Testing the impact of the Double Deficit on Algeria's Economic Growth, Standard Study 1982-2021.

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Abstract:

This standard study aims to test the impact of the double deficit on Algeria's economic growth, for the period 1982-2021, using the Johansson joint integration method, the Granger causality test and the FM-LOS method.

The study identified a long-term integration relationship between economic growth and various economic variables. Additionally, it assessed that there is no causal link between economic growth and either the budget deficit or the balance-of-trade deficit in either direction. However, it observed a one-way causal link from the budget deficit to the trade balance deficit, aligning with treasury theory. Moreover, the study found an expulsive relationship between the balance budget deficit and economic growth, as well as an inverse relationship between economic growth and the trade balance deficit, which is in line with economic logic.

Keywords: Double deficit, budget deficit, trade balance deficit, economic growth.

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1-Introduction:

Many states suffer from a worsening economic problem that hampers the course of economic growth, particularly the double deficit (trade balance deficit and budget deficit). This reflects the ineffectiveness of the state's fiscal and monetary policies.

Examining the phenomenon of double deficits (trade balance deficits and budget deficits) in relation to economic growth has therefore become an important economic theme for all thinkers, with their diverse attitudes and orientations, to study economic imbalances and their impact on

macroeconomic variables.

In view of the nature of Algeria's oil-dependent economy, decision makers had included a fiscal policy approach based on expenditure on consumption and investment as a priority for economic policies, and the oil sector market was very volatile. What is negatively due to finance, the state falls into balance sheet deficits, resulting in trade balance deficits through the impact of interest rates and exchange rates.

Given the nature of Algeria's oil-dependent economy, decision-makers have prioritized a fiscal policy approach centered on expenditure on consumption and investment in their economic policies. However, the volatility of the oil sector market has had negative repercussions on state finances, leading to budget deficits. Consequently, these deficits have contributed to trade balance deficits due to the impact of interest rates and exchange rates.

1-1- Study problem:

Considering the aforementioned points, the primary issue that emerges is as follows:

- How does the double deficit affect Algeria's economic growth during the period 1982-2021?

Below are the following sub-questions:

- What is the nature of Algeria's double deficit relationship to economic growth from 1982 to 2021?
- Is there a causal link between Algeria's double deficit and economic growth from 1982 to 2021?

1-2- hypotheses:

To answer the problems of the previous study, the following hypotheses were relied upon:

- We have a causal link between the double deficit and Algeria's economic growth for the period 1982-2021.
- There is a causal link between the budget deficit and the trade balance deficit in Algeria for the period 1982-2021.
- There is a reverse relationship between Algeria's double deficit and economic growth for the period 1982-2021.

1-3-Objectives of the study:

The objective of this study is to:

- Provide a clear definition of the "double deficit" (budget deficit and trade balance deficit) and clarify its link with economic growth;
- Highlight Algeria's double deficit (budget deficit and trade balance deficit) and analyze

the realities of the direction of economic growth with a view to determining Algeria's economic climate for the period 1982-2021.Attempt to build a standard model to examine the impact of the twin deficit (balance deficit and trade balance deficit) on Algeria's economic growth for 1982-2021.

- Test the hypothesis of the impact of the double deficit on Algeria's economic growth and prove to any school of thought on which Algerian budgetary policy is based.

1-4- The importance of the study:

Economic policy subjects are of utmost importance in university studies, particularly in regard to fiscal policies and their impact on economic growth. Given their prominent role in policymaking, they form the basis of maintaining various economic balances. The focus of fiscal policies often revolves around addressing the double deficit, amplifying the significance of these studies. Moreover, intellectual theories have extensively concentrated on this matter.

The value of such applied studies is further accentuated by the intensity of ongoing conflicts surrounding the subject. Additionally, the diverse outcomes of previous applied studies across both advanced and developing economies contribute to the richness of this field of inquiry.

1-5- Study methodology:

For this study, the analytical descriptive framework was adopted, as it is commonly employed to examine social phenomena, particularly those pertaining to double deficits and economic growth within the context of economic theories. Additionally, the quantitative approach was utilized to construct a model aimed at measuring the impact of double deficits on economic growth, along with a variety of economic variables in Algeria spanning the period from 1982 to 2021. The Eviews 9 program was employed for this purpose.

