

The Causal Relationship Between Government Spending and Economic Growth in Algeria During the Period 1990-2018

العلاقة السببية بين الإنفاق الحكومي والنمو الاقتصادي في الجزائر خلال الفترة 1990-2018

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Abstract

We wanted through this study to measure the economic relationship between the Gross Domestic Production GDP The total expenditure of the governmental GV in Algeria During the period 1990-2018, This study is very important because it stems from the lack of studies that addressed the causal relationship between government spending and economic growth using the cointegration model, as well as giving a clear picture of how important public spending is in financing economic activity and achieving growth, especially in light of the huge development programs adopted by Algeria to achieve this purpose, World Bank data we used for data, and the Algerian National Bureau of Statistics ONS, The Use a program Eviews.10 With the method Standard Representative stability study and co integration and causality Granger.

Found the results to the possibility of convergence of the two variables in the short and long term through Sample error correction VECM, With a causal in the direction of one of the GDP Toward GV Where she was The proportion of the interpretation of the variable dependent of the independent variable Acceptable.

Keywords: GDP, Gouvernement spending, Stationarity, Causality, Co integration.

ملخص

أردنا من خلال هذه الدراسة قياس العلاقة الاقتصادية بين إجمالي الناتج المحلي GDP وإجمالي الإنفاق الحكومي GV في الجزائر خلال الفترة 1990-2018، حيث تكتسي هذه الدراسة أهمية بالغة لأنها تتبع من قلة الدراسات التي تناولت العلاقة السببية بين الإنفاق الحكومي والنمو الاقتصادي باستخدام نموذج التكامل المشترك وأيضاً إعطاء صورة واضحة عن مدى أهمية الإنفاق العام في تمويل النشاط الاقتصادي وتحقيق النمو خاصة في ظل البرامج التنموية الضخمة التي تبنتها الجزائر من أجل تحقيق هذا الغرض، وتمت الاستعانة ببيانات البنك العالمي للمعطيات، والديوان الوطني الجزائري للإحصاء ONS، تم استخدام برنامج Eviews10 مع الأسلوب القياسي الممثل في اختبار الاستقرار والتكامل المشترك وسببية غرانجر.

وتوصلت النتائج إلى إمكانية تقارب المتغيرتان في المديين القصير والطويل من خلال نموذج تصحيح الخطأ VECM، مع وجود سببية في اتجاه واحد من GDP نحو GV حيث كانت نسبة تفسير المتغير التابع بالمستقل مقبولة.

الكلمات المفتاحية: الناتج المحلي، الإنفاق الحكومي، الاستقرار، السببية، التكامل المشترك.

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1. INTRODUCTION

The world has witnessed, including the developed countries, a number of developments and transformations in all cultural and political fields and as well as the social Economic and therefore resorting to fur there economic integration and political integration, which embodies the regional bloc continental or global in order to control more markets to export their products as well as ensuring access to raw materials, similar to that are not developing countries still including Algeria seeking to get rid of economic backwardness and achieve development Comprehensive economic.

I knew Algeria since the Independence to day shifts as a result of the radical economic a Permanent rise of oil prices as Algeria pursued expansionary policies in public spending through a program of recovery economic 2001-2004 Supplementary program to support the growth of 2005-2009 and the fivefold program 2010-2014 in order to gain additional resources in order to develop the performance economic and raise the growth rate.

Due The importance of economic growth and its emergence as an indicator reflecting improved economic conditions targeted by multi-state policies, including the policy of public spending recovery of economic growth and from this principle can The formulation of the problem of search as follows:

What type and nature of the relationship between government spending and economic growth during the study period?

1.1 research hypothesis

- There is a one-way causal relationship from government spending to economic growth.
- There is a one-way causal relationship from economic growth to government spending.
- There is a mutual relationship (Two-way) between economic growth to government spending.

1.2 The importance of studying

Aims This study is to demonstrate the role of government spending in achieving acceptable levels of growth and important means to movement Development, aims to Develop a policy of economic effectively contribute to the financing of development projects and have the ability on Keep abreast of

developments as traction on Raise and increase the total volume of production in Algeria.

2. The theoretical framework of government spending:

It defines the concept of public spending «As a cash coming out of the State Treasury with a view to satisfying the general need" and thus elements as follows:

➤ **Amount of cash:** State usually spend cash to get the necessary goods and services, and is spending the cash methods ordinary course to get the state to pay off their needs and what it's worth of premiums and benefits of public debt.

