
We turn now to clarify the role of each shock in the interpretation of the situational fluctuations of variables on the dependent variable, that is, the interpretation of the expectation of the error of each variable. As indicated in the results of the analysis of variance of errors shown in table n°4 below, it is clear that most of the circumstantial fluctuations of all variables in the short term contribute a small percentage to the volatility of foreign direct investment (FDI), where it did not exceed 3%, except for the ordinary tax collection, which contributed about 8.62%. The short-term fluctuations are related to shocks in the same variable witch is the FDI, with a significant percentage reaching a maximum of 95.56%. This continues in the medium and long term with a noticeable decrease to a minimum of 79.93%. However, if we refer to the other variables in the medium and long term, things remain the same as a whole, and it is noted that the largest contribution is by the regular collection (10.88%), and the lowest contribution is by the balance of the budget S (0.83%).

**Table N° 4:** Analysis of variance errors

Period	S.E.	FDI	DEBT	GDP	G	TAX	S
1	2.873273	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	3.626003	95.56836	0.635409	0.948294	0.417474	2.086868	0.343594
3	3.990229	85.73493	1.723110	1.243296	2.165847	8.624287	0.508527
4	4.174276	81.33472	3.127913	2.510718	2.054885	10.46766	0.504101
5	4.260470	80.54137	3.127334	2.497016	2.541543	10.61066	0.682082
6	4.282682	80.23435	3.119988	2.509561	2.515392	10.79457	0.826138
7	4.289416	80.00071	3.112170	2.502480	2.669941	10.88750	0.827199
8	4.290976	79.95691	3.119321	2.508245	2.699401	10.88428	0.831836
9	4.292081	79.95212	3.121779	2.506961	2.708480	10.87914	0.831524
10	4.292812	79.93886	3.122046	2.506646	2.716667	10.88309	0.832688

Source: Eviews program outputs

**Figure N° 1:** Responses functions



Source: Eviews program outputs

**4.4. Granger causality tests:**

Since there is a long-term relationship between FDI inflows to Algeria and fiscal policy variables in Algeria, it is better to test whether there is a causal relationship between FDI inflows and fiscal policy variables in Algeria; what is the direction of this relationship? For this we will use the Granger causality tests.

Economic growth does not affect FDI flows to Algeria, and this outcome remains somewhat logical, as we know that the Algerian gross domestic product comes in a large size from the hydrocarbon sector of oil and gas, while the contribution of other sectors remains very modest. The contribution of foreign direct investment to the Algerian GDP remains insignificant if there is no transfer, and the Algerian market is a very important

market in terms of consumption. Its role remains absent in attracting foreign direct investment. Also, Algeria can use its financial capabilities from the hydrocarbons sector, which has been known to be very popular in recent years, to attract more FDI inflows through the application of an incentive fiscal policy.

The importance of public spending on FDI flows in Algeria, that is, the role of Algeria's spending policy in that. The public spending in Algeria does not affect the attracting of foreign direct investment, and this despite what Algeria spends, especially in recent years, but this has not been reflected in the positive so far on the flows of foreign direct investment, as the flows of foreign direct investment to Algeria do not affect its spending. The year is a logical result, and Algeria is one of the most important sources of its income from petroleum collection.

The weight of ordinary taxation on FDI flows in Algeria with is the role of tax policy in Algeria, (the impact of taxation and fiscal incentives on foreign direct investment. All of works attempt to highlight the relationship of taxation with foreign direct investment flows and the importance of the latter in the field of capital and technology transfer and knowledge to the host countries. Hence, the regular taxation in Algeria does not affect the attracting of foreign direct investment, and this confirms the results that we reached previously, and accordingly, the regular taxation despite continuous and submitted incentives did not contribute much to attracting foreign direct investment, as the foreign investment flows Direct to Algeria does not affect its ordinary taxation, and this proves the extent of the limited investments in Algeria and their restriction to the hydrocarbon sector in its entirety.

