The Main Sources of Inflation in Algeria

Econometric Analysis Using ARDL Test Approach

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Abstract ;

The Algerian economy has been suffering from a low economic growth associated with a relatively high unemployment rates, and the volatility of the inflation rates. This paper aims to reveal and determine the major sources of the inflation trend both in the short and long-term in Algeria. For this purpose, we used ARDL bounds testing approach to investigate the existing of a co-integration relationship between the inflation and its determinants in the long-run.

The econometrics findings denoted that in the long-term, the monetary channel and the nominal exchange rate channel are the main sources of the inflationary pressures at 5% and 1% significant level, respectively.

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1. *Introduction*

Although the inflation rate has been falling in the last two decades in most advanced economies, it is still one of the key problems in many developing economies. Among the economists and policy makers, there is a general agreement about the importance of preparing effectiveness anti-inflation policies. The prices stability is regarded as the most important goals for the monetary policy due to the negative consequences that make the monetary authorities worry about the inflationary pressures such as, the decrease of the standard of living, Inequality redistribution of wealth and income. High inflation rates are usually followed by the uncertainty case, cost-push shock, and affecting the stability and performance of the economy (Sek, Jully 2015, p. 678). It also include a Fiscal beneficial effect on the domestic government debt, restricting the growth mainly by deterring the private investment and preventing market incentives (mohamed, 2009, pp. 26-27). For all this reasons and others, the inflation is still regarded as an important subject that deserve much focusing in the recent empirical studies.

In the light of the complexity of the current environment of the global economic, the inflation rates in many developing countries has become more volatile due to the change in the domestic and external determinants of the inflation. In fact, there are many factors react on each other to determine the trend of inflation. These factors differ from economy to another due to its level of development or its degree of openness.

In order to control the inflationary pressures and devising effectiveness economic policies, we need at first to identify and determine the main sources of inflation (Basher, 2010, p. 2). Studying the determinants of inflation is important given the preceding reasons driven by the high inflation rates. Studying the sources of inflation can help to find out among a number of potential factors, which are dominating and managing the fluctuations of the domestic price index. Other benefits including the ability to prepare more suitable and strength policies that can help the policy makers to achieve the goal of prices stability and supporting the economic growth, the investment and consumption in the same time.

This paper tried to focus on the main determinant of the inflation in the Algerian economy and answering on the following question:

What are the main determinants of inflation in Algerian, both in the short term and long term?

In order to answer the research problem above, we suggest the three following hypotheses:

- **There is a long-term relationship between the inflation and its determinants in Algeria.**

- **The determinants of inflation in the short term differ from the long term.**

- **The oil prices fluctuations affect the inflation indirectly mainly through the monetary channels.**

The objective of this study is to investigate the existing of a dynamic relationship both in the short and long run in addition to estimate the impact of the independent variables on the inflation. For this purpose, we used a dynamic econometric model based on the ARDL bounds testing approach and quarterly data sample sized 72 observations spanning from 2000 to 2017. The model consists the main domestic and external factors that affect the inflation in Algeria which are Money supply, Import prices index, Nominal effective exchange rate, Government spending and the Non-oil real GDP.

2. Background

2.1 Literature review:

Studying the sources of inflation has taken a central position in the economic theory and has played an important role in its development since the 1930s in the past century. The early findings of the economic theory stated there are two mean sources of inflation. Demand-pull inflation that represent the change in the monetary factors (mainly the change in money supply). Cost-push inflation that represent the change in the cost of the production factors (mainly the change of employment price). The demand side (demand-pull inflation) factors feed the inflationary pressures through creating more buying for goods and services, while the supply side (cost-push inflation) factors feed the inflationary pressures through increasing the cost of production (Eftekhari Mahabadi, 2015, p. 114).

As a result of the enormous growth in the international trade and the openness of almost all economies, the empirical studies stated that the inflation is a result of a reaction between two mean groups of factors. Domestic factors that represent the changes in the domestic prices. External factors that represent the changes in the external prices.

The search for the sources of inflation has not stopped in the recent years due to the importance of the inflation. A wide variety and large number of the papers have focused and tried to determine the main factors of inflation either in the oil-producing countries or in the non-oil producing countries over the last years. One might find different results due to the change in the nature of the factors that affect the inflation over time, the different models that used to analyze this impact, in addition to the unique nature of each economy.

A few papers analyzed the relationship between the inflation and its determinants in Algeria. Using a vector error correction model (VECM) and quarterly data for the period 2003-2011, Sami Ben Naceur (2013) examined the main determinants of inflation and tried to clarify the sources of inflation. He concluded that money expansion and import prices variables are the key factors of the inflation and the CPI tend to adjust quickly to its equilibrium in the short-term. In long-term, the money expansion, import prices, non-oil GDP, nominal exchange rate, and oil price are the key factors.