1-6-Previous studies:

- **Study I :** Khaled Mohammed Al-Sawai and Anwar Ahmed Al-Azam (2015) entitled **"Twin deficits under monetary and financial variables, economic growth and commercial openness: the case of Jordan"**, article published in the Jordanian Journal of Economics, vol. 02, No. 02, University of Jordan.

The study aimed to ascertain the relationship between the current account deficit, budget deficit, trade openness, investment, and various macroeconomic variables in Jordan. Using the ARDL model for the period 1975-2010, the study yielded several key findings.

Firstly, the variables were observed to move together in the long run, indicating a significant relationship between budget deficits, current account deficits, and investment, which supports Keynesian theory. Additionally, a causal relationship from the budget deficit to the current account deficit was identified, with a negative coefficient below 1 supporting Feldstein Horioka's hypothesis.

Furthermore, the study revealed that trade openness contributes to an increase in the current account deficit, as Jordan is closely integrated with global capital markets. It also found that

monetary policy actions tend to augment the current account deficit, while an effective real exchange rate aids in reducing the deficit. Notably, real economic growth was determined to have no significant impact on the deficit.

Lastly, the study examined several policies aimed at stabilizing Jordan's current account deficit.

- **Study II:** Nazim Abdullah Abdul Mohammadi and Ahmad Abdul Salih Attiyah al-Fahdawi (2021) entitled **"Measuring and analysing twin deficits and their impact on Iraq's economic growth for the period 1995-2018"**, article published in Dinanir Magazine, vol. 01, No. 24, Iraqi University.

The study aimed to quantify and analyze the double deficit (budget deficit and current account deficit) and its impact on economic growth in Iraq, along with several macroeconomic variables such as the degree of economic openness, investment, widespread monetary supply, and oil revenues. Economic growth was measured as the average per capita GDP at constant prices, while various economic theories were examined to provide analytical context.

The model methodology employed for the analysis was the Autoregressive Distributed Lag (ARDL) approach, utilizing annual data spanning the period from 1995 to 2018. The study revealed a long-term equilibrium relationship among the variables under scrutiny, as confirmed by the boundary test methodology. Additionally, the error correction coefficient was determined to be -1.11, indicating that economic growth requires approximately 11 months to reach its long-term equilibrium value, suggesting a rapid response mechanism.

Furthermore, the model successfully passed all appropriate tests, indicating its freedom from economic problems. It was highly predictable, as evidenced by the Thiel test results, and both the short-term and long-term model specifications were deemed structurally stable.

Similarities and differences between current and previous studies:

The similarities between the studies lie in their focus on analyzing the relationship between double deficits and economic growth. Both studies aim to understand how budget deficits and current account deficits impact economic growth.

However, the differences between the studies are evident in several aspects:

Methodology: One study utilizes the ARDL model, while the other relies on Johansson's method of joint integration testing, indicating a difference in analytical approaches.

Causality Testing: While one study employs Granger's causation test to examine causal relationships between variables, the other does not specify the use of this test.

Estimation Technique: The use of the FM-OLS method is mentioned in one study, implying a difference in the estimation techniques employed.

Economic Variables: The studies likely differ in the specific macroeconomic variables they include in their analysis, such as the degree of economic openness, investment, monetary supply, and oil revenues.

Spatial and Temporal Limits: There are differences in the spatial (country) and temporal (time period) limits of the studies, indicating variations in the scope and context of the research.

These differences highlight the diverse approaches and considerations undertaken in each study, leading to potentially distinct findings and implications.

2- The conceptual framework of the study:

Clarification of the concepts of double deficits (balanced deficits and trade deficits) and economic growth and their theoretical linkages.

2-1 Double deficit:

Here we address the balance deficit, the trade balance deficit and the double deficit.