Is there a relationship and mutual effect between foreign debt and foreign direct investment flows in Algeria, that is, the role of Algeria's public debt policy in that? As the rise in external debt and the increase in the severity of its service would hinder the course of economic activity and its growth, especially investment activity if this external debt exceeds the payment capacities available to the country. Hence, the external indebtedness in Algeria does not affect the attraction of foreign direct investment. How is that? These results are somewhat logical, as external indebtedness is one of the most important indicators of the financial credibility of the economy of a particular country, and whoever has it affects the investment climate in general and foreign direct investment in particular. Algeria has recently worked to reduce the severity of foreign debt, taking advantage of the financial abundance resulting from the prosperity of oil markets. This will undoubtedly help stimulate the investment climate in Algeria, but this decrease in debt has not been reflected to date, to an increase in foreign direct investment flows to Algeria.

**Table n° 5** Granger Causality Tests:

NullHypothesis	Obs	F-Statistic	Prob
TAX does not Granger Cause FDI	47	1.33536	0.2788
FDI does not Granger Cause TAX	47	1.34356	0.2767
G does not Granger Cause FDI	47	0.71704	0.4966
FDI does not Granger Cause G	47	1.48709	0.2428
GDP does not Granger Cause FDI	47	0.01428	0.9858
FDI does not Granger Cause GDP	47	0.22457	0.8002
DEBT does not Granger Cause FDI	47	0.60848	0.5510
FDI does not Granger Cause DEBT	47	0.46820	0.6308

**Source:** Eviews programoutputs

## 5. CONCLUSION:

The importance of foreign direct investment in international finance and the diversification of the economies of countries is great, in which no two differ, which is a very important engine for economic development. In addition, it is a source of advanced technology transfer, skilled and well-managed workers, and foreign companies are characterized by great competition that will revitalize the economy in the country in which it is active, not to mention its great ability to absorb the largest amount of unemployment.

And from that, Algeria can benefit from this important source of international financing by creating the appropriate environment for this. Because as we mentioned, the national economy can benefit greatly from it in order to diversify and revitalize it, and to move away from dependence on the rentier economy only. Also, Algeria could harness the abundance of its existing resources for this. However, the study showed that there is no causal relationship between the variables of the fiscal policy of Algeria and the flows of foreign direct investment, and that there was no reciprocal relationship between the fiscal policy of Algeria and foreign direct investment coming to it, and therefore the fiscal policy contribution remains absent in attracting FDI.

Algeria must exploit this economic instrument more and effectively in order to improve the overall economic balances, which are in the process of working on it to improve the investment climate in Algeria, whether it is domestic or foreign and who has been able to Algeria out of the economy Hydrocarbons to a more diversified economy, and from which the problem of abundance of resources and ineffective use.

