

The impact of Algeria's business environment on Foreign Direct Investment: Econometric Study for the period (2000-2023)

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Abstract:

This study aims to explore the reality of the business environment in Algeria, by studying and analyzing the various factors affecting the investment decisions of foreign investors (economic environment, legislative and administrative framework, etc.), in addition to studying Algeria's position in some international indicators, and also aims to research the impact of some macroeconomic variables on foreign direct investment to Algeria during the period (2000-2023).

The study found that inflation, GDP and net trade balance do not affect FDI inflows to Algeria during the study period, while public expenditure has an inverse effect on FDI inflows, while public debt service and fixed capital have a positive effect on FDI inflows in Algeria during the study period, while public debt service and fixed capital have a positive effect on FDI inflows in Algeria during the study period.

Keywords: business environment; business environment indicators; Foreign Direct Investment; International indicators; stepwise.

JEL Classification Codes: F21, M21, C21.

1. INTRODUCTION

Foreign direct investment (FDI) plays a prominent role in development, as it contributes to the transfer of advanced technology in various technical,

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economic and marketing fields, in addition to the creation of new markets and the development of export competitiveness. Therefore, countries seek to attract foreign investments by creating a favorable environment for investment by providing encouraging incentives.

Like many countries, Algeria seeks to provide a favorable investment climate to attract more foreign direct investment as part of economic diversification and the search for other sources of hard currency, by undertaking many economic reforms to improve its position among the most important investment climate indicators adopted internationally, especially since many studies have shown that there is a strong relationship between the ranking of countries in these indicators and the volume of foreign direct investment flows to them.

1.1 Problem of the study:

Through what we have discussed, the study's issue came to investigate the impact of some macroeconomic indicators on FDI inflows to Algeria during the period (2000-2023): **Is there a significant impact of the selected macroeconomic variables on FDI inflows to Algeria during the period (2000-2023) at 5% significance level?**

Sub-questions: The following sub-questions can be asked through the research question:

- Is there a statistically significant effect of inflation on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level?
- Is there a statistically significant effect of GNP on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level?
- Is there a statistically significant effect of public expenditures on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level?
- Is there a statistically significant effect of fixed capital on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level?
- Is there a statistically significant effect of external debt on FDI inflows to Algeria during the period (2000-2023) at 5% significance level?

- Is there a statistically significant impact of the net trade balance on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level?

1.2 Hypotheses of the study: In order to answer the study's hypotheses and sub-questions, the study's hypotheses can be formulated as follows:

- There is a statistically significant effect of inflation on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level.
- There is a statistically significant effect of GNP on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level.
- There is a statistically significant effect of public expenditures on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level.
- There is a statistically significant effect of fixed capital on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level.
- There is a statistically significant effect of external debt on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level.
- There is a statistically significant effect of the net trade balance on FDI inflows to Algeria during the period (2000-2023) at the 5% significance level.

1.3 Importance of the study: The importance of this study is due to the importance of the topic of foreign direct investment, which has become one of the most important mechanisms of integration between developed and developing countries, which resulted in the intensity of competition between countries to attract it, as the ability of countries to attract investments depends on the success factors of the investment climate, and its suitability for localizing this type of investment.

1.4 Objectives of the study: Through this study, we aim to:

- Identify the reality of the investment climate in Algeria by studying and analyzing its various components;
- Reviewing Algeria's position in some investment climate assessment indicators adopted by reports issued by international bodies and organizations, such as the Doing Business Index, and the Economic Freedom Index;

- Studying and analyzing the impact of some macroeconomic variables on FDI inflows to Algeria during the study period.

1.5 Methodology of the study: In order to address the issue of the study and answer the questions posed, as well as test the hypotheses of the study, we relied on the analytical and inductive method, by studying and analyzing the various factors that affect the investment decisions of foreign investors (economic environment, legislative and administrative framework, etc.). In order to properly assess the investment environment in Algeria, we relied in this study on the analysis of a number of quantitative indicators such as the inflation rate, the level of foreign debt, trade balance and quality of infrastructure ... as well as qualitative indicators represented in the position of the country in some international indicators. To study the nature of the relationship between the study variables, we used the standard model that enables us to test the impact of the selected macroeconomic indicators on FDI inflows to Algeria by relying on the Eviews program.

1.6 Limitations of the study: The limitations of the study are as follows:

1.6.1 Temporal Limits: The study addressed the impact of selected macroeconomic indicators on FDI inflows to Algeria during the period (2000-2023), and the year 2000 was the starting point for this study due to the financial and economic reforms launched by the government, and this period also included several global crises that the government faced through its fiscal and monetary policy tools.

1.6.2 Spatial Limits: This study sheds light on the business environment and FDI and the relationship between them in the Algerian economy.

1.7 Previous studies:

- The study of **(Midoun & Bendob, 2019)**, this study aimed to identify the role of the business environment in facilitating the flow of foreign investment to Algeria during the period (2008-2018), using correlation and regression analysis. The study found statistically that the ease of starting a business and the low degree of corruption reduces the flow of foreign direct investment to the country, but in economic terms, a higher degree of economic freedom attracts more foreign direct investment to Algeria.

- The study of **(BAMHAMMED, 2021)**, this study aimed to analyze and measure the impact of some macroeconomic variables that affected foreign direct investment (FDI) in Algeria during the period 1990-2018, using the ARDL methodology.

The results revealed the existence of a long-term equilibrium relationship between the explanatory variables and the dependent variable (FDI). However, the impact of the studied independent variables on the dependent variable is weak during the study period, due to the sensitivity of the dependent variable to fluctuations in global oil prices, in addition to the absence of autocorrelation of the error terms with stationarity over time, which indicates the stability of the FDI equation.

