Vol.8 Issue.1 April 2023

RSEP Review of Socio - Economic Perspectives
ISSN: 2149 - 9276
E-ISSN: 2547-9385

Foreign direct investment in Algeria: A theoretical and applied study

Daoudi Mohammed[1,•]
[1] *Prof at the Center University of Maghnia, Faculty of Economics, Maghnia, Algeria*

Article History
Received: 3 December 2022 Revised: 20 March 2023 Accepted: 22 March 2023 Available Online: 1 April 2023

Keywords: foreign direct investment; attraction; market size; causality test; investment climate
JEL classification: F210, E270, F32

Citation: Mohammed, D. (2023). Foreign direct investment in Algeria: A theoretical and applied study, *Review of Socio-Economic Perspectives*, 8(1), 77-92.

Abstract

This paper studies the most important determinants of foreign direct investment in Algeria in a theoretical and practical framework (using the co-integration test and the causality test). Foreign direct investment has become very important, because it has become the object of competition between countries, whether developed or underdeveloped. Algeria, like the countries of the world, tries to take advantage of it as well, but this comes up against obstacles that this study has tried to identify, the most important of which are inflation (-0.0203) and administrative corruption (-1.2821), with the weakness of other determinants to attract it, such as market size (0.0113) or public spending (0.0527).Thus, according to the results of the study, Algeria still remains unattractive for foreign direct investment.

1. Introduction

The importance of foreign direct investment is no different, but it is okay to mention some of its aspects, which are: Increasing economic growth rates, according to the classical growth theories, economic growth requires an increase in the volume of invested capital, which may not be possible, especially in developing countries that suffer from declining national savings and low per capita GDP; Hence, FDI inflows can improve the rate of economic growth. Transfer and localization of technology in the host country; This leads to an increase in the competitiveness of the economy infrastructure development and human capital development through training local labor and providing them with advanced technological skills and modern management methods; Which ultimately leads to the transfer of these experiences to national companies. Reducing unemployment rates and creating job opportunities directly or indirectly through the creation of forward and backward links in the form of complementary industries or services. Improving the balance of payments and the exchange rate of the national currency by increasing the foreign exchange earnings of the host country and increasing exports. As a result, countries have striven to remove all investment obstacles, provide financial and non-financial guarantees and incentives, and implement economic policies to simplify procedures, improve the business environment, and create an attractive climate for investment.

The most important feature of the relationship between the investment climate and environment and foreign direct investment is the change in its characteristics and content in Algeria since its independence until today. Where there have been transformations in three important stages, each stage has been characterized by distinctive features, both in economic, political and legal terms. It was the first stage, which began immediately after Algeria's independence. Where he pursued a development policy based on the rules of the planned economy, and this type of economic system clearly affected the inflow of foreign direct investment in Algeria. Where there was a kind of reserve of this type of investment, which undoubtedly affected negatively. Algeria was clear at the time that this type of investment creates dependency and political interference, and the possibility of weakening public companies.

• **E-mail:** daoudim975@yahoo.com & **ORCID:** https://orcid.org/0000-1111-2222-3333

DOI: https://doi.org/10.19275/RSEP150
Article Type: Original Paper

As for the second phase, it began in the early 1990s, under the effect of the drop in oil prices and the increase in the severity and weight of the external debt. This situation led to a state of imbalances in the economic and social balances in Algeria, and it began to enter a phase of economic instability. Algeria was forced to reschedule its external debts (Paris Club and London Club), while Algeria was entering the phase of implementing the IMF prescription. One of the effects is Algeria's recognition of the need to open up to the market economy and gradually abandon the previous economic system, which opened the door to foreign direct investment and treated it differently.

The third stage comes with the beginning of the third millennium, and was marked by the emergence of Algeria from its isolation thanks to political and security stability. This coincided with the improvement that characterized most economic indicators from low inflation and positive real growth rates. This has resulted positively in the improvement of the investment climate in Algeria, the adoption of foreign direct investment in the development process and the emphasis placed on the importance of this type of investment. This was evident by providing all possible measures to attract him.

Thus, the evolution of the management of foreign direct investments in Algeria since its independence until today is linked to two factors. The first is the development of conditions in international economic relations, which had a clear reflection on the development of the importance of foreign direct investment in international finance; the second factor is the orientations adopted by Algeria on the political and economic levels. Accordingly, we will try, through this research paper, to shed light on foreign direct investment in Algeria and its importance, by raising the following problem: What are the determinants of foreign direct investment in Algeria?

2. Literatures review

The theoretical analysis of the phenomenon of attractiveness of a country for foreign direct investment is vast and is characterized by many aspects. The economic literature in this area brings together issues closely related to foreign firms investing abroad, and other issues related to the particularities of the investment climate in the host country for foreign direct investment.

The "organizational theory" is based on industrial organization and goes a long way to explaining the work of multinational enterprises and the mechanisms of international production. We are talking here about multinational companies, which are considered one of the most important forms of internationalization of production, which began to appear since the end of the sixties, where it clearly developed in the United States of America and Great Britain. Its scope expanded so that these companies acquired multiple and extensive geographical shares in the world and expanded their activities and specializations at a rapid pace, and this was evident since the late eighties.

The first theoretical analyzes of the phenomenon of multinational enterprises, which endeavored to explain the imperfect competition and the monopoly which characterized these enterprises, date back to the end of the 1950s. The most important of these are the «product life cycle» theory, (Vernon, 1966), the «universal» theory, (Hymer , 1968), and the «product diversity» theory, (Caves , 1974). What is notable about the content of these discussed theories is that they share two main points, the first of which is the explanation and analysis of why a company is a multinational company. The second point was the adoption of American companies as a model.

From the seventies appeared more serious and effective attempts to explain the phenomenon of foreign direct investment, and in this regard we find the Eclectic theory or Paradigm OLI (O « Ownership », L « Localization », I «Internationalization »), which came from (Dunning, 1974)

This has allowed us to better understand the phenomenon of location and displacement of multinational companies, whether in developing or developed countries. The central idea that emerges from this theory is that a multinational company has a qualitative advantage will choose to invest in a stimulating and attractive geographical area or area, in order to be able to take advantage of this advantage to raise awareness of the most possible lows globally. On the basis of all that we have just mentioned, how to identify an attractive and stimulating location or geographical area for foreign direct investment? The attractiveness of a particular region for foreign direct investment is linked to a set of variables and cannot be limited to one factor or one variable.