➤ **Public expenditure issued by the State or one of its bodies:** Where the expenses of local bodies, state institutions and the expenses of public projects include not preclude that these projects are subject to the management of a commercial organization with a view to making a profit, because it does not remove it described as the organs of the State is actively privileged in order to achieve some of the goals a economic. This expansion of the definition of public spending was the result of the evolution of the role of the state in the life a economic and social ... and accordingly are considered public expense of those public expenditures by the state as a sovereign, in addition to expenditures by the institutions in the field of Economic. (Taqah & Al-Azzawi, 2007, p. 33)

On the contrary, it is not considered that the general maintenance carried out by individuals or private projects, even if they were intended to achieve public benefit. Donations provided by members of the community for paving the roads or the establishment of hospitals or schools that are not overhead.

➤ **Public expenditure intended to achieve public benefit:** Political factors and economic considerations, social and play in this area a key role. As the appreciation of the State public goods is a reflection of both the nature of the political system and the level of economic and cultural progress achieved by the community. Therefore, determining the general needs and what is achieved by the benefits of public satisfaction according to the state philosophy, and that is different from the general needs satisfaction requires the solidarity of the entire community's efforts, either for lack of possible fragmentation of such services(Such as defense) Either as a result of the

inadequacy of individual efforts to satisfy each other, despite the possibility of fragmentation (Such as education and health) Which requires the State need to be satisfied because of its public benefit, it is not considered general maintenance of those that benefit a particular class of individuals, in this deviation from achieving the satisfaction of public needs and is an imbalance of the principle of equality before the public burdens (Al Sayed, 1975, pp. 58-61).

3. Concepts and foundations of the growth economic

that Very any country is to achieve economic growth because of the magnitude of the importance of the economic analysis, and considers that only economists and correct assessment of the policy made known in a country. this it can the definition of the economic: "Expansion in real output or expansion of the per capita income of the real gross national product" (Nadji Hassan, 2002, p. 33) Means that economic growth does not mean a rise in GDP only, but there must be an increase in real per capita income.

Also known as "Occurrence of a continuous increase in the average real per capita income over time" (Atia, 2003, p. 11).

Knew him Simon Kuznets Also "The increase in gross domestic income of the country of any increase in income per capita real" It can be defined as "Continuous increase in the quantity of goods and services produced by an individual in a particular economic environment" through this definition we conclude: that the increase is in real per capita income and be in cash with isolation increase the impact of inflation and the long-term the growth rate is a: Rate National income growth - population growth rate (Ben Kaddour, 2012, p. 63) Accordingly, It is calculated according to the method of simple economic growth rates as follows growth rate:

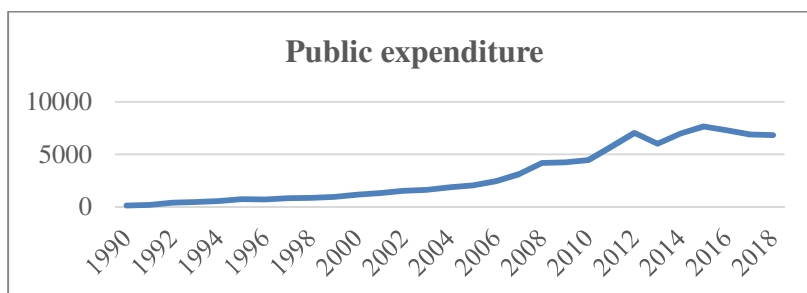
$$\text{Growth rate} = \frac{\text{real income in the current period} - \text{real income in the previous period}}{\text{real income in the previous period}} \times 100$$

4. Evolution of the volume of public expenditure in Algeria during the period 2016-1990

Algeria experienced A remarkable development and continuous increase in public expenditure, reflecting the adoption expansionist policy of Algeria It turns out that this increase varies from year to year, sometimes increase the rates are high and sometimes low rates that According to the

economic, political and social developments in the country following table shows the evolution of public expenditure during the study period:

Figure 1. Evolution Public expenditure in Algeria during the period 1990–2018



Source: http://www.ons.dz/IMG/pdf/CH12-FINANCES_PUBLIQUES_Arabe.pdf
(09 February 2020)

From During the table noted that public spending on the rise with the beginning of the nineties at high rates as the percentage increase 55.38% and 98.08% The years 1991 And 1992 The total public spending years 1995 around 759.617 Billion DA so see that this increase in public spending the beginning of the nineties to increase spending on wages and salaries and to repay indebtedness.

as such Decreased public spending is estimated at 4.61% Year 1996 This is a result of lower costs of processing 285.9 Billion DA years 1995to me 174.01 Billion dinars a year 1996, And then rose low rates until the year 1999 This is due to the State's commitment to the program of economic reforms and structural change leading to the reduction of Spending General and supported by international financial institutions.