- The study of **(Djellouli, Boumediene, & Berkani, 2021)**, this study aimed to investigate the impact of the business environment according to the ease of doing business index on attracting foreign direct investment to Arab countries during the period (2008-2018). To test this effect, the study relied on the application of PANEL, co-integration and causality models on a sample of 19 Arab countries. The study found that there is a positive impact of Ease of Doing Business in attracting FDI to Arab countries, and there is a long-term relationship between the study variables, in addition to a causal relationship in the short term for the Ease of Doing Business index.

- The study of **(Li, Sun, 2020)** (Wang, Li, & Sun, 2020), this study aimed to measure and evaluate the impact of the business environment on foreign direct investment under different conditions, by analyzing the business environment into multiple sub-factors, such as natural resources, technological resources, and political stability. A standard analysis was conducted on Panel data for 26 countries during the period (2005-2018). The study concluded that the host country can attract more foreign investment by improving the investment climate and through its natural and technological resources and political stability. There are also four sub-indicators of the business environment, namely cross-border trade, dealing with insolvency, access to electricity, and investor protection, which have relatively high positive effects on the flow of foreign direct investment.

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- The study of **(Onwuka, 2024)**, this study aimed to investigate the impact of investment climate on FDI flows in Nigeria, Ghana, Kenya, and South Africa during the period (2000-2021). The investment climate as the independent variable includes economic investment climate (ease of doing business index, GDP, and inflation rate), environmental investment climate (nitrous oxide emission, population density, and land/air pollution rate), political investment climate (political stability index, corruption perception index, and institutional quality), and the dependent variable is FDI inflows.

This study used time series analysis, or the method of multiple panel regression analysis, to analyze the data with the adoption of the Cobb-Douglas model for its theoretical framework. It found that the economic investment climate variable (GDP) had a significant positive impact on FDI inflow to Nigeria, Ghana, Kenya, and South Africa, while inflation had a non-significant positive relationship with FDI. The study recommended that the governments of Nigeria, Ghana, Kenya and South Africa should intensify their efforts to enhance their economic fortunes by encouraging export-oriented investments, thereby promoting economic growth and attracting more FDI.

2. Factors of the Business Environment in Algeria:

2.1 Economic environment: A distinction must be made between economic circumstance and economic structure:

2.1.1 Situational economic situation: Here we should focus on some economic indicators such as inflation, external indebtedness, trade balance and public budget.

2.1.1.1 Inflation rate: There is a strong relationship between inflation rates and the stability of the economic environment, and the inflation rate is usually used as an indicator of monetary policy. Therefore, the high inflation rate leads to spoiling the investment climate through low confidence in the national currency, and distorts the investment pattern, as the investor tends to short-term activities, or speculation in buildings or precious metals and away from productive investments.

This rate has increased in recent years, ranging from 0.34% in 2000 to 9.32% (World Bank, 2024), and the International Monetary Fund (IMF) expects inflation to decline significantly in Algeria by 5.3% in 2024 (IMF, 2024), which means its relative stability as a necessary factor to influence the decision of foreign investments in Algeria.

2.1.1.2 External debt: Algeria's external indebtedness, which used to be an obstacle, has declined to optimistic levels. For example, in 1996, the total stock of external debt was US\$33.65 billion, the highest value of Algeria's external indebtedness, which fell to US\$25.46 billion in 2000. In recent years, external indebtedness has reached low levels, reaching US\$7.32 billion in 2023 (World Bank, 2024).

This reflects a low probability of Algeria's exposure to various risks associated with external debt.

2.1.1.3 Trade balance: Algeria's trade balance in 2023 recorded a surplus of 12.71 billion dollars, lower than in 2022 (26.96 billion dollars), due to the decline in hydrocarbon prices in the international market, there is a decrease in the volume of merchandise exports of 10.161 billion dollars (-15%), while merchandise imports increased by 10.5%, moving from 38.757 billion dollars at the end of December 2022 to 42.842 billion dollars, 5%), while merchandise imports increased by 10.5%, from \$38.757 billion at the end of December 2022 to \$42.842 billion at the end of December 2023. This increase in imports is mainly related to "industrial equipment", "non-food consumer goods" and "other" products." (Algeria, 2024, p. 85)

2.1.1.4 General budget: In 2023, the fiscal deficit to GDP ratio increased from 1.28% in 2022 to 3.08% in 2023. This deterioration is due to an increase in budget expenditures (17.97%) at a faster pace than budget revenues (12.54%).

The analysis of the main components of budget revenues reveals a remarkable evolution in their structure. The share of non-hydrocarbon revenues in total revenues witnessed a remarkable progress (47.97% in 2023), and despite the decline in the share of hydrocarbon revenues in total revenues, they still constitute the largest part of them (52.03% in 2024). These revenues played a prominent role in financing state budget

expenditures, contributing to cover 47.58% of total budget expenditures in 2023. (Algeria, 2024, p. 96)

As for public expenditures, after a decrease of 10.8% in 2020, they increased significantly between 2022 and 2023, as budget expenditures reached an increase of 17.97% in 2023, and an analysis of the structure of budget expenditures reveals that their significant increase is mainly due to higher capital expenditures (an increase of 49.28% in 2023) and higher current expenditures (an increase of 9.68% in 2023). (Algeria, 2024, p. 100)

2.1.1.5 Fixed capital: In 2023, gross fixed capital formation shows a significant increase in volume by 9.9%, following more modest growth of 2.6% in 2022. This sharp rise in volume indicates a marked increase in investment in fixed assets, such as equipment and infrastructure.