In general, current studies in this area have focused on the cost and quality of labor, as well as the quality of infrastructure and public institutions. She was also interested in the role played by national economic policies (trade policy, exchange rate policy, fiscal policy, monetary policy.). He also paid great attention to market size. The work of (Root & Ahmed, 1979), consisting of a set of variables that explain the attractiveness of foreign direct investment in countries, are the size of the market (from the work of Goldberg 1972), the quality of infrastructure, trade openness, level of economic integration and political stability. Like the work of (Wheeler & Mody, 1992), they depended on a set of variables that explain the phenomenon, as well as a large market size,

low labor costs, an industrial fabric (presence of industrial zones) and the latter depends mainly on the availability of advanced infrastructure and rapid industrial development.

Wheeler and Mody add that these variables are closely linked to the level of economic development of the country receiving foreign direct investment, as well as to the productive sector that the multinational will choose. For developing countries, foreign direct investment in electronics industries is strongly correlated with the quality of infrastructure and labor costs. As for developed countries, it is closely related to market size and industrial readiness, and it is humbling that the quality of infrastructure is not seen as a barrier to foreign direct investment in developed countries, because multinational companies will be established there, benefiting from a better quality of services compared to developing countries, As for the work of (Axarloglou , 2005) which relied on the method of panel data, it was found that the attractiveness of a particular country for foreign direct investment is largely related to labor productivity, as well as real spending on higher education and social stability.

With the expansion of globalization, economic activities have tended to specialize and fragment into global market sectors, as well as the theories of the strategy of productive market sectors, proposed by (Jones & Kierzkowski, 2001) in order to shed more light on the phenomenon the location of multinationals and their choices for the areas of their activities in the world, particularly in developing countries. And the theories show the existence of models of foreign direct investment of the vertical type, which are based on the reduction of the costs of the factors of production.

Foreign direct investment was more necessary when there were customs restrictions between countries, and for multinational companies to avoid these customs barriers and capture the market of a region particular, they have chosen to establish themselves and carry out their activities at their level, and this is called the tariff jump. Protected and closed economies are more attractive and attractive to foreign direct investment than economies open to the world. In other words, the degree of protectionism of a particular economy and the size of its internal market are considered to be one of the most important determinants for attracting foreign direct investment and choosing between it and export. So here occurs a relationship of substitution between foreign direct investment and export, and this is what generates another model of foreign direct investment, which is of the horizontal type. More, the openness of countries has been frequently studied using the trade share (as a percentage of GDP) (Cleeve, 2008); (Mhlanga, Blalock, & Christy, 2010), showing a positive correlation between openness and FDIs. As such, one could expect tarifs and other trade barriers to be negatively correlated with FDI. This must be balanced with the fact that if companies are experiencing high trade barriers with a market they want to operate in, they could be tempted to invest or relocate it to avoid those costs. In a study published in 2020, Ghodsi demonstrated how FDIs were motivated by tarif- jumping motives (Ghodsi 2020). He argues that both tarif 's and technical trade barriers are positively correlated with FDI enters in European countries. As long as companies can relatively freely relocate it seems hence plausible to see a positive correlation between costs of trade and FDIs. (Delabarre, 2021)

In addition to what we have mentioned, what is related to foreign direct investments of the vertical type is also known as North-South investments, that is, they are directed from the countries of the North, which are mostly developed and industrially advanced and technological countries, to southern countries, which are mostly developing countries that have material and human resources at low cost. In other words, there is a clear discrepancy between the countries of origin of the investment and the countries which receive it with regard to natural resources (Dunning 1993). In addition to owning the factors of production, labor costs and the extent of its qualification, these elements remain among the most important determinants and influencing the flows of foreign direct investment of the vertical type. (Helpman, 1984).Without forgetting the work of (Feinberg & Keane, 2001), (Yeaple, 2003), , (Hanson, Mataloni, Matthew, & Slaughter, 2001), they showed on the basis of data from the United States of America that vertical foreign direct investment remains more concentrated in certain sectors, such as the mechanical and electronics, and these works were based on the comparison of some factors controlling the investment such as labor cost, transport costs and factor abundance between the host country and the origin country of the investing company (they based their work on OLI and Dunning's 1993). And in the economic literature of FDI, there are those whose analysis is based on the horizontal type, such as (Brainard, 1997), and there are those which rely on the vertical type, (Hanson, Mataloni, Matthew, & Slaughter, 2001) , as well as (Head, Ries, & Spencer, 2004). There are econometric studies that have attempted to analyze the attractiveness of countries for foreign direct investment, generally using data specific to the host countries (macroeconomic data) or data linked to institutions operating in the host countries (microeconomic data). All of these studies have attempted to measure the effects of foreign direct investment on host countries and to determine its determinants. In order to analyze the explanatory factors of foreign direct investment, analysts use FDI as a percentage of GDP to determine the size of the market, following the example of the works of (Akinkugbe, 2003), (Asiedu, 2003), (Singh & Jun, 1995).

In recent economic literature, we find the work of (Blonigen, 2005) centered around two hypotheses, one based on microeconomic models from which the decision of a global company to produce or operate in a foreign country is abroad, has been explained. The second hypothesis is based on macroeconomic models, through which the most important factors that help attract foreign direct investment flows have been identified. This study highlighted the importance of the exchange rate in particular and tax deductions in addition to laws and legislations related to business transactions.

It remains that the question of measuring the attractiveness of a particular country to foreign direct investment flows poses several problems and complications mainly related to the presence of several variables that control the degree of attractiveness. This difficulty has been demonstrated by applied and theoretical studies that have focused on this subject, and the economic literature mentions the work of (Loewendahl & Ertugal, 2001), where this study identified more than 20 determinants of foreign direct investment arranged on the basis of economic, legal, institutional and political considerations. We also find the work of (Lim, 2002), (Basu, 2002), where these studies have confirmed the importance of the traditional determinant and main determinant of foreign direct investment, which is the market size, the cost of labor and wages.

3. Foreign direct investment in Algeria

3.1. Planned economy stage

At this stage, the investment rate, which was a majority public investment, was of paramount importance, it was between 40 and 50%, which, given the long period of recovery, led to a deficit financial; In addition to neglecting the results caused by the investment process, whether direct, such as economic growth and increased exports, or indirectly related to the creation of harmony and integration between the different sectors of the national economy. The Central Bank of Algeria also played a formal role, which contributed to the increase in the size of the money supply compared to the real flows of goods and services. This has caused clear imbalances in the overall economic balance due to high inflation and the deterioration of the purchasing power of Algerians.