2-1-1 deficit in balance, and concept, species:

- Defined as a: **"shortfall in estimated public revenues over estimated public expenditures of the State".**[1]

- It is: **"The difference between the totality of government expenditures and government revenues".**[2]

We can divide the budget deficit into:

- Conventional deficit, Current deficit, Operating deficit[3] , Structural deficit[4] , Temporary deficit, Weakness deficit, Power deficit[5]

2-1-2 Trade balance deficit, concept, and types:

- Means: **"The negative difference between the value of exports and the value of imports".**[6]

- It also means: **"Growth of imports at a rate greater than export growth".** [7]

The trade balance deficit is divided into: Temporary deficit, Permanent deficit, Deficit in the merchandise trade balance, Deficit in the service balance.[8]

2-1-3 Double deficit:

- Defined as: **"The direct relationship between the budget deficit and the commercial account deficit, and the direction of the relationship from the budget deficit to the trade account deficit".**

- It is: **"The budget deficit coincided with the trade account deficit, realized simultaneously".**[9]

2-1-4 Relationship between the budget deficit and the trade balance deficit:

The intellectual analysis that attempted to explain the double deficit was divided into two basic theories: Keynesian theory and Ricardi parity theory, as well as a theory specific to oil States as follows:

A. Keynesian theory: indicates a direct positive correlation between the public budget deficit and the one-way trade balance deficit, i.e., the first to create a deficit in the second deficit

- The impact of the budget deficit on overall demand[10] , and the impact of the budget deficit on the exchange rate [11] .

B. Ricardo's parity theory: Barrow proposes a different theory from the treasure theory, which states that there is no correlation between the public budget deficit and the trade balance deficit. The increase of the former as a result of tax cuts has only a temporary effect on public savings. "It would reduce public savings, but private savings would increase due to future expectations that tax burdens could be increased due to reduced public savings.

C. General budget deficit and trade balance deficit in oil States: special relationship outside the scope of Keynesian theory or Ricardo's parity theory, given the characteristics of these States' deficits:

- Budget deficits are not the result of lower taxes, but of higher public spending, which is not controlled, and oil revenues with the largest proportion affected by the world's oil markets.

- Taxes are not considered the most important public budget resources and the Ricardi principle of tax reduction is not significant in oil countries.

- Oil states' economies are closed, not dependent on a floating exchange rate, and their interest rates are not liberalized, with many import restrictions, which refutes the Keynesian theory.[12]

2-2 Economic growth, concept, types and determinants:

- Means: **"increase in real GDP, i.e. in GDP after the effects of inflation are removed".**[13]

- As it means: **"The continuous increase in GDP, so that this increase is cumulative and sustained over time".**[14]

Economic growth is divided into: expansionary economic growth, Intensive economic growth.[15]

There are essential elements of a country's economic growth, the most important being: Work, Capital, Technical progress.[16]

2-3 relationship between double deficits and economic growth:

There is a clear difference between the interpreted economic theories of the double deficit relationship and economic growth, determined by the stability and imbalances of the economy, which have a significant impact on the latter.

2-3-1 Relationship between balance deficit and economic growth:

The difference in the direction of economic theories about the interpretation of the relationship between the imbalance deficit and economic growth lies in the determinants of economic growth of capital, technological progress and natural resources between countries, preventing conformity about the nature of the relationship, which corresponds to a theory different from another.

Keynesian theory emphasizes the positive relationship between imbalance deficits and economic growth, while Ricardo's parity theory emphasizes the neutral relationship between them.

2-3-2 Relationship between the trade balance deficit and economic growth:

We have an inverse relationship between them. The trade balance deficit has a negative impact on economic growth and poses a threat to the economy as a whole, with increased imports from exports resulting in a trade balance deficit.

2-4 Analysis of the development of the double deficit (budget deficit and trade balance deficit) and economic growth in Algeria for the period 1982-2021:

The following table shows the development of the double deficit (budget deficit and trade balance deficit) and the economic growth in Algeria.

Table 01: Double deficit (budget deficit and trade balance deficit) and economic growth in Algeria for the period 1982-2021