In nominal terms, total fixed capital amounted to 11,038.5 billion DZD in 2023, compared to 9,732.7 billion DZD in 2022, representing a 13.4% increase. This growth in nominal terms reflects a significant expansion of investment in absolute terms. (Statistics, 2024)

2.1.2 Economic Structure: Economic structure is the balance between sectors, i.e. how much each sector weighs relative to the other sectors of the Gross Domestic Product.

2.1.2.1 Gross Domestic Product (GDP): The size of the GDP increased in 2023 to about 244.7 billion dollars compared to 225.6 billion dollars in 2022, a growth rate of 4.2% compared to 3.6% recorded in 2022 (IMF, 2024). These figures confirm the recovery of the Algerian economy after a period of severe health crisis, recording a record growth rate between 2015 and 2023.

2.1.2.1 Sectoral structure of GDP: There are three main sectors that make up GDP: the goods production sector, the productive services sector, and the social services sector.

The first sector consists of sub-sectors: agriculture, fishing and forestry (11,34% of GDP in 2022), extractive industry (30,8% of GDP), manufacturing (3,7% of GDP), construction (9,55% of GDP), electricity and gas and water (0,09% of GDP).

The second sector consists of trade, restaurants, and hotels (12% of GDP in 2022), transportation, communication, and storage (8.1% of GDP), and finance, insurance, and banking (0.36% of GDP).

While **the third sector** is the social services sector, consisting of housing and utilities (0.66% of GDP in 2022), government services (13.4% of GDP), and other services (2.9% of GDP). (Fund, 2024, p. 267)

Through the sectoral breakdown of GDP, we find that the contribution of the extractive industry sector is of great importance, as it constitutes the highest percentage of the total GDP.

2.2 Special Qualities and Competitive Elements:

Algeria has many special qualities and competitive factors that make it attractive to foreign investors, which it can capitalise on to attract a larger volume of foreign investments.

2.2.1 Infrastructure: These are the basic facilities that create the added value of resources.

2.2.1.1 Electricity network: Algeria has an extensive electricity distribution network, with 99.4% of households connected to the network, 95% of the country is electrified.

2.2.1.2 Road network: Algeria has the most important road network in the Maghreb and Africa with a length of 108,302 km, divided as follows: (KPMG, 2024, p. 26)

- 76028 km of national and departmental roads;
- 32274 km of secondary roads.

Algeria has a 6-lane East-West freeway 1216 km long.

2.2.1.3 Ports: Algeria has 45 ports in service, including:

- 11 mixed commercial ports (trade, fishing and hydrocarbons);
- 2 ports specialized in hydrocarbons (Skikda Est and Béthioua);
- 31 fishing harbors and shelters, including 6 inside commercial ports;
- 1 marina at sidi fredj;
- 2200 maritime traffic lights.

2.2.1.4 Railways: 10500 km of track; of which:

- 4200 km in service;
- 6300 km under construction;
- 200 commercial stations operational.

2.2.1.5 Airports: 35 airports, including 13 dedicated to international aviation. (KPMG, 2024, p. 26)

2.2.1.6 Communication network: It is rapidly evolving as the entire network has been completely Up graded, the entire network has been digitized, and a national backbone has been set up, with almost 200,000 km of fiber optic cable to be deployed nationwide by the end of 2021.

landline subscription (6,55 million), Fixed Internet subscription (5.82 million), FTTH subscription (1.5 million, At the continental level, Algeria is the second African country, after South Africa, to reach the threshold of one million fiber optic subscribers by the end of the year).

mobile telephone subscription (51,97 million), mobile internet subscribers (48,85 million), capacity equipped internationally (9,8 Tb/S). (Telecommunications, 2023)

2.2.2 Natural resources: Algeria has significant and diverse natural resources, especially hydrocarbons, as it has the third largest crude oil reserves in Africa and ranks 16th in the world (12.2 billion barrels) (OPEC, 2024, p. 22), and the volume of crude oil production in 2023 amounted to 977 thousand barrels/day (OPEC, 2024), while crude oil exports in the same year amounted to 376.8 (thousand barrels/day), while exports of oil derivatives were estimated at 3.500 (thousand barrels/day) (OPEC, 2024).

As for natural gas, in 2023, Algeria ranked tenth in the world and first in Africa among the largest producers, with total natural gas exports during the year amounting to 49.1 billion m³, natural gas liquids production estimated at 464.5 thousand barrels/day (OAPEC, 2024, p. 38), and natural gas reserves estimated at 4504 billion m³ (OAPEC, 2024, p. 17).

In addition to these riches, Algeria has underground iron from the Wanza and Boukhadra mines, which together produce 2 million tons per year, and Jbeilat in the south, which has one of the largest iron fields in the world, from which more than 250,000 tons of iron ore were extracted between 2022 and 2023. There is also coal, uranium, and gold in the Hoggar Mountains and vast mines of zinc, lead, copper, mercury, aluminum, tungsten, kaolin, phosphate, etc. Algeria also produces marble.

2.2.3 Geographic location: The geographical location of the country is a factor of great importance in attracting foreign investments, as it contributes to reducing the transportation costs of project requirements to the host country as well as the costs of access to neighboring markets, we find that Algeria's location is strategic and attractive to the foreign investor, as it is considered a connection point between Europe and Africa through its coastal strip that extends to the Mediterranean Sea over 1200 km, in addition to its connection to several African countries such as Tunisia, Libya, Mali, Niger... etc. it is considered a transit center to Africa.