Also, the rate of coverage of exports from the non-hydrocarbon sector by imports from the same sectors did not exceed 5%, which indicates the failure of the economic policy adopted, which has largely failed to effectively involve the agricultural and industrial sectors in the national development process. This was due to low labor efficiency, poor control of technology, slow production and long completion period of projects, which forced the state to bear burdens additional and growing financial resources. From this economic situation stems a significant weakness in the share of foreign direct investment in Algeria's external financing structure due to its dependence on borrowing and subsidies as alternatives. In addition to decisions resulting from political choices and ideological orientations, they have played a decisive role in determining the volume of foreign direct investment inflows into Algeria.

Moreover, in 1971, a negative record was recorded in the value of flows due to the liquidation of foreign direct investment following the nationalization operations. After this year, Algeria opened the only hydrocarbon sector in the fields of exploitation, refining and production with foreign capital in the form of joint ventures, of which Algeria holds 51%. (Benbitour , 1998)

The flows of foreign direct investments have remained between the rise and the fall, and it is certain that what distinguishes them is that they are low flows compared to other international sources of financing. Their cumulative value for this period has been estimated at around 1663 million dollars and compared to the external indebtedness of 1980, which amounted to 17 billion dollars, it represents only 9.8%. Even in the hydrocarbons sector, the activity of foreign companies has been restricted by numerous norms and conditions, which indicates that had it not been for the necessary need for research, exploration and exploitation technology, Algeria would not have allowed foreigners to participate in this sector during this period. (ONS, 1980)

The beginning of the 1980s coincided with the continuation of the rise in oil prices, and the aim of the reforms adopted by Algeria was to achieve two objectives: The first is to correct the excesses of the economic policy of the 1970s by eliminating all resulting imbalances. Algeria has provided for this purpose two five-year plans, amounting to The value of the first was 500 billion DA for the period 1980 to 1984, and the value of the second amounted to 828 billion DA for the period 1985 to 1989. The planners' goal was to achieve a balance between the different economic sectors, production and services, and so the gradual change was to abandon the policy of unbalanced growth that had been adopted during the sixties- ten. (ONS, Statistics on the Algerian economy 1970-2002, 2002) With regard to investments, the share of industry in total investments fell from 56% to 24% between 1980 and 1984, while investments in infrastructure rose from 30% to 55% during the same period. , and the share of agriculture remained between 3% and The State budget also went from a surplus position in 1980 to a deficit position at the end of 1984, due to the increase in expenditure for 'equipment. As for the trade balance, it remained in surplus until 1985, despite the drop in the external debt to 41.1 billion dollars. In 1984, the debt service ratio as a percentage of exports was 37% (Mutin , 1988).

The balanced growth policy pursued by involving the agricultural sector in the development process has failed due to the low share of investments, which has widened the gap with respect to food dependence on the outside, especially with the increase food imports compared to Algeria's total imports from 10% in 1970 to 22% in 1985. To all this is added the predominance of the hydrocarbons sector in the Algerian production structure, due to the increase of 98% of its contribution to total exports, which implies the focus of economic policy on this as the main factor in achieving growth, and due to the lack of control of oil prices and the reduction in coverage of world demand by the Organization of the Petroleum Exporting Countries from two-thirds in 1974 to one-third in 1984, this sector has played a major role in transmitting external shocks to the national economy.

In terms of monetary policy, the Treasury intervened directly in the management of monetary affairs. The Central Bank of Algeria was only an organization responsible for issuing the liquidities necessary to finance the planned public investments. As for the Algerian banks, they were only a tool for the financing of public institutions, because it is enough that any investment project be approved by the State to obtain the necessary financing from the banks without regard to the financial capacity, payment terms, borrowing risks…

As for the weak points of the indicators of the Algerian economy until the middle of the 1980s, which coincided with the beginning of the implementation of the second five-year plan, these were great difficulties due to the fall in oil prices, which has hit hard the depth of the Algerian economy because of its association with hydrocarbon revenues and oil rents. The sharp decline in oil prices on international markets from $27 per barrel to $14 per barrel between 1985 and 1986 led to the collapse of Algeria's hydrocarbon revenues. The deterioration in the value of the dollar during this period also contributed to the decline in Algerian revenues and the increase in the severity of external debt. This deterioration of the situation led to real economic problems, in particular a reduction in the employment opportunities created from 194,000 in 1986 to 62,000 in 1988, and consequently unemployment increased and its burden increased, the number of unemployed falling from 650,000 in 1986 to 1.8 million in 1989; The quality of social services provided by the state has also declined, worsening the social crisis. (Madjdoub , 2003) The economic growth rate decreased from 5.2% in 1985 to -2.9% in 1989, and the external debt rose and became aggravated and limited the credibility of the Algerian economy in the international financial markets, reaching a value of 25.3 billion dollars in 1989, which was reflected The increase in the debt service index as a percentage of exports to 75.25% for the same year.

The attempt to adopt decentralization in the running of the national economy and the attempt to get closer to the capitalist approach and work to involve the national and foreign private sector, was marked in the eighties by the issuance of Law 82/11 of August 21, 1982, which worked to achieve integration between the national public and private sectors, and The foreigner by giving the latter more space and freedom to contribute to the process of economic growth (Ordinance No. 82/13, 1982).