unit: 1 million DZD

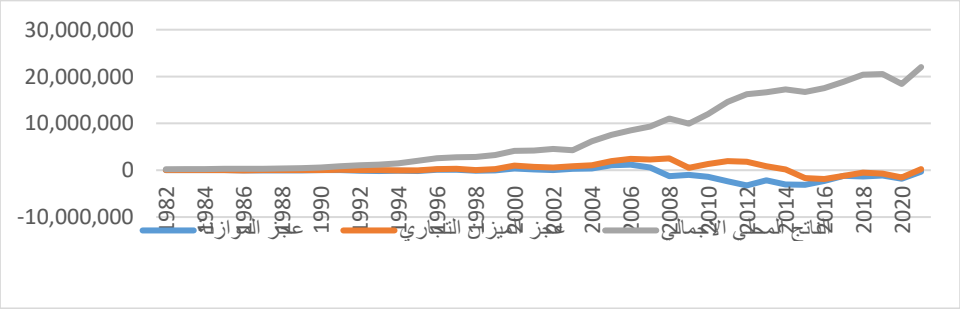
Years	Budget deficit	Trade balance deficit	GDP	Years	Budget deficit	Trade balance deficit	GDP
1982	1.801	11.094	207.599	2002	52.542	544.152	4.522.733
1983	4.181-	10.940	233.699	2003	335.201	854.612	4.252.321
1984	9.767	12.501	267.600	2004	340.969	1.023.048	6.149.117
1985	6.009	15.703	291.300	2005	1.030.791	1.927.904	7.561.984
1986	12.127-	8.459-	299.500	2006	1.186.911	2.420.460	8.501.636
1987	10.933-	7.583	323.699	2007	579.231	2.297.334	9.352.886
1988	26.200-	1.994	349.500	2008	- 1.288.605	2.522.986	11.043.704
1989	8.100-	1.865	423.300	2009	970.972-	492.831	9.968.025
1990	16.000	35.261	555.800	2010	- 1.392.296	1.321.780	11.991.564
1991	36.800	94.348	844.499	2011	- 2.363.759	1.931.630	14.588.532
1992	- 108.267	60.463	1.048.200	2012	- 3.254.143	1.780.298	16.209.598

1993	162.678	34.517	1.165.999	2013	-2.128.816	848.551	16.647.919
1994	89.148-	15.804-	1.491.500	2014	-3.068.021	197.890	17.228.598
1995	-147.886	14.742-	1.990.600	2015	-3.103.789	-1.656.273	16.712.686
1996	100.548	242.485	2.570.000	2016	-2.285.913	-1.877.060	17.514.635
1997	81.472	290.188	2.780.199	2017	-1.234.745	1.183.002	18.867.176
1998	-101.228	36.517	2.830.500	2018	-1.342.601	513.954-	20.393.524
1999	11.186-	229.844	3.238.198	2019	-1.139.769	745.188-	20.501.058
2000	400.039	966.790	4.123.514	2020	-1.788.800	-1.517.282	18.383.800
2001	184.498	715.473	4.227.113	2021	332.671-	219.733	22.021.500

Source: Prepared by the researcher based on World Bank websites, National Statistical Office, Directorate General of Taxation and Petroleum Exporting Arab Countries Organization

The following figure represents the development of Algeria's double deficit and economic growth for the period 1982-2021.

Figure 01: Development of Algeria's double deficit and economic growth 1982-2021



Source: Prepared by the researcher based on table data 01.

By tracking developments in double deficits (budget deficits, trade balance deficits) and economic growth in Algeria we can see upward and downward fluctuations that are not affected by double deficits. The general budget is linked as general revenues associated with oil prices, public expenditures are linked to the social nature of the state and the policy of rationalizing

public expenditures. Imports are linked to the world's meagre economy, Algerian dinar exchange rates against hard currencies and inflation.

3- A study that measures the impact of the double deficit on economic growth during the period 1982-2021 using standard techniques.

The study is being conducted on Algeria's economy as a model to test the impact of the double deficit on economic growth through the reliance on the database of the National Statistical Bureau, the General Directorate of Taxation and the Organization of Arab Petroleum Exporting Countries during the period 1982-2021. Using Johansson's joint integration test, test the causation of Granger and the FM-LOS method and based on Eviews 9.

3-1 Method, model and study variables.

The study variables are budget deficit amounts, trade balance deficit, economic growth, inflation, exchange rates, and oil prices, for the period 1982 to 2021, and the introduction of Nepean logarithm on data to make the chains homogeneous.

Here a trial to present the standard study to test the impact of the double deficit on Algeria's economic growth during the period 1982-2021, based on economic theory and previous applied studies to estimate the model in its mathematical form as follows:

Lincr=f (Linbd, Lincd, Lininf, Lintch, Linpp) ……. (01)

To take the following mathematical form:

$$\boldsymbol{lincr_t = \beta_0 + \beta_1 linbd_t + \beta_2 lincd_t + \beta_3 lininf_t + \beta_4 lintch_t + \beta_5 linpp_t + \varepsilon_t} \ \ldots (02)$$

Where:

$lincr_t$: The dependent variable is the logarithm of economic growth, represented by GDP.