Algeria's strategic location makes it a target for investment from foreign investors from all over the world, and it is also targeted by Arab investors, given its proximity to the European market, especially after the Association Agreement with the European Union, and as a large market and the center of the Arab Maghreb, which includes about 105,2 million consumers. (IMF, 2023)

2.3 Legislative and administrative framework:

These are those laws related to foreign investment as well as those that affect the operation of the company in the host country (labor relations and labor standards, tax regulations, trade and competition laws, consumer protection laws, advertising laws, laws related to the protection of the environment, etc.)

2.3.1 The legal framework for investment:

2.3.1.1 Investment Law: Algeria has tried to give important guarantees and incentives to local and foreign investors by improving investment laws. It has issued a series of legislations and laws aimed at regulating and developing investment, such as Ordinance No. 01-03 of 20 August 2001 on investment development and Law No. 09-16 of 03 August 2016 on investment promotion.

The Investment Law No. 22-18 of July 24, 2022, which was approved by the Algerian government to attract more foreign investment to Algeria, as this new investment law came with incentive systems for investors, including in its fourth chapter a number of guarantees that are granted to foreign and national investors, which in total promote a favorable climate for investment, as follows: (Algeria t. o., 2022)

- **Legal guarantees:** Guaranteeing freedom of investment, ensuring transparency and equality in dealing with investments, the principle of legislative stability, limiting the 51-49% rule, and protecting intellectual property rights.
- **Financial guarantees:** Law 22-18 established two financial guarantees: the guarantee of transferring the investor's capital abroad and the guarantee of protecting the investment from the harnessing procedure.
- **Judicial guarantees:** Law 22-18 established mechanisms to resolve disputes that may arise between the investor and the Algerian state, whether they are of an administrative nature, such as the Higher National Committee for Investment Appeals, or of a judicial nature, or of a consensual nature, such as arbitration.

2.3.1.2 Institutions in charge of investment: Algeria has introduced various reforms and amendments to its legislation and administrative regulations related to investment. The state has entrusted dealing with investors, whether local or foreign, to several institutions, and one of the most important institutions that accompany and encourage foreign investors is the Algerian Agency for Investment Promotion.

The Algerian Agency for Investment Promotion: (AAPI, 2024)

Is a public administrative establishment, endowed with legal personality and financial autonomy. Placed under the authority of the Prime Minister, it is responsible for supporting and assisting both domestic and foreign investors in the implementation of their investment projects.

The tasks of the Algerian Investment Promotion Agency:

- Registering and processing investment files, accompanying the investor in completing the procedures related to his investment, and following up on the progress of the status of investment projects;
- Ensuring business networking services, facilitating contacts between investors, promoting business and partnership opportunities, and establishing and developing cooperative relations with similar foreign bodies;
- Develop and manage the digital investor platform, assess the investment climate, and propose measures to provide all the necessary information,

particularly on investment opportunities in Algeria, real estate supply, incentives and benefits related to investment;

- Organize a department for the guidance and care of investors, develop a consultancy service with recourse to external expertise when needed, and accompany investors to other departments;
- Administering benefits, including those related to the portfolio of projects authorized or registered before the date of promulgation of Law 22-18.

The bodies of the Algerian Investment Promotion Agency: The agency includes the following bodies:

- A single window for major projects and foreign investments with national competence;
- Decentralized single windows;
- A digital platform for the investor.

2.3.2 The tax system: The tax system includes the following items: (GDT, 2024)

2.3.2.1 Taxation of gross income: Annual net income is subject to gross income tax at the level of the taxpayer's domicile, according to the progressive table below:

Table 1. Progressive Program Table

Portions of taxable income (Algerian dinars)	Tax Rate (%)
Not exceeding 240,000	0
From 240,001 Dz to 480,000 Dz	23
From 480,001 Dz to 960,000 Dz	27
From DA 960,001 to 1,920,000 DA	30
From 1,920,001 DA to 3,840,000 DA	33
More than 3,840,000 DA	35

Source: General Direction of Taxation, 2024.

2.3.2.2 Shareholder's income: Withholding 15%.

2.3.2.3 Tax on professional activity: The duty on professional activity is estimated at 1.5%, but this rate is raised to 3% for turnover generated by the transportation of fuels by pipeline.

2.3.2.4 Value-added tax: There are two VAT rates:
Normal rate of 19%, reduced rate of 9%.

2.3.2.5 Taxes on corporate profits: The tax rate on corporate profits is as follows:

- 19% for the production of goods;

- 23% for construction, public works and irrigation activities, as well as tourism and spa activities excluding travel agencies;
- 26% for other activities.

2.3.2.6 Single Flat Tax: The single lump sum tax rate is determined as follows:

- 5% for production and sale of goods;
- 12% for other activities;
- However, activities practiced under the self-employed legal system are subject to a rate of 0.5%. (GDT, 2024)

2.4 The Algerian banking and financial system:

The Monetary and Credit Law 10-90 is one of the most important legislative texts for the banking system in the history of independent Algeria, as it came with regulatory, supervisory, and directive rules commensurate with the characteristics of the market economy, and gave the Central Bank procedural independence and the necessary authority to oversee the reform and regulation of the sector, which was amended after its promulgation.

The establishment of an effective stock exchange has become a necessary requirement of the market economy, the effectiveness of economic activity, and keeping pace with local and global economic transformations.

Thus, investment in the Algerian Stock Exchange is still weak and remains an issue, and in order to improve its performance and effectiveness, a lot of procedures, adjustments and reforms are needed.