In addition to Ordinance 86/13, which complements the previous law and stipulates allowing the transfer of profits, guaranteeing compensation in the event of nationalization, and partial transfer of workers' wages. But in practice, the Algerian reservation continued during this period on all forms of foreign interference, including foreign direct investment. In view of the lack of success of the development programs established by Algeria during this period and their failure to advance the economic development of the country, while maintaining clear control of the state over the various economic sectors; This reflected negatively on attracting foreign direct investment. (Ordinance N° 86/13, 1986)

As a result of weak economic growth, high unemployment rates and the deterioration of purchasing power to a large extent, in addition to the exacerbation of external debt, the collapse of the socialist system and the increase in the spread of globalization; It was necessary for Algeria to introduce deep and comprehensive reforms, using the directives of international financial institutions, starting in March 1989, within the framework of stabilization and structural adjustment programs, and all of what we mentioned has contributed to changing Algeria's view of foreign direct investment. During this period of time, foreign direct investment inflows were weak. (see figure 1)

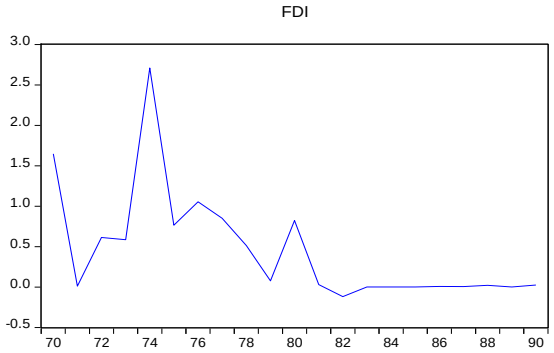

Figure 1: Foreign direct investment inflows to Algeria for 1970-1990

Source : http://www.unctad.org/fdistatistics

3.2.The economic reforms stage

The global indicators of economic and financial balance in Algeria have improved, as inflation rates have decreased to acceptable levels as a result of activating the role of monetary policy in the Algerian economy, which worked to curb the growth of the money supply to acceptable limits as a result of reducing the coverage of the state budget deficit through monetary issuance and activating tools different monetary policy.

The state budget balance shifted from a surplus during the period from 1995 to 1997 due to the pressure of public spending (reducing salaries and wages and the state's abandonment of the subsidy policy) to a deficit in the years 1998 and 1999 as a result of the decline in public revenues due to the drop in oil prices. Beginning in 2000, the state budget continued to record a surplus and real positive and high growth rates were achieved, except for the significant decline recorded in the years 1997, 2000, 2001 as a result of the drop in oil prices and the recording of a negative growth rate in other sectors outside the hydrocarbon sector, especially in the agricultural sector**.**

Unemployment rates decreased after they were very high during the period of implementing the economic program and supporting growth, which aimed to reduce the negative social effects of the programs of the international financial institutions that lent Algeria, headed by the International Monetary Fund. As a result of the prepayment of debts in 2006, which explains the rise in the debt service index as a percentage of exports to 25.3%, the Algerian foreign debt and debt service burdens as a percentage of exports decreased in 2007 to 5.606 billion US dollars and 2.49%, respectively. And from the beginning of the liberation of the Algerian economy from the burden of indebtedness that Algeria has suffered for a long time, and exchange reserves rose to record levels that Algeria had not previously known, and the balance of payments improved greatly to reach at the end of 2007 to 29.55 billion US dollars. (UNCTAD, FDI statistics, 2013)

There is an improvement in the economic situation in Algeria, a situation that will play a major role in improving the business and investment climate in Algeria. This leads us to ask about the evolution of Algeria's share of foreign direct investment.

Although Algeria adopted the policy of open door to foreign direct investment, at the beginning of the nineties through the issuance of legislation that provides guarantees and the necessary advantages. It is noticeable that the attractiveness of Algeria until the end of the first half of the nineties was characterized by weakness and did not know a significant difference compared to the planning stage.

This is mainly due to a group of factors, foremost of which is the lack of improvement in economic performance and the deterioration of the political situation, whose features were evident in the manifestations of violence in Algeria and the deterioration of the security situation during that period. As for the second half of the nineties, which coincided with Algeria's restoration of its financial and monetary balances as a result of the application of the structural adjustment program, Algeria has experienced an increase in inflows of foreign direct investment.

However, the observer of these flows notes that they were mostly directed towards the hydrocarbon sector, where Algeria knew the entry of several companies, including American companies such as PETROFAC RESOURCES INTERNATIONAL and European ones, especially French, Italian and Spanish, including CEPSA, AGIP, ELF/TOTALFINA. During the period between 1992 and 1999, the total inflows of foreign direct investment amounted to 1.601 billion US dollars (see figure 2), the share of the hydrocarbons sector of which amounted to 1.534 billion dollars, and it is clear to the eyes that other economic sectors know clear limitations and that the lion's share is attracted by hydrocarbons. This is justified by the high profitability of this sector globally. (CNES, 2006)

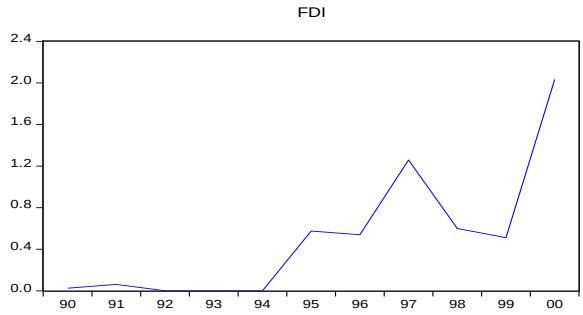

Figure 2: Foreign direct investment inflows to Algeria for 1990-2000

Source : http://www.unctad.org/fdistatistics

Therefore, this increase inflows of foreign direct investment cannot be adopted as a reference to improve the investment climate in Algeria, and the question that arises is where is the problem and where does the defect lie? The improvement of some indicators of the Algerian internal and external economy would not have persuaded foreign investors to practice their activities in other economic sectors in addition to the hydrocarbons sector, and this can be explained by the continued political instability and security turmoil in that period. A stage known as remnants that negatively impacted the attraction of foreign direct investment and the stability of foreign companies present in you, as it witnessed the destruction of many public and private national and foreign productive projects as a result of terrorist acts, and the closure and suspension of many productive institutions due to the departure of the workforce in addition to the threat of foreigners and target their property.

On the basis of what we have mentioned, the security situation was very turbulent, which made investment in Algeria fraught with great risks during the nineties, compared to the neighboring Maghreb countries such as Tunisia and Morocco, which had security stability that made them the station for most of the investments directed to this region.

Since the year 2000, Algeria has formed an area of attraction for foreign direct investments, especially after the reforms that affected various aspects, especially the legislative aspect, through the issuance of the 2001 law related to investment development, aimed at creating an investment climate and establishing special bodies to receive and direct local and foreign investors, the most important of which are the National Agency for Investment Development (ANDI) and the National Investment Council (CNI).), in addition to the partnership agreement with the European Union in 2001 as a prelude to joining the World Trade Organization, in addition to the rise in fuel prices in global markets, which encouraged foreign investors to invest in the sector .

