ECONOMIC OPENNESS AND ITS IMPACT IN THE GROWTH OF THE ALGERIAN ECONOMY DURING THE PERIOD (1970-2012)

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Abstract :

This study aims to clarify the relationship between openness and growth of the Algerian economy during the period (1970-2012), and according to a series of studies that have proved a causal relationship between openness and economic growth. Our study end up to the existence of significant correlation between the openness of the Algerian economy and the evolution of its Gross Domestic Product, that is the Algerian GDP growth leads to attract foreign capital which is known by the name of Foreign Direct Investment, which in turn contributes to the opening up of the Algerian economy, and the latter, is influenced by Gross Domestic Product and other determinants like inflation and the real exchange rate, trade openness and infrastructure, where the study proved the existence of a positive impact on trade openness, and an expected negative impact on both inflation and the real exchange rate, and an unexpected negative impact on the infrastructure.

Keywords: Economic Openness, Economic Growth, Foreign Direct Investment

Introduction

The Algerian economy is headed toward a market economy, making it more flexible and more openness to the global economy, through the applicable reforms by decision-makers, following the package of economic recovery schemes, making the Algerian economy more attractive to direct foreign investment, through infrastructure development, create jobs. But it remained below the level despite the presence of growth in the Algerian economy over the past few years, the fact that the latter entirely dependent on fuel.

Algeria suffers, like other developing countries from recession investments of various kinds, and then they are looking for ways to sent and revitalization, so it has adopted since the mid-nineties of the last century, the economic opening-up policy, with a view to encourage the flow of foreign capital, the development of legislation and approve incentives, to attract modern technology to establish industries strengthen economic growth, and stimulate domestic investment, as essential elements for economic growth and the achievement of economic and social development, and therefore attract the largest number of foreign direct investment contributes to more openness of the Algerian economy.

Is the growth of the Algerian economy impact on attracting foreign direct investment and hence its openness to the outside world?

To answer this problem we decided to split this article as follows:
- The theoretical framework and previous studies.
- The standard analysis.

One : The theoretical framework and previous studies

Not addressed the issue of economic openness in economic thought, but in a few, and most researchers are expressing openness of an economy that the value of foreign direct investment flows in year t for country i on the value of gross domestic product for the same country i in the same year t, the higher those percentage say that the economy is more open. In order to make it clear that you must specify the objectives of the study, previous studies that I've ever had, and then to identify the determinants of economic openness.

1. Objectives of the study: This study aims to demonstrate the relationship between economic openness and economic growth in Algeria, and by clarifying the determinants of economic openness and foreign direct investment, which enables decision makers in Algeria, to make its economy more open to increase economic growth rates and spur economic development wheel .

2. Previous studies: This subject is covered, but other aspects, we can mention the most important studies in the following:

A. Mohamed Samir Hindawi study (2003), dealt with openness and economic growth the case of Jordan, where the researcher analyzed the relationship between economic openness and growth and investment, and to study the impact of the policy of openness on the effectiveness of both the fiscal and monetary policies and a link to this effect growth, was clearly evident positive impact of openness on Investment as a natural result of the increase in foreign investment by opening up, and the adoption of domestic investment on imports of raw materials, machinery and technical equipment, and concluded that the policy of openness affect growth positively and negatively through a variety of channels, and one of these positive channels are foreign direct investment flows, and increased domestic investment opportunities through the opening of global markets, and improving export performance.

B. Narayan Chandra Pradhan study (2010), entitled: openness and growth of the Indian economy: An Empirical Study analytical, he studied the relationship of trade openness and growth of the Indian economy, and concluded that the existence of a causal relationship between the growth of the Indian economy, especially trade and openness after changing the pattern of trade in India.

C. Nabil BELOUARED study (2013), entitled causal Granger relationship of foreign direct investment and economic growth in Algeria, where he found a small probability of the causal relationship between the two variables, after a simulation for 1000 scenario, where it was noted that 30% can internal output of crude (GDP) that affect foreign direct investment (FDI) in Algeria, and can 6.5% foreign direct investment (FDI) that affect the gross domestic product (GDP) in Algeria.

3. Determinants of economic openness: There are several determinants of openness of the economy determines what we remember the most important of which is applicable to our study as follows:

A gross domestic product GDP: The gross domestic product specific key multinational companies seeking to achieve growth or access to new markets or increase their share of the host countries' markets, and in this context, we find that states with a local GDP of large be very convenient for a lot of domestic and foreign enterprises, especially those working in the non-services to trafficking, because the only way to be submitted to the host country markets is done through the establishment of their own in those countries branches, in addition to that, the larger the GDP size helps organizations that operate in viable products trafficking to achieve economies of scale. This is what makes the economy more open.