3. Algeria's position in some international indicators:

There are many international indicators that express the view of international institutions, economic analysts, financial and investment houses and consultancies on the conditions in a country as a location for investment from the point of view of the foreign investor. The Investment Climate Combined Index, the Ease of Doing Business Index, and the Index of Economic Freedom, were chosen as the most influential in economic reports of the international business environment.

3.1. The Investment Climate Combined Index:

Table 2. The Ranking of Algeria in the Investment Climate Combined Index and its Sub-Components for 2023

A r a b R a n k i n g	Global Ranking			The Combined Index for Investment Climate Assessment		Indicators for Evaluating the Legislative and Regulatory		Indicators for Evaluating Production Factors		Indicators for Evaluating the Political Situation & Country Risk		Indicators for Evaluating the Economic Performance	
	2022	2023	Change	2023	Change	2023	Change	2023	Change	2023	Change	2023	Change
09	90	95	(5)	95,2	(1,8)	107	7	100	(3)	94	7	80	(18)

Source: The Arab Investment & Export Credit Guarantee Corporation, 2024.

3.2 Doing Business Index:

Table 3. Algeria's global ranking in the overall Doing Business Environment Index and its sub-indices for 2020

Indicators	World ranking (190 countries)		Change in ranking
	2019	2020	
Global ranking	157	157	0
Starting a business	150	152	(2)
Dealing with construction permits	117	121	(4)
Getting electricity	96	102	(6)
Registering property	165	165	0
Getting credit	180	181	(1)
Protecting minority investors	179	179	0
Paying taxes	156	158	(2)
Trading across borders	171	172	1
Enforcing contracts	112	113	(1)
Resolving in solvency	119	81	38

Source: The World Bank, 2020.

According to this general business environment index, Algeria ranks 157th in the world and 15th in the Arab world. Algeria falls within the group of countries whose ranking is significantly lower than the global average (95 places) and the average ranking of Arab countries (118). According to its ranking in the sub-indices, Algeria needs deep reforms in

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all indicators except dealing with insolvency cases, the latter of which Algeria achieved good performance, improving its ranking by 38 places according to this index.

Algeria's low ranking in the various sub-indices is due to the length, complexity, and high cost of administrative procedures, especially with regard to property registration, investor protection, access to credit, cross-border trade, and taxation, which leads foreign investors to be reluctant to invest in Algeria, as it does not have an attractive environment for investment and is a difficult destination for investors, as described by the World Bank.

3.3 Economic Freedom Index:

Table 4. Algeria's global ranking in the Index of Economic Freedom and its subcomponents

Global Rank			Organizational efficiency			Government size		
2022	2023	Change	Business Freedom	Labor Freedom	Monetary Freedom	Gov't Spending	Tax Burden	Fiscal Health
167	168	(1)	121	133	91	128	133	146
Rule of law			Market openness			Arab Ranking		
Property Rights	Gov't Integrity	Judicial Effectiveness	Trade Freedom	Investment Freedom	Financial Freedom	15		
157	134	130	153	150	132			

Source: The Heritage Foundation, 2024.

The Index of Economic Freedom ranked Algeria 168th in 2023, ranking it among countries with a restricted economy. It also ranked 15th in the Arab world out of 16 countries in the Middle East and North Africa region, and its overall score is still below regional and global averages.

Algeria's low ranking in various sub-indicators indicates the deterioration of the latter, especially the restrictions on foreign ownership, the weakness of the financial sector and the dominance of public banks in the banking sector, the spread of corruption and the state's control over economic activity, which reflects negatively on the judicial system and limits freedom of trade and investment.

4. Econometric and economic analysis of the impact of some economic indicators on foreign direct investment in Algeria during the period (2023-2000):

The economic developments in Algeria from 2000 to 2023 lead us to question the extent of the impact of some macroeconomic indicators on Foreign Direct Investment (FDI) flows in Algeria, so this section deals with an analytical benchmarking study of the study variables.

4.1 Define and characterize the study model:

In our study, we rely on the FDI inflows variable (the dependent variable), while the independent variables used include: Inflation rate, Gross Domestic Product, public expenditures, fixed capital, external debt, net trade balance. We summarize them in the following table:

Table 5. Definition of the variables used in the study during the period (2023-2000)

Variable Dependent	Symbol	Variable
	FDI	Inflows of foreign direct investment
Independent Variables	INF	Inflation Rate
	GDP	Gross Domestic Product
	EX	Public Expenditures
	FIX	Fixed capital
	DEP	External debt (public debt service)
	BN	Net trade balance

4.2 Stability test:

Table 6. Phelps-Perron test results

			UNIT ROOT TEST TABLE (PP)					
	At Level							
		FDI	INF	GDP	FIX	EX	DEP	BN
With Constant	t-Statistic	-2.7417	-2.7917	-3.4117	-2.0020	-1.7139	-2.4596	-1.6939
	Prob.	0.0825	0.0750	0.0211	0.2839	0.4114	0.1378	0.4209
		*	*	**	n0	n0	n0	n0
With Constant & Trend	t-Statistic	-4.7337	-3.3337	-3.9376	-1.2324	-1.6873	-3.2174	-1.8829
	Prob.	0.0051	0.0858	0.0268	0.8791	0.7240	0.1057	0.6306
		***	*	**	n0	n0	n0	n0
Without Constant	t-Statistic	-0.9184	0.1093	-1.5534	0.4257	0.3200	-2.4460	-1.7066