In 2009, direct foreign investments reached their highest value since independence, amounting to 2.75 billion US dollars. 2015 witnessed a decrease in the inflow of foreign direct investment (see figure 3), after which it recovered its positive development significantly by the year 2016 until the year 2020. However, Corona disease (Covid-19) has clearly affected the inflows, which are very limited and did not exceed the threshold of two billion dollars. However, the Covid-19 pandemic is not the only factor that will change the reality of matters with regard to foreign direct investment. The new industrial revolution and the policy shift towards more economic nationalism and sustainability trends are all factors that have a far-reaching impact on the composition of international production in the decade separating us from 2030. (UNCTAD, World Investment Report 2020, 2020) .

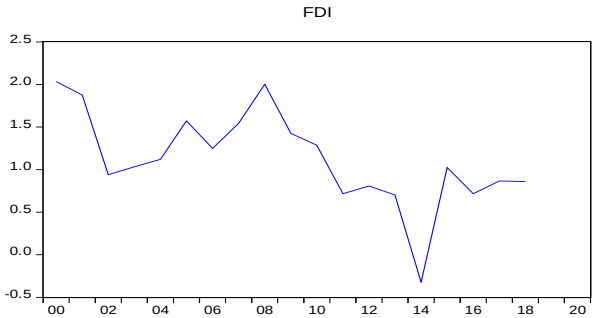

Figure 3: Foreign direct investment inflows to Algeria for 2000-2020

Source: http://www.unctad.org/fdistatistics

4. Empirical Investigation

4.1.Estimation technique

Classical economic modeling consists of several structural equations, and several criticisms of (Granger, 1969) and (Sims, 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:

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

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:

$$By_t = A_0 + \sum_{i=1}^{4} A_1 y_{t-i} + \varepsilon_t$$

With:

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

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

With:

$$\upsilon_t = \begin{bmatrix} \upsilon_{1t} \\ \upsilon_{2t} \\ . \\ . \\ \upsilon_{kt} \end{bmatrix}; \; A_0 = \begin{bmatrix} a_1^0 \\ a_2^0 \\ . \\ . \\ a_k^0 \end{bmatrix}; A_p = \begin{bmatrix} a_{1p}^1 \ldots\ldots\ldots a_{1p}^2 \ldots\ldots\ldots a_{1p}^K \\ a_{2p}^1 \ldots\ldots\ldots a_{2p}^2 \ldots\ldots\ldots a_{2p}^k \\ . \\ . \\ a_{kp}^1 \ldots\ldots\ldots a_{kp}^2 \ldots\ldots\ldots a_{kp}^k \end{bmatrix}; \; Y_t = \begin{bmatrix} y_{1t} \\ y_{2t} \\ . \\ . \\ y_{kt} \end{bmatrix}$$

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:

$$AIC_{(p)} = Ln\left[\det\left|\sum_e\right|\right] + \frac{2k^2 p}{n}$$
$$SC_{(p)} = Ln\left[\det\left|\sum_e\right|\right] + \frac{2k^2 Ln_{(n)}}{n}$$

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 (Bourbonnais, 2002)**.**

The sample study consists of 36 yearly observations; the data in this study was obtained from the statistics the Algeria's ONS (national statistics office), the international financial statistics of IMF, UNCTAD, world developing indicators of the World Bank WDI, transparency international and ICRG. All the variables are in logs, the data used is annual covering the period 1984 to 2020. The variables used for fundamentals were determined by two considerations, theory and availability of data.

The variables of study are:

- FDI: Foreign direct investment inflows
- RER: Real exchange rate of Algerian Dinar
- TRAD : Trade openness
- GDP: Real Gross domestic product (Market size)
- G : Public spending (State size)
- INF: Inflation
- OIL: Oil prices
- CORRUP: Corruption and Quality of administrative procedures

In order to studies and explained the determinants of FDI (Foreign direct investment), we can build the following specification due to the discussion in the former literature:

$$FDI = f\,(RER, TRAD, GDP, G, INF, OIL, , CORRUP)$$

$$FDI = \alpha_0 + \alpha_1 RER + \alpha_2 TRAD + \alpha_3 GDP + \alpha_4 G + \alpha_5 INF + \alpha_6 OIL + + \alpha_7 CORRUP + \varepsilon$$

We will use the co-integration test, which allows us to study the long-term relationship between unstable and integrated time series of the same degree.

4.2.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 (Augmented Dickey Fuller) test.

Table 1. Unit root test ADF (Test of Stationary)

V	**level**			**1st difference**			**decision**	**lags**
	Intercept	Trend & intercept	None	Intercept	Trend & intercept	None		
FDI	-2.7141 (0.0815)	- 3.3914 (0.0684)	-1.9503 (0.1497)	-8.0005 (0.0000)	-7.8941 (0.0000)	-8.0744 (0.0000)	I(1)	2
TRAD	-3.8885 (0.0050)	-4.0012 (0.0173)	-3.9030 (0.0003)	-8.5367 (0.0000)	-8.5343 (0.0000)	-8.6736 (0.0000)	I(1)	2
GDP	-3.8613 (0.0053)	-3.9080 (0.0213)	-1.6803 (0.0874)	-9.7104 (0.0000)	-9.5810 (0.0000)	-9.8354 (0.0000)	I(1)	2
G	-2.8167 (0.0659)	-3.1075 (0.1199)	-2.4900 (0.0143)	-7.5404 (0.0000)	-5.1167 (0.0011)	-7.6196 (0.0000)	I(1)	2
INF	-1.7812 (0.3838)	-2.0470 (0.5576)	-1.1999 (0.2066)	-5.3140 (0.0001)	-4.4427 (0.0059)	-5.3893 (0.0000)	I(1)	2
RER	1.1220 (0.9970)	-0.7680 (0.9598)	3.5226 (0.9998)	-5.2642 (0.0001)	-5.4269 (0.0004)	-4.1826 (0.0001)	I(1)	2
OIL	-1.0647 (0.7196)	-2.3907 (0.3782)	0.0188 (0.6826)	-5.1228 (0.0002)	-5.0934 (0.0010)	-5.1166 (0.0000)	I(1)	2
CORRUP	-3.7707 (0.0073)	-2.5184 (0.3178)	-1.9867 (0.0463)	-1.6410 (0.4510)	-6.9846 (0.0000)	-1.3826 (0.1518)	I(1)	2

Critical value 5%: ADF:-1, 950394, ( ) prob

Source: Eviews program outputs

The results of unit root tests analysis according to the ADF (Augmented Dickey Fuller) test are showed in the table 1. Results of test of stationary show that most of those time series are integrated of order one. The number of lags in this form is estimated to two terms periods of time, through the Figure 1, it is clear that the estimated

model achieves stability conditions (VAR satisfies the stability condition) as all transactions smaller than one, and all the roots are located inside the unit circle, which means that the model does not suffer from the problem of errors in the link or the instability of the contrast.