## BIBLIOGRAPHY:

- **BOURBONNAIS, R.**, « *Econométrie (Manuel et exercices corrigés)* », Edition Dunod, Paris, 2002.
- **RIVOIRE, J.**, « *L'économie de marché* », *Que sais-je?*, Presses Universitaires de France PUF, 1994.
- **AKCAY, S.**, « *Is corruption an obstacle for foreign investors in developing countries? a cross-country evidence* », *Yapikredi economic review*, vol.12, no.2, 2001, pp. 27–34.
- **ASCHAUER, D.**, « *Fiscal policy and aggregate demand* », *American economic review*, vol.75, n°.1, 1985, pp. 117-127.
- **BARDESI, H, DAVIES, S, OZAWA, T.**, « *Inward Foreign Direct Investment, Industrial Development, and Trade: The Case of the Saudi Petrochemical Industry* », the *Journal of Energy and Development* vol. 22, n°1, 1997, pp. 93-106.
- **COHEN, D.**, « *Large external debt and slow domestic growth: a Theoretical analysis* », *Journal of Economic dynamics and control*, vol.19, n°.57, 1995, pp. 1141-1163.
- **COHEN, D.**, « *Low investment and large LDC debt in the 1980's* », *American economic review*, vol.83, n°.3, 1993, PP. 437-449.
- **GONZALEZ-VIGIL, F.**, « *Trade policy and investment location: The effects of Peru's investment tariff structure in 1990's* », *Integration and trade journal*, vol. 14, n°5, 2001, pp. 29-69 .
- **GRANGER, C, NEWBOLD, P.**, « *Spurious regressions in econometrics* », *Journal of Econometrics*, vol. 2, issue 2, 1974, pp. 111-120.
- **HARTMAN, D.**, « *Tax policy and foreign direct investment in the united states* », *National tax journal*, vol. 37, n°. 4, 1984, pp. 475 - 487.
- **HINES, J.**, « *Altered states: Taxes and the location of foreign direct investment in America* », *American economic review*, vol. 86, n°5, 1996, pp. 1076-1094.
- **HOLTZ, E.**, « *State-Specific Estimates of State and Local Government Capital* », *Regional Science and Urban Economics*, vol. 23, n°. 2, 1993, pp. 185-210.
- **JOHANSEN, S.**, « *Statistical analysis of cointegration vectors* », *Journal of economic dynamics and control* vol. 12, issue 2-3, 1988, pp. 231-254.
- **KUEMMERLE, W.**, « *The drivers of foreign direct investment into research and development: An empirical investigation* », *Journal of international business studies*, vol. 30, n°. 1, 1999, pp. 1-24.
- **LOVE, J, LAGE-HIDALGO, F.**, « *Analysing the determinants of US direct investment in Mexico* », *Applied economics journal*, vol. 32, Issue.10, 2000, pp. 1259-1267.
- **MUNNELL, A.**, « *Infrastructure investment and economic growth* », *Journal of economic perspective*, vol.6, n°.4, 1992, pp. 189-198.
- **OJO, O, OSHIKOYA, T.**, « *Determinant of long-term growth: Some African results*, *Journal of African economics* », vol.4, n°.2, 1995, pp.163-191.
- **RICE, E, HINES, J.**, « *Fiscal paradise: foreign tax havens and American business* », *Quarterly journal of economics*, vol. 109, issue 1, 1994, pp. 149-182.

- **SCHOEMAN, N, ROBINSON, Z, WET, T**, «*Foreign direct investment flows and fiscal discipline in South Africa*», South African journal of economic and management sciences, vol.3, n°2, 2000, pp. 235-244.
- **TSAI, P**,«*Determinants of foreign direct investment and its impact on economic growth*», Journal of economic development,vol., 19, n°. 1, 1994, pp. 137-163.
- **BARRO, R**,«*Government Spending in a Simple Model of Endogenous Growth* », Working Paper n° 2588. National Bureau of Economic Research, Inc, 1988, pp.1-24.
- **BENASSY-QUERUE, A, FONTAGNE, L, LAHRECHE-REVIL, A**,«*Foreign direct investment and the prospects for tax co-ordination in Europe*», CEII document de travail n°2000-06, 2006, pp. 1-45 .
- **BOSKIN, M, GALE, W**, «*New results on the effects of tax policy on the international location of investment*», National bureau of economic research, Working paper 1862, WashingtonD.C., NBER, 1986, pp.1-21.
- **HUBERT, F, PAIN, N**, «*Fiscal incentives, European integration and the location of foreign direct investment*», Manchester school,2002, PP. 336-363.
- **MORISSET, J, PIRNIA, N**, «*How tax policy and incentives affect foreign direct investment*» review World bank policy research,working paper n° 2509, 1999,pp.1-30.
- **SINGH, H, JUNK, W**, «*Some new evidence on determinants of foreign direct investment in developing countries*», Policy research working paper, n° 1531, World Bank, November 1995, pp. 213-240.