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& Trend								
	Prob.	0.3080	0.7075	0.1108	0.7974	0.7695	0.0169	0.0828
		n0	n0	n0	n0	n0	**	*
	<u>At First Difference</u>							
		d(FDI)	d(INF)	d(GDP)	d(FIX)	d(EX)	d(DEP)	d(BN)
With Constant	t-Statistic	-8.5795	-8.9186	-7.6944	-3.5389	-4.1648	-9.3230	-4.1296
	Prob.	0.0000	0.0000	0.0000	0.0165	0.0042	0.0000	0.0045
		***	***	***	**	***	***	***
WithCon stant & Trend	t-Statistic	-8.0980	-11.7587	-7.9441	-3.3496	-4.0027	-14.9444	-4.0080
	Prob.	0.0000	0.0000	0.0000	0.0845	0.0243	0.0000	0.0241
		***	***	***	*	**	***	**
Without Constant & Trend	t-Statistic	-8.0427	-7.5624	-7.9150	-3.5934	-4.2563	-8.2827	-4.2395
	Prob.	0.0000	0.0000	0.0000	0.0010	0.0002	0.0000	0.0002
		***	***	***	***	***	***	***

Table 7. Dickey-Fuller test results (ADF)

		UNIT ROOT TEST TABLE (ADF)						
	<u>AtLevel</u>							
		FDI	INF	GDP	FIX	EX	DEP	BN
With Constant	t-Statistic	-2.7009	-2.7941	-3.4306	-2.0020	-1.7139	-2.4596	-1.6939
	Prob.	0.0891	0.0747	0.0203	0.2839	0.4114	0.1378	0.4209
		*	*	**	n0	n0	n0	n0
With Constant & Trend	t-Statistic	-4.7673	-3.2567	-3.9420	-2.0681	-1.6873	-3.2727	-2.2752
	Prob.	0.0048	0.0996	0.0266	0.5341	0.7240	0.0958	0.4289
		***	*	**	n0	n0	*	n0
Without Constant & Trend	t-Statistic	-1.4437	-0.4536	-1.7577	0.4257	0.3153	-2.4499	-1.7066
	Prob.	0.1350	0.5072	0.0749	0.7974	0.7682	0.0168	0.0828
		n0	n0	*	n0	n0	**	*
	<u>At First Difference</u>							
		d(FDI)	d(INF)	d(GDP)	d(FIX)	d(EX)	d(DEP)	d(BN)
With Constant	t-Statistic	-7.1748	-4.6048	-7.1505	-3.5607	-4.1844	-7.5455	-4.1505
	Prob.	0.0000	0.0017	0.0000	0.0158	0.0040	0.0000	0.0043
		***	***	***	**	***	***	***

With Constant & Trend	t-Statistic	-6.8370	-4.5034	-6.9866	-3.4937	-4.0372	-7.5463	-4.0342
	Prob.	0.0001	0.0093	0.0001	0.0649	0.0227	0.0000	0.0229
		***	***	***	*	**	***	**
Without Constant & Trend	t-Statistic	-7.2410	-4.4915	-7.3261	-3.6146	-4.2710	-7.5024	-4.2560
	Prob.	0.0000	0.0001	0.0000	0.0010	0.0002	0.0000	0.0002
		***	***	***	***	***	***	***
Notes: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1%. and (no) Not Significant								
*MacKinnon (1996) one-sided p-values.								
This Result is The Out-Put of Program Has Developed By:								
Dr. ImadeddinAlMosabbeh								
College of Business and Economics								
QassimUniversity-KSA								

Source: EVIEWS12 output.

It is clear from Table (7) that both the time series of the GDP growth rate variable and the external debt variable are stable at the level, while the rest of the variables have a unit root (i.e. not stable at the level), so we needed to study the stability at the first difference, and it became stable at the first difference, that is, it is integrated of degree I(1), and because we did not succeed in relying on the autoregressive model for lagged time gaps due to its statistical and measurement inadequacy, we adopted the stepwies regression model.

4.3 Estimating a stepwise regression model:

After conducting the stability test for the variables, we come to estimate the stepwise regression model, and we chose to estimate the backward stepwise regression according to evIEWS12, and the estimation results were as shown in the following table:

Table 8. Estimation of the stepwise regression model

Dependent Variable: FDI	
Method: Variable Selection	
Date: 11/14/24 Time: 22:21	
Sample: 2000 2023	
Included observations: 24	
Number of always included regressors: 1	
Number of search regressors: 6	
Selectionmethod: Stepwisebackwards	
Stopping criterion: p-value forwards/backwards = 0.5/0.5	

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Variable	Coefficient	Std. Error	t-Statistic	Prob.*
C	2.567580	1.128295	2.275627	0.0340
EX	-0.049040	0.023723	-2.067156	0.0519
DEP	0.081387	0.048560	1.676021	0.0193
FIX	0.083717	0.049776	1.681895	0.0181
R-squared	0.313181	Meandependent var		0.916754
Adjusted R-squared	0.210158	S.D. dependent var		0.526077
S.E. of regression	0.467540	Akaike info criterion		1.468349
Sumsquaredresid	4.371877	Schwarz criterion		1.664691
Log likelihood	-13.62019	Hannan-Quinn criter.		1.520439
F-statistic	3.039919	Durbin-Watson stat		1.580580
Prob(F-statistic)	0.052828			
SelectionSummary				
Removed BN				
Removed INF				
Removed GDP				
*Note: p-values and subsequent tests do not account for variable selection.				

Source: EVIEWS12 output.

We note that the stepwise regression method separated the independent and explanatory variables from the dependent variable, and excluded the following variables: BN trade balance, INF inflation rate, and GDP growth rate.