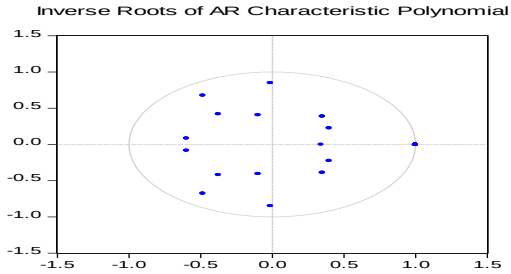

Figure 4. Estimated model achieves stability conditions

Source: Eviews program outputs

4.3. Co-integration analysis (Long- run):

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:

$$\Delta Y_t = A_0 + A_1 \Delta Y_{t-1} + A_2 \Delta Y_{t-2} + \ldots\ldots\ldots + A_P \Delta Y_{t-P+1} + \prod Y_{t-1} + \varepsilon.$$

Where the matrix Π it is formulated as follows:

$$\Pi = \sum_{i=1}^{P} A_{i-1}$$

P : The number of lags in the model

$r = R(\prod_P)$: Matrix rank, which represents the number of co-integration relationships. From the eigenvalues of the matrix Π, we calculate the following λ_{trace} to test the null hypothesis according to which there exist at most *r* co-integrating vectors. (Johansen, 1988)

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

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

Table 2. Johansen co-integration test

Hypothesized No. of CE(s	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob**
None *	0.918231	227.5844	125.6154	0.0000
At most 1 *	0.797538	142.4533	95.75366	0.0000
At most 2 *	0.725807	88.14833	69.81889	0.0009
At most 3	0.531994	44.15492	47.85613	0.1068
At most 4	0.258164	18.33963	29.79707	0.5411
At most 5	0.212181	8.186333	15.49471	0.4457

Trace test indicates 3 co-integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Eviews program outputs

From table 2 above, it is clear that λ_{trace} (which is reported in the fourth column of the output table 2) is smaller than the critical values at the level of significance of 5% and thus accept the hypothesis nihilism H_0, a relationship to integrate simultaneous, where the number of vectors integration Concurrent is $r = 3$ when a significant 5% level, which indicates that the structure of FDI integrated with the rest of the determinants in the model, which indicates the existence of a long-run equilibrium relationship between variables, that is they do not stray too far from each other in the long term so that they appear similar behavior.

Engle and Granger 1987 proposed a two-stage method of testing the co-integration relationship, the first of which is to estimate the following regression relationship using the least squares method.

$$X_t = \beta + \alpha Y_t + \varepsilon_t$$

Whereas the second step; is based on testing the stability of the random error limit for the previous regression equation number 1. If the latter is stable at the level I(0), it means that there is a co-integration relation between the two variables X and Y.

Table 3. Engle & Granger test

Variables	Coefficient	t-Statistic	Std. Error	Prob
constant	0.6326	**3.10305	0.46794	0.0288
RER	0.011082	4.280159	0.002589	**0.**1922
G	0.052785	**1.285828	0.041052	0.0335
GDP	0.011382	**0.246147	0.046242	0.0393
INF	-0.020337	***-1.709226	0.011898	0.0977
OIL	0.064201	*0.202905	0.003166	0.0019
TRAD	0.090350	**0.865290	0.010442	0.0102
CORRUP	-0.031407	***-0.405478	0.077457	0.0880
R-squared		0.599243		

* significant at 1 % ** significant at 5**%** *** significant at 10**%**

Source: Eviews program outputs

Based on the results in Table 3, and the co-integration regression equation it is clear to us that there are variables that are related to the FDI positive relationship (RER, G, GDP, OIL, TRAD). There are variables associated with a negative relationship such as INF and CORRUP.

4.4. Error correction model (Short- term)

In this regard, Engle and Granger 1987 demonstrated the possibility of estimating the true relationship between time series that have a co-integration relationship by representing it with an ECM error correction model. A model can be represented to correct errors between two variables, for example, by the following formula: (Engle & Granger, 1987)

$$\Delta X_t = \alpha_0 + \alpha_1 e_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta X_{t-i} + \sum_{j=1}^{n} \alpha_j \Delta Y_{t-j} + \varepsilon_t .$$

Table 4: Error correction model test

Variables	Coefficient	t-Statistic	Std. Error	Prob.
constant	5.209449	**2.71302	1.92017	0.0154
ECT	-0.513388	** -1.8064	0.31449	0.0211
DGDP	-0.067102	***-0.87000	0.07713	.0**0**975
DINF	-0.033038	**-1.26888	0.02604	0.0406
DOIL	0.876094	0.70949	0.00859	**.0**6527
DTRAD	0.025967	***1.38405	0.01876	0.0650
DCORRUP	0.213745	0.24745	0.86377	0.1256
DGDP(-1)	0.012790	**0.16630	0.07691	0.0038
DINF(-1)	-0.016201	*-0.70956	0.02283	0.0064
DOIL(-1)	-0.032791	***-0.34007	0.00821	0.0871
DTRAD(-1)	-0.000866	-0.03719	0.02329	0.5971
DCORRUP(-1)	-1.282182	**-1.68069	0.76289	0.0472
DFDI	-0.0501	* -0.46700	0.10738	0.0028
R-squared		0.700904		

* significant at 1 % ** significant at 5**%** *** significant at 10**%**

Source :Eviews program outputs

Through Table 4 R-squared was 0.7009, this coefficient show is evidence that the quality reconcile the model and its ability to interpret the changes that occur in the value of the FDI remains linked to other variables have not been incorporated in the model, as the changes in the independent variables explain 70% of the fluctuations that occur at the level of the FDI. It was there are other variables outside the model which affect 30%.

It appears somewhat accented error correction ECT Statistically significant at level of 5%, and a negative signal -0.5133 and is proof that the behavior of the FDI may take in the event of any shock nearly five years until it reaches the equilibrium position in the long term. And if we talk about the speed of the adjustment, we say that it is in each period (during the years of data) modified more than 51% of the imbalance of the FDI in the long term, and this is what explains the co-integration hypothesis.