(B) Exchange rate: The multinational companies interact reactions counterproductive with exchange rate fluctuations, and in this regard, we find several studies of the most important of those carried out by the Economic Caves, has made it clear that there is a negative correlation between the exchange rate of the nominal and the real and the flow of foreign direct investment to America and the sudden fluctuations of exchange rates have a negative impact on the investment climate, as such fluctuations make it difficult to work studies, in addition, it can be FDI vector towards exports to be affected as a result of the relative changes in the exchange rate.

C Inflation: The inflation rates have a direct impact on the pricing policies and the size of the profits, and thus the impact on the movement of capital, also affect the cost of production, which attaches great importance by multinational companies, as we find affected the profitability of the market as a result of high inflation in host countries, in addition to the poor investment climate, and here is the foreign investor need to stabilize the price, and if it happened to be the danger zone, both national investments or foreign, and add to this that inflation distorts investment style, as investors turn to short-term investments, and averse long-term investments.

W trade openness: expressed as total exports and imports of the country during the period t i on gross domestic product for the same country in the same period i t, and is also specific to the openness of the economy of the country i. Which is expressed in foreign trade, and here we must focus on import intermediate goods that complement the production process, not the import of consumer goods, then trade openness lies in bringing exports place imports for consumer goods, and import goods intermediate which is usually missing or minority in the state, In order to support the production process.

(C) infrastructure confirmed many economists theory of growth for each of the (Romer 1986 (Romer) and Lucas 1988 (Lucas)), which aims to public investment in infrastructure has an important impact on the overall economy in the long term, especially in the field of transport of all kinds (land, sea and air), and communication, thereby contributing to the promotion of foreign direct investment in the host country.

C -1 communications: the existence of a sophisticated communications network helps the flow of foreign direct investment, so as to easily connect to all types of telephone, internet ...

C -2 basal established: provide facilities Qaeda network of roads, railways, airports factor of attracting foreign capital factors, for ease of movement from one area to another, the transport of goods, whether for distribution or bring in raw materials, opening up to the outside world ...

Two: The standard analysis

The approach of economic measurement of the most effective economic curriculum being taught phenomenon in several variables over time, it was noted relied upon in the last years of the analysis, as well as it depends on a huge amount of data to explain the phenomenon, which is taken into account all the circumstances that surround the economic problem, and the phenomenon of economic openness Economic growth does not represent an exception.

1. descriptive study of the variables of the study: I, we decided that there are several determinants explain the flow of the openness of the economy, so we will know all the variables we considered specific to the openness of the Algerian economy, which we consider to be the model variables, data and statistical sources and the expected effects of the variables.

1-1 **Model variables:** Take prototype form logarithmic follows:

$$\ln(\mathbf{OE_t}) = \mathbf{f}\ (\ln(\mathbf{GDP_t}), \ln(\mathbf{GDPpc_t}), \ln(\mathbf{POP_t}), \ln(\mathbf{INF_t}), \ln(\mathbf{REER_t}), \ln(\mathbf{TELE_t}), \ln(\mathbf{OPR_t}), \ln(\mathbf{ALPH_t}), \ln(\mathbf{EXOIL_t}), \mathbf{U_t})$$

Whereas:
$\ln(\mathbf{OE_t})$ **:** Logarithm of economic openness.
$\ln(\mathbf{GDP_t})$ **:** Logarithm of GDP.
$\ln(\mathbf{GDPpc_t})$ **:** Logarithm of per capita income.
$\ln(\mathbf{POP_t})$**:** Logarithm of population density.
$\ln(\mathbf{INF_t})$ **:** Logarithm of inflation.
$\ln(\mathbf{REER_t})$ **:** logarithm of the exchange rate.
$\ln(\mathbf{TELE_t})$ **:** Logarithm of telephone lines per 100 inhabitants.
$\ln(\mathbf{OPR_t})$ **:** Logarithm of trade openness.
$\ln(\mathbf{ALPH_t})$ **:** Logarithm of the educational level.
$\ln(\mathbf{EXOIL_t})$ **:** Logarithm of oil exports.
$\mathbf{U_t}$ **:** Errors, and **t** is the number of years of schooling.

And we can clarify variables used in the study in Table (1) below:

Table (1): Model variables

variables	Symbol	Definition
economic openness	**OE**	Foreign direct investment flows to Algeria divided by the gross domestic product. (OE = FDI/GDP).
gross domestic product	**GDP**	Is the gross domestic product at the price of the base year 2005, and reflects the size of the market.
inflation	**INF**	Price index on consumption.
the exchange rate	**REER**	The real exchange rate.
telephone lines per 100 inhabitants	**TELE**	Number of installed telephone lines per 100 inhabitants, and reflect on the level of development of infrastructure.
trade openness	**OPR**	Openness rate = (exports + imports) \ GDP

Table: prepared by the researcher.