4.4 Test the validity of the model:

4.4.1 First-order tests (statistical tests):

4.4.1.1 Goodness of fit test (coefficient of determination r^2):

We can see from the estimation table that the coefficient of determination is 0.31318, meaning that the independent variables (government spending, fixed capital, external debt) explain 31.32% of the changes in the dependent variable (foreign investment inflows to Algeria), and the remaining factors that were not included in the model were included in the random variable.

4.4.1.2 Partial Significance Test (t Statistical Test):

We can see from the estimation table that the constant parameter is estimated at 2.56: which is significant with a statistical significance of 0.03, which is less than the 0.05 level of significance.

As for the slope parameter of the public expenditure variable: -0.049, which is significant, as the statistical significance is 0.05, which is equal to 0.05 level of significance. Thus, it can be said that there is an inverse effect of public expenditure on FDI inflows in Algeria during the study period.

The slope parameter of the public debt service variable was estimated at 0.081, which is significant, as the statistical significance was 0.019, which is less than 0.05 level of significance, thus it can be said that there is a positive effect of public debt service on FDI inflows in Algeria during the study period.

The slope parameter of the fixed capital variable was estimated at 0.083, which is significant, as the statistical significance was 0.018, which is less than 0.05 level of significance, thus it can be said that there is a positive effect of fixed capital on FDI inflows in Algeria during the study period.

4.4.1.3 Significance test (Fisher's f test):

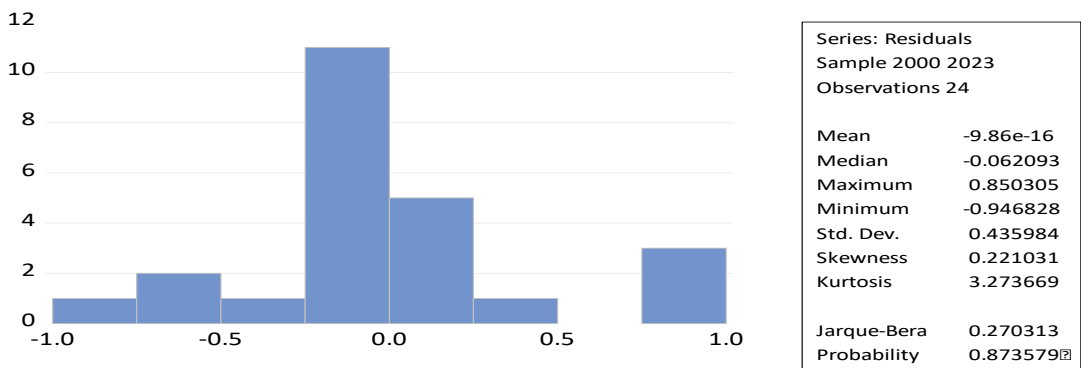
From the estimation table, we can see that the value of Fisher's general reliability test is 3.039919, which is significant, indicating the validity of the model as a whole and the validity of the chosen mathematical model (linear) for the study.

4.4.2 Second-order econometric tests:

After testing the validity of the statistically estimated model, we come to test it standardly according to several tests as follows:

4.4.2.1 Normal Distribution Test:

Figure 1. Results of the normal distribution test



We can see from the table that the value of jarqueberra is equal to 0.270313, which is significant, as the degree of significance is 0.873579, which is greater than the significance level of 0.05, thus we say that the data is normally distributed.

4.4.2.2 Self-Correlation Test:

Table 9. Autocorrelation test results

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.450305	Prob. F(2,18)	0.6444
Obs*R-squared	1.143596	Prob. Chi-Square(2)	0.5645

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Source: EVIEWS12 output.

The results of the test show that the model is free of autocorrelation, as indicated by the chi-squared statistic of 0.5645, which is greater than the significance level of 0.05.

4.4.2.3 Variance Stability Test:

Table 10. Variance Stability test results

Heteroskedasticity Test: ARCH			
F-statistic	0.168175	Prob. F(1,21)	0.6859
Obs*R-squared	0.182728	Prob. Chi-Square(1)	0.6690

Source: EVIEWS12 output.

The results of the test show that the model is free from the issue of variance stability, as indicated by the chi-squared statistic of 0.6690, which is greater than the significance level of 0.05.

5. Analyze and discuss the results:

Through the standard applied study we carried out in analyzing and measuring the impact of some economic indicators on FDI flows in Algeria for the period (2000-2023), we came up with several results that can be interpreted as follows:

For public expenditures: There is an inverse effect of public expenditure on FDI inflows in Algeria during the study period, as for every one percentage point increase in public expenditure, FDI inflows decrease by approximately 5%.

Algeria's public expenditures have been continuously increasing with the exception of the years when the world witnessed financial, economic and health crises. These increases are mainly attributed to a significant rise in capital expenditures, although their share in total budget expenditures is still relative (26.5% in 2023), while current expenditures represent a share of 73.50% of total budget expenditures in 2023, which has seen an increase due to the rise in current transfers, 50% of total budget expenditures in 2023, which witnessed an increase due to the rise in current transfers, as transfer expenditures in particular contribute to the increase in total expenditures (accounting for 44.90% of them), (Bank of Algeria, 2023, p. 101) This rise is mainly due to the increase in various social assistance, and the increase in user expenditures such as wages and salaries of employees and agents of the state.

Thus, the reason for the increase in the budget is employment, increasing wages and salaries, transfers to the family sector, creating and expanding

subsidy programs for the unemployed, and launching major projects in public works, water, and other sectors, where the size of investment expenditures comes third after the previously mentioned expenditures, and therefore the increase in the size of the state's public spending is not related to encouraging the volume of foreign direct investment coming to Algeria.