4.5. 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},, is considered external to the composition of the y_{2t-P} **.....** variables**....** y_{1t-2} , y_{1t-1} , 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 $H_0 : b_1^1 = b_2^1 = ... = b_P^1 = 0$

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

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, 1969)

Table 5: Granger Causality Test

Null Hypothesis	Obs	F-Statistic	Prob
G does not Granger Cause FDI	36	0.23499	0.7920
FDI does not Granger Cause G		3.33231	0.0493
GDP does not Granger Cause FDI	36	0.41467	0.6643
FDI does not Granger Cause GDP		2.01081	0.0515
INF does not Granger Cause FDI	36	0.45681	0.0064
FDI does not Granger Cause INF		1.62155	0.2144
OIL does not Granger Cause FDI	36	0.25466	0.7768
FDI does not Granger Cause OIL		1.18953	0.3183
TRAD does not Granger Cause FDI	36	0.31351	0.7332
FDI does not Granger Cause TRAD		2.91868	0.0695
INF does not Granger Cause FDI	36	0.45681	0.6376
FDI does not Granger Cause INF		1.62155	0.2144
CORRUP does not Granger Cause FDI	36	7.64068	0.0021
FDI does not Granger Cause CORRUP		1.31472	0.2836

Source :Eviews program outputs

5. Results and discussion

5.1. Significant positive effects

- Positive effect of public spending on the FDI, public expenditure in Algeria has had a positive impact through the proposed model, but the positive impact of this remains a little weak in the Long-term (0.052785). Public spending in Algeria has a very limited role in attracting foreign direct investment. Its positive role in the long term, albeit very weak, is due primarily to public investment spending on infrastructure that would encourage an increase in Algeria's attractiveness.

- Positive effect of oil prices on the FDI, the price of oil positively affects foreign direct investment in Algeria in the long run (0.064201), and its impact is very weak. While its effect is negative in the short term (-0.032791). This result can be explained by the fact that Algeria relies on an expansionary fiscal policy as soon as oil prices rise, this measure contributes to stimulating internal demand and increases the size of the market in Algeria, thus increasing the attractiveness of Algeria. However, these prices are unstable and transmit shocks, as when oil prices fall, Algeria tends to implement an austerity financial policy that puts pressure on demand, which negatively affects foreign direct investment flows to Algeria, especially in the short term.

- Positive effect of GDP for the FDI, in the long run (0.011382), its impact remains negative in the short run (-0.067102), this is due to the nature of the structure of the Algerian economy, which is essentially an economy based on oil and gas wealth at the expense of manufacturing and weak exports outside the hydrocarbons. Through the results, it is clear that the gross domestic product does not contribute much to the attractiveness of Algeria, and does not contribute much to increasing the size of the market, because it is closely related to the hydrocarbon revenues, which are characterized by instability and limitedness. This is reflected in the income of the state and the per capita income and purchasing power.

- Positive effect of trade openness on the FDI, trade openness positively affects foreign direct investment in the long (0.090350) and short (0.025967) term. Trade openness has a positive impact on economic growth and social progress, when it is accompanied by policies to develop the infrastructure of information and communication technology, financial development, human capital development, and research and development. And it contributes to increasing the country's attractiveness to foreign direct investment.

5.2. Significant negative effects

- Negative effect of inflation on the FDI, inflation negatively affects foreign direct investment in the long (-0.020337) and short (-0.033038) term. This is due to the ineffectiveness of monetary policy in Algeria in limiting the money supply and the exacerbation of the monetary nature to cover the budget deficit, in addition to the weakness of the productive structure, the rise in imports, and the deterioration of the

values of the Algerian dinar, which exacerbated inflation in Algeria. The high rate of inflation affects the domestic demand and thus affects the size of the market, which is one of the most important determinants of attracting foreign direct investment.

- Negative effect of corruption on the FDI, administrative corruption negatively affects Algeria's attractiveness in the short (-1.282182) and long (-0.031407) term. The risks of corruption have increased in Algeria as a result of the weakness of public institutions in the state, the absence of transparency in public and administrative administration, the absence of accountability and deterring corruption. All these factors make the reforms undertaken by the state useless in mitigating corruption.

5.3. Insignificant effects

RER had an insignificant effect on the FDI, the results of the study revealed the absence of a long-term equilibrium relationship between them, given that foreign direct investment in Algeria does not contribute to explaining the changes in the real exchange rate, but was mainly linked to the legislation adopted by the authorities to encourage investment policy and provide an appropriate climate for it. The dinar, which was in the years 1994 and 2001, were not sufficient to explain the behavior of foreign direct investment flows, since the first contributed to bringing the official price of the dinar closer to the equilibrium level, while the second was mainly aimed at limiting the development of the monetary mass circulating in the parallel markets. Therefore, we see the lack of foreign investor reaction towards it reduction process.

5.4. Granger Causality Test

Using the Granger causality results, we found**:**

- One-way causal relationship between foreign direct investment and economic growth rate in Algeria means that foreign direct investment increases the economic growth rate, while the reverse is not true**.**

- Causal relationship between foreign direct investment and inflation in one direction, inflation negatively affects foreign direct investment in Algeria**.**

- Causal relationship between foreign direct investment and trade openness in a one-way fashion, foreign direct investment stimulates Algeria's trade openness and external exchanges**.**

- Causal relationship between foreign direct investment and corruption in a unique sense, corruption negatively affects foreign direct investment in Algeria.

6. Conclusion

The contribution of foreign direct investment in bridging the local resource gap and the skills gap is an important criterion for measuring the feasibility of this investment, as it is an important source of financing and a successful means for exploiting untapped natural resources. This impact is measured through its role in bridging the technical skills gap and training workers and national leaders. An effective way to transfer modern technology and what it entails in developing production methods and developing modern technological methods and methods for economic management, as foreign direct investment is the carrier of the latest technologies and modern innovations, whether products or technical means.

Foreign direct investment is very important, because it has become the object of competition between countries, whether developed or underdeveloped. Algeria, like the countries of the world, tries to take advantage of it as well, but this comes up against obstacles that this study has tried to identify, the most important of which are inflation and administrative corruption, with the weakness of other determinants to attract it, such as market size or public spending. Thus, according to the results of the study, Algeria still remains unattractive for foreign direct investment.