1-2 statistical data were obtained on the statistical data for the variables of the study to the case of Algeria from several sources, was to rely more on data from the World Bank, they contain the largest amount of Statistics, and so there is no contradiction in the data, but in the absence of variable resort to other sources, the Arab as the founder of the investment guarantee and export credit in Kuwait, Statistical, Economic and Social Research and Training countries Islamic center in Ankara (Turkey), and the study was conducted on the Algerian economy during the period (1970-2012), and for this we'll explain in a comprehensive sources table to get the data and websites and below.

Table (2): data and statistical sources

variables	Symbol	Data source	Site web
economic openness	**OE**	World Bank, World Development Indicators (WDI).	www.worldbank.org
gross domestic product	**GDP**	World Bank, World Development Indicators (WDI).	www.worldbank.org
inflation	**INF**	World Bank, World Development Indicators (WDI).	www.worldbank.org
the exchange rate	**REER**	World Bank, World Development Indicators (WDI).	www.worldbank.org
telephone lines per 100 inhabitants	**TELE**	Economic and Social Research and Training Centre for Islamic countries in Ankara	http://www.sesrtcic.org
trade openness	**OPR**	World Bank, World Development Indicators (WDI).	www.worldbank.org

Table: prepared by the researcher.

1-3 The Effect of variables: we can expect from this study raised the previous variables on the Algerian economic openness, some of them affects positively, whenever any the rising value followed by the rise of the value of the openness of the Algerian economy and vice versa (proportional) relationship, and some of them adversely affects any rise whenever the value of the variable leads to the devaluation of the opening of the Algerian economy and vice versa (inverse relationship), and summarized in the form of the table below.

Table (3): The expected effects of the variables

variables	Symbol	The expected effects of the variables
gross domestic product	**GDP**	Positive impact (+) any direct correlation
inflation	**INF**	Negative impact (-) any inverse relationship
the exchange rate	**REER**	Positive impact (+) any direct correlation or Negative impact (-) any inverse relationship
telephone lines	**TELE**	Positive impact (+) any direct correlation

per 100 inhabitants		
trade openness	**OPR**	Positive impact (+) any direct correlation

Table: prepared by the researcher.

1-4 Model Rating: I've been using the model estimation method of least squares OLS by the statistical program (EViews), and after a workout most possibilities concluded to the form shown below, after converting the data to the absolute value of the fact that there are negative values affect the relationship logarithm:

$$\boldsymbol{ln(OE_t) = a_0 + a_1\,ln(\,GDP_t) + a_2\,ln(\,REER_t) + a_3\,ln(\,TELE_t) + a_4\,ln(\,OPR_t) + a_5\,ln(\,INF_t) + U_t}$$

Was in this way rely on gross domestic product (GDP) as a variable to the size of the market, and telephone lines as a variable of infrastructure, trade openness, and the exchange rate, inflation, it was observed that the value of the correlation coefficient (R^2 = 0.7144) and the correlation coefficient debugger (Adj R^2 = 0.6494). And Table 4 below shows the summary indicators.

Table (4): Summary indicators.

variables	Notes	Mediator	The standard deviation	Minimum	Maximum
OE	39	-1.638325	2.547718	-7.524326	0.9969954
GDP	42	24.90292	0.388322	24.01852	25.51733
INF	43	1.91076	0.898902	-1.081274	3.455359
REER	41	4.017844	0.1993587	3.486903	4.339309
TELE	33	5.118734	0.5409966	4.589278	6.10597
OPR	39	13.70014	1.003557	11.47002	14.97929

Table: prepared by the researcher depending on the data EViews program.

3. The model test: We have to use all of the Fisher test to measure model quality, and test Student to test the model parameters, in addition to Darbn test - Watson to test the link, which observed the existence of a self-correlation between the errors, in the estimated Least-squares OLS model, so we re-appreciation using method (HAC Newey-west fixed) to address the existence of a self-correlation of the errors on the one hand, and the heterogeneity of variance on the other hand, using a statistical program (Eviews), after conducting the necessary tests we have acquired on the results shown in Table 5 below.