$linbd_t$: Logarithm The balance deficit is represented by the result of the apportionment of general income over general expenditure which is one of the independent variables.

$lincd_t$: Logarithm trade balance deficit represented by export-to-import division output, which one of the independent variables is.

$lininf_t$: Logarithmic inflation is one of the independent variables.

$lintch_t$. Logarithm exchange rates for Algerian dinars against the United States dollar which is one of the independent variables.

$linpp_t$: Logarithm oil prices is one of the independent variables.

ε_t: Limit random error.

Noting that we have divided public revenues over public expenditures, and we have divided exports over imports because logarithms are not applied to negative values, we are in deficit if dividends are less than 1 and surplus status is greater than 1.

3-2 Statistical tests:

Before estimating any standard model, we will first analyze the characteristics of each time series individually to see if they are stable and determine their degree of integration, since stability is the basis of non-fake results, and to do so we will use unitary root tests for chain stability, as an important stage in the study of joint integration.

The most important of these tests is the Advanced Dickie Fuller Test (ADF), Phillips Perone Test (PP) on the basis that it corrects the teacher contradiction of Dickie Fuller's test statistics, and removes the distinctive resulting biases of random oscillations.

Johansson's simultaneous integration method, Grager's causation test, and the FM-LOS method are addressed.

3-2-1 Johansson simultaneous integration test:

It reflects a long-term relationship between two or more time chains, where fluctuations in one remove fluctuations in the other in a way that proves the ratio between their values over time.

3-2-2 study of Granger's causal test:

Proving causal relationships between economic variables leads to a better understanding of economic phenomena in practice, and finding a reasonable and acceptable formula for economic policy, the most important of which is to test Granger's causation to see whether there is a feedback, retrieval or exchange relationship between variables in the form of time data.

3-2-3 Method (FM-OLS):

Instead of the OLS method, where it corrects the lack of fulfillment of its conditions, especially the problem of self-association and used to estimate the long-term relationship, taking into account the homogeneity of variables during that period By reaching a neutral medium close to natural distribution, first-class joint integration.

models are estimated for several independent variables resolution of the problem of simultaneous correlation between random error and autonomous variables by correcting errors.

3-3 Results And Discussion:

We will study stability first, followed by the rest of the certified statistical tests.

3-3-1 results of the Time Series Stabilization Study:

We present the evolution of study variables for budget deficit chains, trade deficit, GDP, inflation, exchange rates, oil prices, and then study stability.

The chains stabilization test aims to examine their properties during the period 1982-2021, and ensure that they are stable, so that the rank of integration is determined.

Table 02: Results of stability tests for the chains being considered

Test Type	ADF Test			PP Test		
Test Form	(1)	(2)	(3)	(1)	(2)	(3)
Critical Value	1.94-	2.93-	3.52-	1.94-	2.93-	3.52-
Calculated Value CR	1.85-	1.24-	4.45-	3.84-	1.24-	4.45-
Calculated Value BD	2.18-	2.39-	2.46-	2.19-	2.42-	2.51-
Calculated value CD	1.95-	2.32-	2.39-	1.81-	2.35-	2.40-
Calculated value INF	0.87-	2.71-	3.03-	1.18-	2.72-	3.07-
Calculated Value TCH	1.38-	1.82-	1.27-	1.62-	1.64-	1.15-
Calculated Value PP	0.20-	1.14-	2.48-	0.32-	1.13-	2.50-

Source: Prepared by the researcher based on eviews9

Table 03: presents the stability test results for First Class Differential Chains

Test Type	ADF Test			PP Test		
Test Form	(1)	(2)	(3)	(1)	(2)	(3)
Critical Value	1.94-	2.94-	3.53-	1.94-	2.93-	3.53-
Calculated Value DCR	8.96-	6.90-	6.93-	9.53-	18.92-	23.47-
Calculated Value DBD	6.18-	6.09-	6.01-	6.52-	6.39-	6.26-
Calculated value DCD	6.14-	6.06-	6.01-	7.06-	6.95-	7.37-
Calculated value DINF	8.33-	8.21-	8.09-	8.44-	8.31-	8.19-
Calculated Value DTCH	3.30-	5.97-	4.29-	3.40-	4.18-	4.31-
Calculated Value DPP	6.08-	6.03-	5.97-	6.08-	6.02-	5.96-

Source: Prepared by the researcher based on eviews9

Table 02 shows the statistical results obtained from the application of the expanded ADF test and 5% PP test and critical values for each test at this level. chains are unstable because they contain a unitary root as long as the absolute value calculated is completely below the scheduled value in absolute terms, Although this does not always apply according to the principle of statistical testing that in the case of the unitary root of some models, the chain is unstable.