Algeria is called upon to increase its attractiveness of foreign direct investment and to strengthen its competitive position in this context, because foreign direct investment is an important source of diversification of financing and expansion of its circle, to gradually get out of financing linked only to the state budget and oil revenues, in addition to the other advantages that we have already mentioned. From what has been done, Algeria must work to improve the business climate and promote investment in Algeria through the development of economic diplomacy, economic openness and financial liberalization, with the improvement of the institutional

environment, the fight against all forms of corruption, the promotion of governance in Algeria, and the reduction of investment risks.

References

Akinkugbe, O. (2003). Flow of Foreign Investment to Hitherto Neglected Developing Countries. *(2003/02)*. (W. I. Research, Ed.)

Asiedu, E. (2003). Foreign Direct Investment in Africa: The Role of Government Policy, Institutions and Political Instability. *Working Paper, University of Kansas*, (pp. 19-32). Lawrence, KS.

Axarloglou , K. (2005). What attracts foreign direct investment inflows in the united states. *international trade journal, 19*(3), 285-308.

Basu, A. (2002). Foreign Direct Investment in Africa--Some Case Studies. *IMF Working Papers 02(61)* (pp. 40-62). Washington: International Monetary Fund.

Benbitour , A. (1998). *L'Algérie au troisième millénaire.* Alger: Edition Marinour.

Benissad, M. (1979). *Economie du developpement en Algérie 1962-1978.* Alger: OPU.

Blonigen, B. (2005). A Review of the Empirical Literature on FDI Determinants. *Atlantic Economic Journal, 33*(0), 383–403.

Bourbonnais, R. (2002). *Econométrie* (4e ed.). Paris: dunod.

Brainard, L. (1997). An Empirical Assessment of the Proximity-Concentration Trade-off Between Multinational Sales and Trade. *The American Economic Review, 87*(4), 520-544.

Caves , R. (1974). Causes of direct investment: foreign firm's sharesin Canadian and united Kingdom manutacturing industries. *Review of economics and statistics, 56*(3), 279-290.

CNES. (2006). *Investment in Algeria.* Alger.

Cleeve, E. (2008, September). How effective are fiscal incentives to attract FDI to Sub-Saharan Africa? (C. o. Tennessee State University, Ed.) *Journal of Developing Areas, 42*(1), 135-153.

Delabarre, M. (2021). The Economic and Institutional Determinants of Foreign Direct Investments. *hal.archives-ouvertes.fr/hal-03334549*, (pp. 50-62). London.

Dunning, J. (1974). *Economic Analysis and Multinational Enterprise.* London: Routledge edition.

Engle, R., & Granger, C. (1987). Cointegration and Error Correction: Representation, Estimation and Testing. *Econometrica, 55*(2), pp. 251-276.

Feinberg, S., & Keane, M. (2001). U.S.-Canada Trade Liberalization And Mnc Production Location. *Review of Economics and Statistics, 83*(1), 118-132.

Granger, C. (1969). Investigating Causal Relations by Econometric Models and Cross-spectral Methods. *Econometrica, 37*(3), pp. 424-438.

Hanson, G., Mataloni, R., Matthew, J., & Slaughter, J. (2001). Vertical Production Networks in Multinational Firms. *The Review of Economics and Statistics, 87*(4), 664-678.

Head, K., Ries, J., & Spencer, B. (2004). Vertical Networks and US Auto Parts Exports: Is Japan Different? *Journal of economics and managment strategy, 13*(1), 37-67.

Helpman, E. (1984). A Simple Theory of International Trade with Multinational Corporations. *Journal of Political Economy, 92*(3), 451-71.

Hymer , S. (1968). La grande corporation multinationale. *Revue economique, Problèmes financiers internationaux, 19*(6), 60-85.

Loewendahl, H., & Ertugal, E. (2001). Turkey's Performance in Attracting Foreign Direct Investment: Implications of EU Enlargement. *ENEPRI Working Paper No. 8*, (pp. 12- 26).

Johansen, S. (1988). Statistical Analysis of Cointegration Vectors. *Journal of Economic Dynamics and Control, 12*(2-3), pp. 231-254.

Jones, R., & Kierzkowski, H. (2001). *A Framework for Fragmentation. In: Arndt, S.W. and Kierzkowski, H., Eds., Fragmentation. New Production Patterns in the World Economy.* Oxford: Oxford University Press.

Journal, O. (1986). *Ordinance 86/13 of August 19relating to the establishment and functioning of mixed economy companies.* Alger.

Lim, T. (2002). Rationality and Analysts' Forecast Bias. *IMF Working Papers 02(61)*, (pp. 10-35). Washington.

Madjdoub , H. (2003). *Algérie études et perspectives.* Alger, Algerie: Edition Economica-essai.

Mhlanga, N., Blalock, G., & Christy, R. (2010). Understanding foreign direct investment in the southern African development community: an analysis based on project-level data. *Agricultarl economics journal, 41*(3-4), 337-347.

Mutin , G. (1988). *Evolution économique de l'Algérie depuis l'indépendance.* Lyon, France: Gremmo.

ONS, N. O. (1980). *Statistics on the Algerian economy 1970-1980.* Alger: ONS.

ONS, N. O. (2002). *Statistics on the Algerian economy 1970-2002.* Alger: ONS.

Ordinance N° 86/13. (1986). *relating to the establishment and functioning of mixed economy companies.* Alger.

Ordinance No. 82/13, d. D.-Q. (1982). *establishment and functioning of mixed-economy companies.* Alger.

Root , F., & Ahmed, A. (1979). Empiritical determinants of manufacturing direct investment in developing countries. *Economic development and cultural change, 27*(N), 751-767.

Sims, C. (1980). Macroeconomics and Reality. *Econometrica, 48*(1), pp. 1-48.

Singh, H., & Jun, K. (1995). Some New Evidence on Determinants of Foreign Direct Investment in Developing Countries. *Working Paper No. 1531, World Bank* (pp. 15-32). Washington: World Bank.

UNCTAD. (2013). FDI statistics. Geneva, Switzerland.

UNCTAD. (2020). World Investment Report 2020. Geneva, Switzerland.

Vernon, v. (1966). International investment and international trade cycle. *Quarterly journal of economics, 8*(2), 190-212.

Yeaple, S. (2003). The complex integration strategies of multinationals and cross country dependencies in the structure of foreign direct investment. Journal of International Economics,, 60(2), 293-314.

Wheeler, D., & Mody, A. (1992). International investment location decisions: the case of US firms. *Journal of international economics,, 33*(1-2), 57-76.