With Millennium beginning of the third Algeria saw the adoption of a program of economic recovery (2001-2004) Supplementary program to support economic growth (2005-2009) Accredited The higher oil revenues, which is an important return of general revenues of the state where the rate of increase 22.51% in a year 2000 The total amount of spending Government around 2052.037 One billion Da year 2005 and 4191.053 year 2008 increase by %34.82 Compared to the year 2007.

And the beginning of From one year 2010 Algeria saw the implementation of the five-year development program (2010 - 2014) In the context of the follow-up ruler programs by the Algerian state, which started

the beginning of the third millennium, which has been allocated a huge amount of approximately 286 Da billion Where We note that public spending moved from one year 2010 To a year 2012 Of the amount 4466.94 Billion dinars to 7058.2 Billion dinars by Height is estimated at 58% and this is Due to the policy of the Expansion followed by the Algerian state in the framework of the application of the five-year development program.

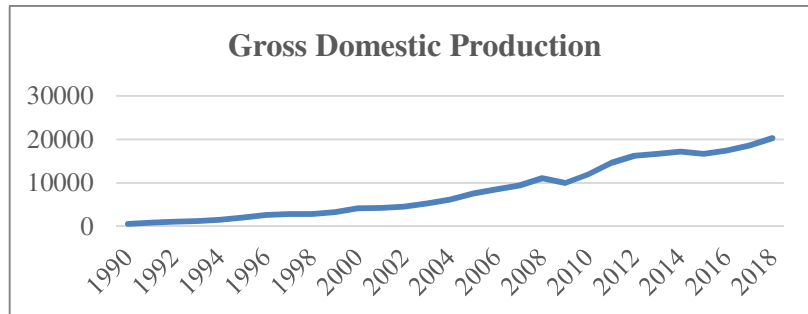
Notes In the table that the public expenditure decreased by 14.65% in a year 2013 As a result stop Endorsement Increases in wages and compensatory payment systems, contrary to what was the case in 2012 Also known as the size of public spending decline year 2016 in the rate of 4.69% This is due To a decline in financial revenues resulting from lower oil prices and to go to the policy of austerity.

From During the above, we note that public spending in Algeria during the study period, increasing from year to year except Some Extraordinary declines recorded years 2017,2016,2013,1996, Comparison Previous years have.

5. Economic growth and development in Algeria during the study period

Seeking Algeria strives to improve the level economy except that Economic growth rates recorded through (GDP) Remote data on the required level. The following table shows the evolution of rates and values of GDP during the study period:

Figure 2. Evolution of GDP at current prices and the real growth rate in Algeria during the period 1990-2018



Source:

api.worldbank.org/v2/ar/country/DZA?downloadformat=excel

(09 February 2020)

Note From the table that the growth rates fluctuating due to the

fluctuation in the price of oil as Algeria Depends Depending almost entirely on the hydrocarbon sector, the growth rate was recorded in the period 1990 to me 1995 rates growth Low and negative ranged 2.1% and 1.8% as a result of the oil crisis in the late eighties and the worsening of the crisis Political Economic and social either in the period 1996 to me 1999 economic growth rates have improved comparison the years that preceded it, as the percentage of 5.1% year 1998 This is due to the improvement in oil prices, In The beginning of the new millennium, the growth rate rose significantly as a result of improved oil prices and the government's many From Massive development programs represented in the economic recovery program and support growth and the five-year development program, which extended until the year 2014 the maximum growth rate has recorded a proportion of his 7.2% year 2003, as such the growth rate witnessed a decline during the years 2008 and 2009 reaching ratio 2.3% and 1.6% respectively, and the reason for this global financial crisis in 2008 because it was impressive On the global demand for energy, but in recent years for the study period growth rates it was almost stable, reaching proportions 3.3%, 3.9%, %3.4 In the following years 2016, 2017, 2018.