Table 03 results also indicate that time series with first-degree differences are stable because the absolute value calculated is completely greater than the absolute value scheduled, meaning that there is a common complementarity between the variables, and therefore we use the Johannesen method of joint integration.

3-3-2 Johansson Joint Integration Method Test Results:

Table (04): Johansson Joint Integration Test Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.667311	105.1577	95.75366	0.0096
At most 1	0.416754	63.33687	69.81889	0.1475
At most 2	0.385244	42.84932	47.85613	0.1363
At most 3	0.304510	24.36117	29.79707	0.1856
At most 4	0.201401	10.56192	15.49471	0.2399
At most 5	0.051666	2.015842	3.841466	0.1557

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.667311	41.82083	40.07757	0.0315
At most 1	0.416754	20.48755	33.87687	0.7220
At most 2	0.385244	18.48815	27.58434	0.4551
At most 3	0.304510	13.79925	21.13162	0.3817
At most 4	0.201401	8.546074	14.26460	0.3259
At most 5	0.051666	2.015842	3.841466	0.1557

Source: Prepared by the researcher based on eviews9

Through table 04 trace test in P = 01 calculated value slowing point r = 105.17 greater than critical value r = 95.75 at 5% in which the number of integration rays = r + 1 is enhanced with Maximum Eigenvalue test results calculated value r = 41.82 is greater than the critical value r = 40.07 at the 5% level, This means a long-term balance between economic growth and double deficit (balanced deficit and trade balance deficit), inflation, exchange rates, oil prices.

Table (05): Slowdown coefficient test results in VAR model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-133.0879	NA	9.14e-05	7.727103	7.991023	7.819218
1	29.68099	262.2387*	8.23e-08*	0.684390	2.531828*	1.329195
2	61.09987	40.14634	1.26e-07	0.938896	4.369854	2.136392
3	105.8654	42.27857	1.29e-07	0.451921	5.466398	2.202108
4	169.5101	38.89395	9.53e-08	-1.083892*	5.514104	1.218985*

Source: Prepared by the researcher based on eviews9

Table 05 explains that the first model meets the highest number of standards that meet the required conditions, and therefore the delay factor is p = 01.

3-3-3 The results of estimating the FM-LOS method:

Since the complementarity requirement is fulfilled, we can apply the FM-LOS method, so according to Table 06 we can estimate the model as follows**:**

CR = 0.16*BD - 0.53*CD - 0.01*INF + 0.95*TCH + 1.03*PP + 7.94

Table (06): Estimate the model using FM-LOS

Variable	Prob.	t-Statistic	Std. Error	Coefficient
BD	0.160619	0.296743	0.541275	0.5920
CD	-0.531258	0.196819	-2.699227	0.0109
INF	-0.006427	0.069292	-0.092749	0.9267
TCH	0.950859	0.059197	16.06263	0.0000
PP	1.028931	0.111872	9.197370	0.0000
C	7.940919	0.424392	18.71129	0.0000
R-squared 0.950112		Adjusted R-squared 0.942553		

Source: Prepared by the researcher based on eviews9

3-4 statistically, model test results:

- All the parameters of the model are significant except for the budget deficit and inflation, where we say at the α level = 0.05 when the calculated is greater than the scheduled t and equal to**:**

$$t_{tabt}^{\alpha} = t_{n-k}^{0.05} = t_{40-6}^{0.05} = t_{34}^{0.05} = 1.69$$

- The corrected determination factor is equal to 0.9452, which means that 94.52% of the economic growth rate is explained by sub-variables. The remaining 0.548% of these changes can be traced back to variables not included in this model. The model also ensures that there is no subjective relationship to errors. Therefore, the statistical estimate is acceptable.