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Kamel Si Mohammed, Kheira Benyamina and Abderrezak Benhabib (2015) estimated the impact of some sources of inflation. ARDL test approach and annual data for the period 1980-2012 were used in the model that consists five independent variables (import price, oil price, money stock, government expenditure and effective nominal exchange rate). Their results have proven the existing of a long-term relationship between the inflation and its determinants. In the short-term, only import prices, oil price and NEER affect the inflation (the external factors).

Using a different methodology, Rachid.Toumache, Khaled.Rouaski and Baderddine.Talbi (2014) used a vector autoregressive (VAR) methodology to study the impact of oil price fluctuations on the inflation. They used only two independent variables in their model, the monetary variable and the oil variable. Their findings revealed lack of causality relationship between oil prices and inflation. According to their results, the inflation does not react dependently to the oil price fluctuations.

Thus, we can note that the previous studies has drawn different findings. Although they have proven the existing of a long relationship between the inflation and its determinants, but they differ in deciding which factor is more influential on inflation in Algeria in comparison with the other factors. This can be attributed to the use of different model and unequal sized samples.

Kamel Si MOHAMMED and Abderrezzak BENHABIB (2016) used annual data and six explained variables of inflation (imports price, oil price, money stock, government expenditure and effective and nominal exchange rates) through applying Ardl approach. Their findings indicated that only the external factors (imports price, oil price and effective and nominal exchange rates) impact inflation has a significant impact in the short run.

A large number of papers focused on this subject in the case of other oil-exporting countries. Mohammed A. Ramady (2009) explained the impact of a group of domestic and external factors on the inflation in Saudi Arabia using a set of common factors such as money supply, nominal effective exchange rate (NEER), oil price, and other uncommon factors such as stock price index and the US interest rate. According to his results, the changes in money supply, interest rate, and nominal exchange rate (depreciation of NEER) are the main causes of inflation.

Sayed Mohamed Alavinasab (2014) examined the main determinants of inflation in Iran. Using a relatively wide interval of data, which included 47 annual observations, Johansen test to investigate the existing of a long-run (co-integration) relationship, and three explanatory variables (money supply, gdp, and oil export revenues). The results supported the existing of a long-run and also indicated that money supply and oil export revenues has a positive impact on the inflation rate, while gdp has a negative impact.

Anfofum Abraham Alexander, Afang Helen Andow and Moses Gosele Danpome(2015) analyzed the determinants of inflation in Nigeria using annual data for the period 1986-2011. The Granger causality test the existing of a feedback relationship between inflation and its determinants. The estimation results denoted that variables (fiscal deficits, exchange rate, import of goods and services, money supply and agricultural output) are the main determinants of inflation in the long- run. However, in the short-run, only interest rate affect the inflation.

Using non-stationary panel data models, Syed Abul Bacher and Elsayed Mousa Elsamady (2010) analyzed the major sources and the transmission of the inflation in the Gulf countries. Their findings denoted that money supply is the significant determinant of inflation both in the short-run and in the long-run. They also indicated that the exchange rate is considered as one of the key factors of inflation in the long-run.

2.2 *Analysis the trend of inflation (2000-2017):*

For the most of oil-exporting countries, the domestic economy is characterized by its heavy dependent on the oil revenues, which dominate the other sources of national income. This dependency is regarded as the main source of the business cycles and the volatility in the inflation rates.

Algeria, as one of OPEC members, has an economy depends heavily on the hydrocarbon sector, suffered from the inability of the monetary policy to keep the inflation pressures under control.

As a result of the first oil shock in the mid of 1980s, Algeria passed on a decade full of combined problems, such as the political crisis, social tensions, and a persistent recession and historical inflation rates in the 1990s. The inflation rate increased from 5.91 percent in 1985 to its pick level at 31.67 percent in 1992. The average rate during this decade was up to 12.13 percent. The inflation's trend in this period was a inevitable result of the transformation from the central economy to the market economy and an normal reflection to adopting restrictive fiscal and monetary policies. This new approach required applying strict procedures such as reducing public investment, depreciations of the local currency (Dinar), and rising the interest rate.

Start from 2000, Algeria has experienced a period of high oil prices that helped the authorities to make an economic reform through increasing its spending and expanding of public investments. Although the Algerian economy has not experienced the double-digit rates during the period 2000-2017, the average rate was up to 3.35%. The inflation fluctuated in the range between 0.34% in 2001 (as a low level) and 8.89% in 2012 (as a high level).

2.3 *The relationship between Oil prices and inflation in Algeria (how the oil prices fluctuations affect the inflation rates?):*

Algeria has a small open economy, which has been depending highly on the hydrocarbon sector growth. During the period, which is characterized by the highest levels of oil prices starting from 2000 until the mid of 2014, the hydrocarbon sector accounted for 36 percent of overall growth, 69 percent of total fiscal revenues, and 97 percent of total exports (IMF, May 2016, p. 4).