6. Studies Previous

Some previous studies in our possession touched on a particular aspect of the relationship GDP with total domestic spending in one economy, among them:

- a study To record the impact of government spending on economic growth in Algeria during the period (1970-2015) using the method of co-integration and error correction model, an article in the Journal of Strategic and development Ibn Badis University of Mostaganem 01/31/2018, Prepared by researchers Makki Amarya and Atto Al charf: Try the researchers the answer For the following question: How You can control the stability and sustainability of economic growth through government spending tool? Found the results to have a positive effect for each of the expenses of management, tax revenues and the impact of negative expenditure processing on GDP growth, but for model error correction results have concluded that there is a significant expenditure processing positive effect, income tax, and the effect of negative and insignificant for the expenses of management.
- Relationship Causality between economic growth and public spending in

Algeria, a standard study period (1990-2016), an article in the Journal of economic University of Tahiri Mohammed Bechar, August University, 2019 Prepared by researchers Carmine Samira and Laila Asmahan: The researchers wanted in this research paper to answer the following dilemma: Is there a long-term stable relationship between public spending and economic growth in Algeria, and if you find what is the direction of causality? Where the results showed a long-term equilibrium relationship between public spending and economic growth, and with a causal relationship in both directions, with the existence of a causal relationship direction One of the public spending to economic growth and this is what supports the Keynesian theory that any public spending causes economic growth and the existence of a causal relationship with the direction of one of the economic growth to public expenditure by Wagner law.

➤ Measurement The impact of government spending on economic growth in Algeria, using an approach "ARDL Bound testing" during the period (1980-2014), an article in the Journal of Al badil Journal of Economic Zian Ashour Djelfa, 06/15/2018, Prepared by researcher Ben Suleiman Yahya, through which the researcher tried to access the answer About the following question: Is Affect the long-term government spending on economic growth in Algeria during the period (1980-2014)? Where it found that there is a common integration relationship between government spending and growth economic. Where flexibility in the short-term negative meaning that government spending has the effect of reverse, but in the long-term government flexibility was positive that any government spending has a large and significant positive impact on economic growth rates in Algeria.

➤ Louis Phaneuf, Etienne Wasmer 2005 Study entitled "Une étude econometrics de l'impact des dépenses publiques et des prélèvements fiscaux On l'activité économique au Québec Canada" The question is what effect government policies have on economic activity in both Quebec and Canada, and the researchers used the SVAR model, and found an impact on government spending on economic growth for the period 1982-2003, as government spending increased by 1% Increases in gdp by 0.1% in the short term in Canada, but for Quebec, a 1% increase in government spending increases GDP by 0.28% in the short term. (Phaneuf & Wasmer, 2005, p. 20)

➤ Constantinos Alexiou 2009 Study entitled « Government spending and

economic growth econometric evidence from the south eastern europe (SEE) » The problem of the study lies in knowing the relationship between economic growth and government spending, and in order to answer this the researcher used the model of panel and found that the appropriate model is the model of random impact and reached a 1% increase in government spending leading to increased economic growth by 0.19% in the southeast countries Europe 1995-2005. (Constantions, 2009, pp. 1-20)

7. RESULTS AND DISCUSSION

7.1. statistical analysis of the variables of the raw study

Identify the nature of the raw variables of the countries under study:

➤ **Variable GDP:** Seen from the values of this variable during the study period they are sandwiched between less value 5.56E+11 registered a year 1990 due to economic pressures created by the era of the planned economy, since the latter has self-reforms imposed and the other by the International fund and the World Bank, which serves as medical prescriptions typically requires from Algeria implemented even come out of the dark tunnel, which was suffering from it, but its owner weakness in economic performance as a result of political and security conditions in Algeria in addition to this stage is a transition from the planned economy-oriented economy, which greatly affected the economic changes the college. The highest value 2.03E+13 registered a year 2018 the reason for this high Oil prices who had a thanks to the upgrading of the national economy because oil exports represent 98 Percent, in addition to weak economic diversification and rely almost entirely on oil. An average of 8.24E+12 the mediator was estimated at 6.15E+12 ($\bar{X} > Me$) any statement that Warped values to the right That is aggregated values at the end of the period, And the value of the standard deviation 6.46E+12 which Factor difference 78.39% Which reflects the volatility of violent values because of inflation values, and this is the amount of coefficient of variation confirmed by the mediator 105.04%.