- The DW of the model is not available and therefore the FMOLS method has been used because it helps to detect the problem of self-association.

- To ensure that the model meets the requirement for the normal distribution of the residuals, we used the Jarque-Bera test to find that the test result is 691.24 greater than the $x^2_{0.95} = 5.99$, significance that the residuals of the model does not follow the normal distribution. (Annex 01).

- To verify that the model is free of the problem of linear multiplicity among independent variables, which have a negative impact on the results of the model estimation, we calculated the value of the variability inflation factor (VIF) and Annex 02 shows these values for all variables, so that we note that all values are below 10 which indicates that The model is free of the problem of linear pluralism and its adverse effect.

3-5 economically model test results:

From the results of estimating the estimated parameters, we conclude that:

- The estimated fixed limit value indicates that when the values of independent variables do not exist, economic growth is at 7.940, which is moral (at 5% level) because its probability is less than 0.05.

- The estimated value of the budget deficit is positive, indicating that the effect of this coefficient was positive and significant (at 5% level) because it is more likely than 0.05. The coefficient value is 0.160, which means that if the budget deficit increases by 1%, economic growth will increase by 0.160%, which is economically acceptable.

- The estimated value of the negative trade balance deficit indicates that the effect of this factor was negative but significant (at 5% level) because its probability is less than 0.05, worth -0.531, meaning that if the budget deficit increases by 1%, economic growth will fall by 0.531%, which is economically acceptable.

- The estimated value of the negative inflation factor indicates that the effect of this coefficient was negative but not significant (at 5% level) because its probability is greater than 0.05, with the value of the coefficient -0.006 which means that if inflation increases by 1%, it will reduce economic growth by 0.006%, which is consistent with economic theory.

- The estimated exchange rate value is positive, indicating that the impact of these transactions has been significant positive (at the 5 per cent level) because their odds are below 0.05, with a value of 0.950, which means that if exchange rates rise by 1 per cent, economic growth will increase by 0.950 per cent, which is consistent with economic theory.

- The estimated value of oil prices is positive indicating that the impact of these labs was positive and significant (at 5% level) because their probability is less than 0.05. The value of the

coefficient is 1.028, meaning that if budget deficit B increases by 1%, economic growth will increase by 1.028%, which is economically acceptable.

3-6 Causal relationship test results:

To determine the relationship between variables according to Table 05, which shows that it is the first model that achieves the most standards that meet the required conditions And so the delay factor is p = 01, so the results can be summarized in Table 07 and through which we conclude that there is a causal relationship in one direction from exchange rates to economic growth, From budget deficits to trade balance deficits, from oil prices to budget deficits, From inflation to exchange rates, from exchange rates to oil prices, Also from economic growth towards oil prices and oil prices to trade balance deficits according to the probability of less than 5% This is corroborated by Fisher's statistics, calculated more than Fisher's scheduled statistics at 1 degree of freedom for the numerator and 39 for the numerator and 5% morale level.

Table (07): Granger's Causal Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
BD does not Granger Cause CR	39	0.58399	0.4497
CR does not Granger Cause BD	39	0.78516	0.3814
CD does not Granger Cause CR	39	0.52580	0.4731
CR does not Granger Cause CD	39	0.49884	0.4846
INF does not Granger Cause CR	39	0.05696	0.8127
CR does not Granger Cause INF	39	1.61941	0.2113
TCH does not Granger Cause CR	39	6.16228	0.0178
CR does not Granger Cause TCH	39	0.28504	0.5967
PP does not Granger Cause CR	39	0.02464	0.8761
CR does not Granger Cause PP	39	3.86270	0.0471
CD does not Granger Cause BD	39	3.44245	0.0717
BD does not Granger Cause CD	39	6.03332	0.0190
INF does not Granger Cause BD	39	0.02756	0.8691
BD does not Granger Cause INF	39	0.00020	0.9887
TCH does not Granger Cause BD	39	0.02734	0.8696
BD does not Granger Cause TCH	39	2.20121	0.1466