For external debt: There is a positive effect of public debt servicing on FDI inflows in Algeria during the study period, as for every one degree increase in public debt servicing, FDI inflows increase by 8.1%.

The medium- and long-term external debt consists mainly of multilateral loans (representing 65% of medium- and long-term debt), and the list of financial loans (22% of medium- and long-term external debt), which amounted to 282 million dollars at the end of 2023 compared to 240 million dollars at the end of 2022. The majority of these loans consist of financial applications granted by non-resident parent companies to their subsidiaries in Algeria (foreign direct investments), thus the more foreign investments received the more applications granted to them from their parent companies, which explains the result obtained.

For fixed capital: There is a positive effect of fixed capital on FDI inflows in Algeria during the study period, where as fixed capital increases by one degree, FDI inflows increase by 8.4%. Capital accumulation is maximized by increasing investment projects, through increased investment spending by business sector companies to build factories, purchase capital goods such as machinery and equipment, construct roads, build bridges, tunnels and drainage canals (infrastructure), which leads to increased FDI attraction.

For inflation: The inflation rate does not affect FDI inflows in Algeria during the study period, which can be explained by the fact that due to the increase in government spending (transfer expenditures), which is supposed to incentivize FDI in Algeria. to increase productivity, but domestic demand far exceeded domestic production, confirming that the size of the market has a very limited impact on attracting foreign direct investment, reflecting the size of the inefficient demand of the Algerian market, which suffers from the weak purchasing power of consumers.

For Gross Domestic Product: The GDP growth rate does not affect the inflows of FDI in Algeria during the study period, that is, foreign investments entering Algeria during the study period were not affected by the GDP variable, but there are other reasons that affected them, so the increase in the volume of these investments would increase the GDP growth rate.

For the net trade balance: The balance of the trade balance does not affect FDI inflows in Algeria during the study period.

6. CONCLUSION:

In this paper, we tried to analyze the FDI climate in Algeria by presenting some economic indicators that can have a direct impact on the flow of FDI to Algeria, and we found that despite the state's attempts to improve the business environment, the flow of FDI remained weak and did not reach the required level.

6.1 Results of the study: The study came up with several findings:

- Algeria's total external debt stock has been on a steady decline, as Algeria continued its policy of early repayment of its external debt and reduction of its domestic debt following the rise in oil revenues.

- Capital expenditures, such as spending on infrastructure projects (roads, bridges, railroads, ports and airports...), The telecommunications sector, and the education sector ...), the telecommunications sector, and the education sector;

- Foreign trade policy contributes to improving the business environment when it stimulates exports and encourages export-oriented investments, removes or reduces restrictions that impede international trade, and is characterized by flexible, low tariffs, few procedures, and easy to implement;

- Foreign trade policy contributes to improving the business environment when it stimulates exports and encourages export-oriented investments, removes or reduces restrictions that impede international trade, and is characterized by flexible, low tariffs, few procedures, and easy to implement;

- Algeria is a country with many qualifications, and it has a strong pool of resources and high competencies, and it has the most important of which are Algeria's strengths in petroleum, natural gas and various minerals, these qualifications enable Algeria to attract foreign investment;

- In the area of encouraging foreign investment, the effectiveness of rule 51-49 has been limited to certain strategic sectors only, although the retention of this rule limits the most important safeguards, namely freedom of investment.

- In order to improve the business environment, the filing and follow-up of filings has been digitized through a digital platform, which contributes to reducing bureaucracy.

- The study showed that Algeria's position in the global ranking is low among the studied international indicators, as the degree of economic freedom in Algeria is lower than global and regional rates, and the same applies to the ease of doing business index, due to the length, complexity and high cost of administrative procedures. Therefore, the Algerian economy needs more reforms to improve its ranking among international indicators regarding the investment climate.

Through the econometric study, we were able to test the hypotheses posed at the beginning of the study and the test results were as follows:

- Inflation does not affect FDI inflows to Algeria, which negates the first hypothesis.
- GDP does not affect FDI inflows to Algeria, which negates the second hypothesis.
- Public expenditure inversely affects FDI inflows to Algeria, which proves the validity of the third hypothesis.
- Fixed capital positively affects FDI inflows to Algeria, which proves the validity of the fourth hypothesis.
- External debt positively affects FDI inflows to Algeria, which validates the fifth hypothesis.
- The balance of trade balance does not affect FDI inflows to Algeria, which negates the sixth hypothesis.

6.2 Study recommendations:

Through the results of the study, we can recommend working to improve the business climate in Algeria in various aspects through the following:

- Seeking to achieve legislative stability. In this context, we propose that the Investment Law should be the sole regulator of investment issues without relying on other laws;
- Establishment of windows at the local level representing a single centralized window for following up, accompanying and encouraging foreign investments and major projects in order to bring the administration closer to investors;
- Working to develop the financial and banking sector to keep pace with global financial technology;
- Fighting corruption of all kinds and eliminating administrative bureaucracy, while enshrining the principles of freedom of investment, transparency in transactions and equality in the granting of privileges, incentives and guarantees stipulated in the Investment Law 22-18.

6.3 Study prospects: The topic of the study remains a broad field for other future studies, both in terms of the business environment and FDI, and

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some of the topics that could be the subject of future research include the following:

- The impact of the investment climate on intra-Arab investments - a typical study on some Arab countries;
- The implications of digital transformation on the business environment and stimulating FDI;
- The investment climate in light of new technologies.

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