➤ **Variable GV:** These values are sandwiched between less value 5.64E+11 registered a year 1990 to poor security conditions and the transition from socialism to capitalism. The highest value 2.16E+13 registered a year 2018, This improved oil revenue collection, which helped the government to expand its expenditures. There were social reasons that led to the increase in the

volume of public expenditures due to the expansion of the provision of public services to members of the community to improve the social conditions of the layers with limited income. An average of $7.96E+12$ the mediator was estimated at $5.26E+12$ ($\bar{X} \succ Me$) any statement that Warped values to the right that is aggregated values at the end of the period, And the value of the standard deviation $6.89E+12$ which Factor difference 86.55% which reflects the volatility of violent values because of inflation values, and this is the amount of coefficient of variation confirmed by the mediator 130.98%.

Characterized study the not homogeneity of all variables values, because of the volatility of violent during the study period due to inflation, and to reduce this inflation we use a mathematical methods including: logarithm, square root, growth rate, percentage of total, ...

All the way we will adopt is logarithm because it is more widely used because the raw values of the variables of the study are positive.

7.2. Statistical analysis of the new variables

Try to find out the extent of the homogeneity of the logarithm of the study variables

➤ **Variable LGDP:** Seen from the values of this variable during the study period they are sandwiched between less value 27.04 registered a year 1990 the highest value 30.63 registered a year 2018 the extent of 3.59 it reflects the convergence of the two values, and an average of 29.31 the mediator was estimated at 29.44 ($\bar{X} \approx Me$) the values statement tends to symmetry, and the value of the standard deviation 1.05 which factor difference 3.58% which indicates the great homogeneity in values, This is the amount of coefficient of variation confirmed by the mediator 3,56%.

➤ **Variable LGV:** These values are sandwiched between less value 27.05 registered a year 1990 the highest value 30,70 registered a year 2018 the extent of 36,5 reflects the convergence of the two values, An average of 29,25 the mediator was estimated at 29,29 ($\bar{X} \approx Me$) the values statement tends to symmetry, and the value of the standard deviation 1,05 Which factor difference 3,58% which reflects the homogeneity of values, this is the amount of coefficient of variation confirmed by the mediator 3,58%.

The variable was characterized by homogeneous after using the method of logarithm on the values (Values Coefficient of variation of all variables less than 15th%).

- With this result we are trying to study the stability of these chains variables.

8. Study variables Stability chains

If you settle the time series values fluctuated around the middle of my constant, and variation independent of time (Guy, 1991, p. 282). to test the time series quantitative tests we use the stability shown in the tests Dickey-Fuller Extended (ADF) (Atia, Modern Econometrics between theory and practice, 2004, p. 657) clarify recipe stability or instability of time series, and this is by selecting a specific direction Determinist or Random direction Stochastique. If we assume the time series model version of the form AR (1): so for Three cases:

$|\phi| < 1$: Series Y_t stable, her current weight Views greater than the last Views.

$|\phi| = 1$: Series Y_t Unstable, The current views have the same views last weight.

$|\phi| > 1$: Series Y_t Unstable, Views and current have less weight Views past.

Formulation of hypothesis testing shall be as follows: Null hypothesis: $H_0 : \phi = 1$ if it was $|\tau_c| < |\tau_t|$, the time series is unstable.

Alternative hypothesis: $H_1 : \phi \neq 1$ if it was $H_1 : \phi \neq 1$, The decision is the stability of the time series.

The models of the three-test Dickey Fuller expanded are Where he represents Delay period and determine the minimum value (Bourbonnais, 2015, pp. 231-232) criteria: Akaike (AC), Hannan-Quinn (HQ), Schwarz (SC).

➤ **variable LGDP:** The degree of delay by less than the value of the trade-off criteria Compatibility $\rho = 1$ The results of the tests accept the null hypothesis: $H_0 : \phi = 1$ Time chain is It contains the root of the unit if it is not stable, a kind DS with derivative.

➤ **variable LGV:** The degree of delay by less than the value of the trade-off criteria Compatibility $\rho = 1$ The results of the tests accept the null hypothesis: $H_0 : \phi = 1$ Time chain is It contains the root of the unit if it is not stable, a kind DS Without derivative.