Table (5): Results of the estimates using the method of least squares OLS variable interpreter logarithm of the openness of the Algerian economy

variables	**Model**
$\mathbf{ln}(\mathbf{INF_t})$ **:** Logarithm of inflation	-0.74
	(0.61)
$\mathbf{ln}(\mathbf{REER_t})$ **:** logarithm of the exchange rate	-5.3
	(2.64)*
$\mathbf{ln}(\mathbf{TELE_t})$ **:** Logarithm of telephone lines per 100	-2.38
inhabitants	(3.94)
$\mathbf{ln}(\mathbf{OPR_t})$ **:** Logarithm of trade openness	0.96
	(1.75)
$\mathbf{ln}(\mathbf{GDP_t})$ **:** Logarithm of GDP	2.44
	(6.02)
C	-5.177
R2 correlation coefficient	0.7144
Edited Adj R2 correlation coefficient	0.6494
Statistical Fisher F	11.006
The value of the probability P	0.000021
Views N...	28

Figures in brackets represent the standard error, and statistical Student (T- Student) where (*) represents a significant level 10%.

Source: The table was obtained from the statistical program EViews output.

4. The interpretation of the results: Since the statistical Fisher calculated (F_{obs}) greater than statistical Fisher scheduled (F_{tab}), the model is acceptable, where it was noted that the model better the fact that the debugger correlation coefficient is the largest, and it takes the smallest value for each of the test (Akaike Info Criterion «AIC ») and testing (Schwarz Criterion« SIC »), was observed in this model that trade openness in Algeria positively affected by each of the gross domestic product, trade openness to the outside world, and negatively with both inflation and the real exchange rate, and this is what was expected.

While the opening of the Algerian economy has been negatively affected infrastructure was not expected, any infrastructure evolution lead to a decline in the openness of the Algerian economy because foreign investment went to investment in infrastructure, and the development of the latter leads to the reluctance of foreign investors who invest in infrastructure, and it say The Algerian economy growth positively affect the openness, any increase in rates of economic growth comes as a result of increased gross domestic product, which in turn contributes to attracting foreign direct investment, and thus increase the value of the latter on the gross domestic product, which is expressed openly economy.

Conclusion

Most countries in the world is witnessing a growing trend towards openness and liberalization of economies desiring to achieve a set of development goals, and Algeria is one of those countries which headed towards openness desire to achieve these goals. Through this study, we found that:

1. There is a relationship between economic openness and the growth of the Algerian economy during the study period, and that by attracting a large part of foreign direct investment as a result of gross domestic product growth (economic growth), and a rise in foreign investment value direct to GDP say that the Algerian economy more openness.

2. Economic openness is determined by a set of parameters like GDP, including inflation, the real exchange rate, trade openness, in addition to the infrastructure.

3. The real inflation rate negatively affect the openness of the Algerian economy, I mean there is an inverse relationship between inflation and real exchange rate and foreign direct investment divided by the gross domestic product, and this is what was expected.

4. trade openness positively affect the growth of the Algerian economy, and by increasing exports, which in turn contributes to the increase of foreign direct investment value through competition between domestic and foreign investment and thus opening up more to the outside world.

5. There is a negative impact was not expected between infrastructure expressed in the number of telephone lines per 100 inhabitants and economic openness in Algeria, and the fact that most of the direct foreign investment, investing in infrastructure, of evolution the latter contributes to the reluctance of foreign investors, contributing to the decline of economic openness .

6. The Algerian government has taken several measures to create an investment climate consisted of those measures to make many adjustments to investment laws, created these amendments legal conditions and legislative favorable for investment and containing many of the financial incentives and inducements, though observed lack of efficacy, which led to the reluctance of the foreign investor and thus shut out the outside world.

7. A set of restrictions and obstacles hindering the development of foreign direct investment in Algeria, because the geographical location of the islands suggests that these are sophisticated investments. Which led to the closure somewhat to the outside world, and thus slow economic growth.

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Supplement: The results obtained using the EViews program
Dependent Variable: LGOE
Method: Least Squares
Date: 01/31/14 Time: 03:05
Sample (adjusted): 1980 2010
Included observations: 28 after adjustments
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.176870	93.78780	-0.055198	0.9565
LGGDP	2.441467	6.025469	0.405191	0.6893
LGINF	-0.742718	0.617246	-1.203277	0.2417
LGREER	-5.301824	2.641620	-2.007035	0.0572
LGOPR	0.960552	1.753952	0.547650	0.5894
LGTELE	-2.378131	3.948317	-0.602315	0.5531

R-squared	0.714396	Mean dependent var	-2.022818
Adjusted R-squared	0.649485	S.D. dependent var	2.776192
S.E. of regression	1.643624	Akaike info criterion	4.019093
Sum squared resid	59.43298	Schwarz criterion	4.304566
Log likelihood	-50.26731	Hannan-Quinn criter.	4.106365
F-statistic	11.00592	Durbin-Watson stat	1.442026
Prob(F-statistic)	0.000021		