INF does not Granger Cause CD	39	0.09412	0.7608
CD does not Granger Cause INF	39	12E-05	0.9973
TCH does not Granger Cause CD	39	0.01373	0.9074
CD does not Granger Cause TCH	39	1.25164	0.2706
PP does not Granger Cause CD	39	3.95772	0.0443
CD does not Granger Cause PP	39	0.12101	0.7300
TCH does not Granger Cause INF	39	3.56984	0.0669
INF does not Granger Cause TCH	39	4.66132	0.0376
PP does not Granger Cause INF	39	0.12270	0.7282
INF does not Granger Cause PP	39	1.01973	0.3193
PP does not Granger Cause TCH	39	1.70769	0.1996
TCH does not Granger Cause PP	39	4.22307	0.0472

Source: Prepared by the researcher based on eviews9

4- Conclusion:

Through this study, we tried to test the impact of the double deficit (budget deficit and trade balance deficit) on Algeria's economic growth for the period 1982-2021, after theoretically entrenching its roots and theoretically linking their relationship, analyzing its development in Algeria during the period in question, then studying the stability of the chains using the joint integration test of Johansson, to estimate the model between variables in the Fm-LOS method, and test Granger's cause.

The main findings of the previous study are: recommendations, suggestions and prospects for the study**:**

4-1 Results:

After diagnosing the economic phenomenon, assessing the study model and analyzing the data, we have reached the following results:

- A long-term balance between economic growth and other economic variables.

- The results of the estimate showed that there was no causal link between economic growth, balance sheet deficits and trade balance deficits in both directions. The double deficit relationship with economic growth was outside the purview of Keynesian theory and Ricardo's parity theory, given Algeria's characteristics as oil State regarding balance sheet deficits and trade balance deficits.

- There is a causal link in one direction from budget deficit to trade balance deficit, which is consistent with treasure theory.

- There is a correlation between the balance deficit and economic growth, as well as a correlation with the trade balance deficit inversely, which is consistent with economic logic.

Attention is drawn to the specificity of Algeria's economy, which is marked by:

- Being a rentier State dependent on oil exports affects the balance of trade as a result of changing oil prices in the world market and their linkage to exchange rates, and their income as a result of oil revenues affects the balance of the public budget.

- Depreciation of the national currency against foreign currencies and higher inflation rates due to the absence of a real economy.

4-2 Recommendations:

The following recommendations may be made:

- Diversification of revenues outside oil revenues to ensure some balance in the public budget and diversification of exports outside oil to ensure balance of trade.

- Combating and eradicating inflation in order to increase the rate of economic growth.

- Reducing government spending to increase economic growth rates.

- Work to link fiscal policy with economic, not social, and political dimensions.

- Work to reduce the public budget deficit to reduce the trade balance deficit.

4-3 expectations:

There are also possibilities for the following study:

- Engaging other variables affecting economic growth.

- Trying to apply PANEL data to a group of Arab countries;

- Choose the impact of double deficits on other economic variables.

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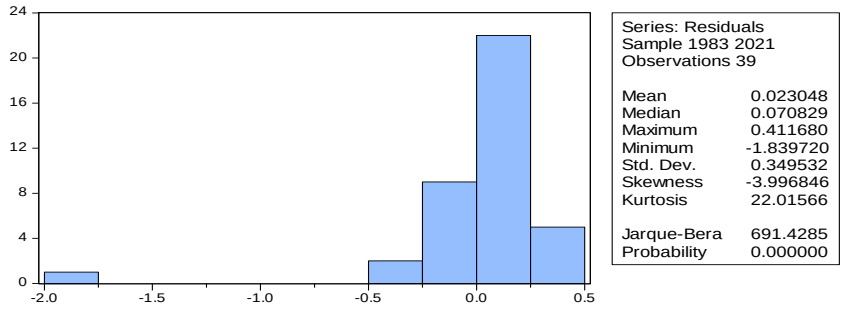
6 -Appendixes:

Annex 01: Results of Natural Fault Distribution Test Using (jaque-bara)



Annex 02: Results of Verification of the Absence of a Linear Multiplicity Problem

Variance Inflation Factors
Date: 10/21/23 Time: 20:32
Sample: 1982 2021
Included observations: 39

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
BD	0.088056	2.771715	2.346477
CD	0.038738	2.748995	1.874877
INF	0.004801	7.273879	1.592466
TCH	0.003504	20.38395	1.627919
PP	0.012515	64.58661	2.132749
C	0.180108	69.95298	NA

Source: Program outputs eviews9