Show us the test results (ADF) Acceptance of the hypothesis: Which provides for the existence of the root of unity in the time series, ie, that all time series is stable at the moral level 5%.

8.1. remove the instability of the time series

Reached the results of the previous test to the instability of the time series, and the best practical way to remove the instability is to carry out the differences first class or second class according to the results of statistical tests, and the new form of time series $D(Y_t)$ Where: $D(Y_t) = Y_t - Y_{t-1}$ And re-perform previous statistical tests.

➤ **variable DLGDP:** Lost time series watch one after the application of the differences of the first class to become 28 watch, and follow the chain statement note that it takes a form parallel to the axis intervals, indicating the absence of the problem of the general trend, The results of the tests was rejected null hypothesis: $H_0 : \phi = 1$ And accept the alternative hypothesis $H_1 : \phi \neq 1$ Time chain is stable.

➤ **variable DLGV:** Track chain statement note that it takes a form parallel to the axis intervals, indicating the absence of the problem of the general trend, and the results of the tests was rejected null hypothesis $H_0 : \phi = 1$ And accept the alternative hypothesis $H_1 : \phi \neq 1$. Time chain is stable.

Showed us the results of the root of the unit tests (ADF) Applied to the differences from the first class time series under study, rejected the null hypothesis and accept the alternative hypothesis which provides for the stability of variables.

As the variables under study is stable at the same level, it means the possibility of integrated joint integration in the long term, and to make sure this joint conduct, including integration tests.

8.2. Test co-Integration

On The light of the results of previous tests stability, show that all variables are integrated in the same class as any non-static in their original level, but still in the first difference, so it will converge in the long term this is called co- integration theory on the time series are not static analysis to generate a linear combination is characterized by stillness in the long term.

8.3. co-integration testing

We use the method of Angel -Granger (EG) it relies on two series two time which passes two steps: estimating model and long-term stability of residual study.

8.4. Estimate the long-term model

$$\begin{aligned} LGDP_t &= 0.39 + 0.98LGV_t + \varepsilon_t \\ LGV_t &= -0.03 + 0.99LGDP_t + \mu_t \end{aligned}$$

8.5. Stability residuum

Both models remainders (ε_t, μ_t) as stable in the original level $I(0)$ then

there is a co- integration between variables.

8.6. Error Correction Models (VECM)

Trending variables economic co-integration characterized in the long term towards stability or the so-called status of balance, because of some changes in variables deviate temporarily put on track, and this model uses the error correction in order to reconcile long and behaviors of short-term economic relations.

Form crosses Error correction path for amendment allows the introduction of the resulting changes in the short term in the long-term relationship. We use a method Engle-Granger (EG) it relies on two series points in time.

➤ Model Gross domestic crude

$$DLGDP_t = 0.054 - 0.158 \times \varepsilon_{(t-1)} + 0.114 \times DLGDP_{(t-1)} + 0.370 \times DLGV_{(t-1)}$$

$$(1.58) \quad (-0.98) \quad (0.49) \quad (1.15)$$

$$n = 27 \quad R^2 = 21.09\% \quad F_c = 2.04 \quad (.) : t - student$$

8.7. Statistical Analysis

- The ability of spending Short-term Not moral Because:

$$t_{table} = t_{26}^{0.05} = 2.05 > |t_{calcul} = 1.15|$$

- Not a significant parameter of constant Because:

$$t_{table} = t_{26}^{0.05} = 2.05 > |t_{calcul} = 1.58|$$

- The value of the correction coefficient $\alpha = -0.158$ It is a negative signal in line with economic theory, which shows a causal in the long term change in Total government spending GV toward Change Gross Domestic Production GDP that is Explains in the long-term variable.

- The patch is $\left(6.33 = \frac{1}{0.158} \right)$ 6 years and 4 Months: Once 6 years and 4 Month.

- The value of Fisher $F_{table} = F_{3;23}^{0.05} = 3.03 > F_{calcul} = 2.04$ indicate Non Moral model as a whole, as well as on non a causal in the short term of total government spending GV about GDP.

- The parameter of interpretation of the model about 21.09% It is weak because the GDP Several other indicators affected by oil revenues and such as investing collection, ...

➤ Model Total government spending

| |
|--|
| $DLGV_t = 0.051 - 0.100 \times \mu_{(t-1)} + 0.538 \times DLGV_{(t-1)} - 0.011 \times DLGDP_{(t-1)}$ |
| (2.38) (-0.99) (2.69) (-0.08) |
| $n = 27$ $R^2 = 39.60\%$ $F_c = 5.02$ (.) : <i>t - student</i> |

8.8. Statistical Analysis

- The parameter of GDP Short-term not have a statistically significant because: $t_{table} = t_{26}^{0.05} = 2.05 > |t_{calcul} = 0.08|$ while parameter Limit Constant Morale Because: $t_{table} = t_{26}^{0.05} = 2.05 < |t_{calcul} = 2.38|$

- The value of the correction coefficient It is a negative signal in line with economic theory, which shows a causal in the long term change in Gross Domestic Production GDP Toward Change in Total domestic spending GV that is Explains in the long-term variable.

- The patch is $\left(10 = \frac{1}{0.100}\right)$ The correction once every 10 Years.

- The value of Fisher $F_{table} = F_{3;23}^{0.05} = 3.03 < F_{calcul} = 5.02$ Indicate the moral model as a whole, as well as a causal in the short term of GDP Towards the total government expenditure.

- The percentage of interpretation of the model to the extent acceptable about 39.60%.

8.9. Model diagnosis

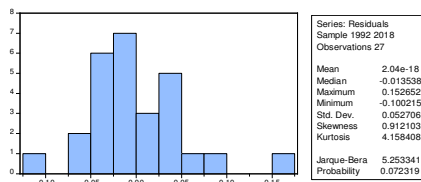
Model free from the problem of self-link errors because:

8.10. Causality test

| Breusch-Godfrey Serial Correlation LM Test: | | | |
|---|----------|---------------------|--------|
| F-statistic | 2.438574 | Prob. F(2,21) | 0.1116 |
| Obs*R-squared | 5.088775 | Prob. Chi-Square(2) | 0.0785 |

| Heteroskedasticity Test: ARCH | | | |
|-------------------------------|----------|---------------------|--------|
| F-statistic | 0.252273 | Prob. F(2,26) | 0.7789 |
| Obs*R-squared | 0.552049 | Prob. Chi-Square(2) | 0.7588 |

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|-----------|----------------------|----------------|--------------|
| C | 0.000463 | 3.976986 | NA |
| E2(-1) | 0.010186 | 1.184303 | 1.179017 |
| DLGDP(-1) | 0.021806 | 5.371225 | 2.204098 |
| DLGV(-1) | 0.040027 | 8.162275 | 2.061892 |



of link errors Model free from the problem because self
 Prob. Chi - Square(2) = 0.0785 > 0.05
 $H_0 : \rho = 0$

the problem of instability of variation because
 Prob. Chi - Square(3) = 0.7588 > 0.05
 $H_0 : \sigma_i^2 = \sigma_j^2, i \neq j$
 All Views spending have the same weight in influencing

The model does not suffer from the problem of linearity diversity because $VIF > 5$

The model realized the premise of the lack of the arithmetic mean of the residuals because $\bar{\epsilon} = 2.04e-18 \approx 0$ Variables that are not included in the model are not included in the interpretation of spending Residuals normal distribution b - y tracking
 $JB = 5.25 < \chi_{0.05}^2 = 5.99$

See a causal From Gross Domestic Production toward Total government spending According to Granger test.

9. Conclusion

Followed by the results of the statistical analysis on the variables of the study found that:

- ✓ Each The study variables raw values and it was characterized by violent fluctuations, due to inflation during the study period;
- ✓ We tried to minimize this volatility by use logarithm, were the results of new homogeneous variables significantly, as reflected on the values of the coefficient of variation;
- ✓ We found all the variables are unstable chains in the original form, and stable in the first differences;
- ✓ According to the co-integration testing we reached the possibility of convergence between the variables studying in the long term;
- ✓ Through the model of error correction we have acquired the existence of the effect in the short term between GDP and total domestic spending;

✓ He knew GDP rise marked during the study period due to developmental programs applied by the government Algerian and with This economy is linked to the Algerian hydrocarbon sector, it is vulnerable to fluctuations in the prevailing oil prices Globalism.

✓ Direction Government spending was upward in the Algerian economy through the study period in size or growth where acquired operating expenses on the bulk of the total public expenditure components of achieving superior rates Processing expenses growth during the period 1990-2018.

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