The previous figures indicate the important role of the hydrocarbon sector and the significant impact of oil fluctuations on the Algerian economy. In this section, we shall try to clarify the transmission channels that oil prices fluctuations pass-through into inflation and how the oil price volatility affect the stability of prices in the Algerian economy.

Despite the researchers in the previous mentioned papers have stated that oil prices volatility has a direct impact on inflation in Algeria, they did not explain its channels. Therefore, we suggest the following approach to explain and understanding the real effect of oil price fluctuation on the inflation in Algeria as follows:

Figure 1. The effect of high oil prices on the inflation in Algeria
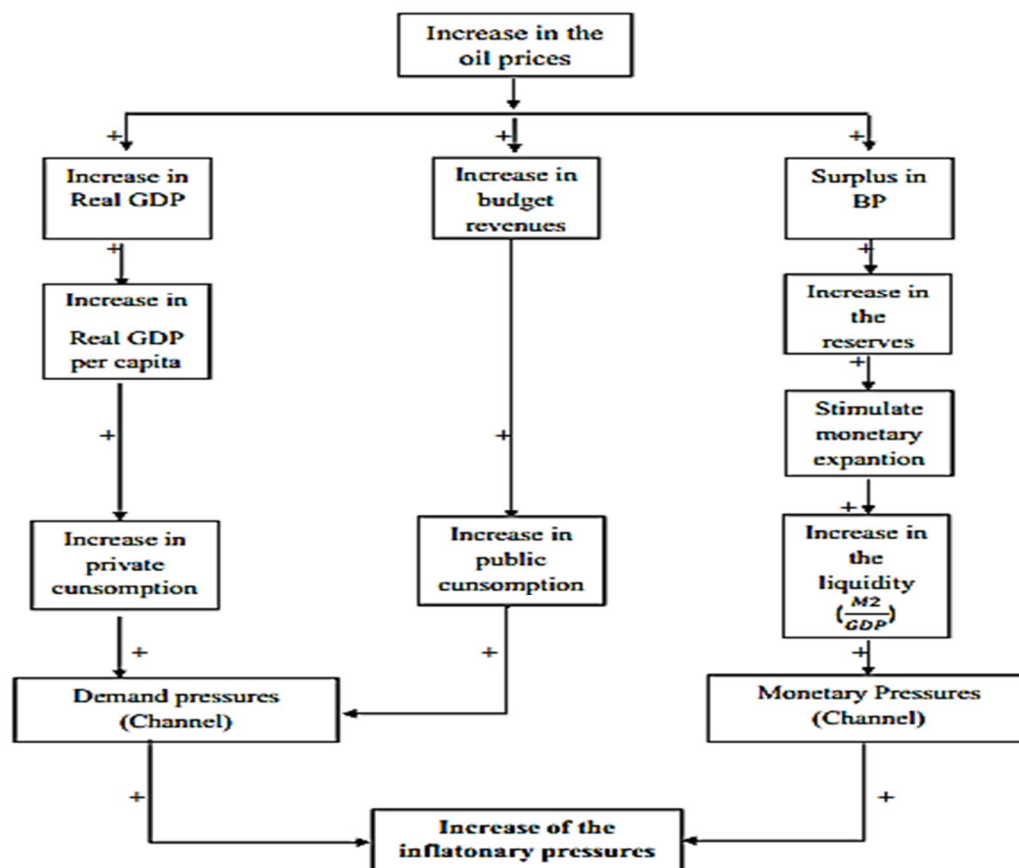
Source: Prepared by the authors based on the nature of Algerian economy

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The oil prices fluctuations affect the Algerian economy directly through three key macro indicators; real GDP, Budget revenues and the exports revenues, to move this impact next to the other indicators. Set our Focus only on the impact of the oil price changes on the inflation, it is obviously that its affect pass-through two main channels, monetary channel and demand channel as seen above.

Monetary channel: Any increase in the oil prices stimulate a similar increase in money stock (monetary expansion) starting from the surplus in the trade account (exports exceeds import) which help to create a similar surplus in the balance of payment. This surplus rises the foreign assets of the central bank (Bank of Algeria) and then expand its budget which necessarily leading to create more money, and high levels of liquidity in the economic measured by the ratio ($\frac{M2}{GDP}$), finally, this mechanism is translated into a higher level of CPI.

Demand channel: The inflationary pressures through this channel come from two main sources. At first, the increase in the hydrocarbon taxes stimulate an expansion fiscal policy in terms of government spending, both capital and consumption expenditures. Secondly, the increase in real GDP is followed mainly by an increase in real GDP per capita, and by a limited increase in investment. Thus, these two aggregate spending components (final consumption) increases, and consequently leading to stimulate the demand pressures, which are translated into a high inflation rates.

Note that the reason we eliminated the impact of the investment demand in this framework is that the private investment in Algeria is still weak to affect the aggregate demand in addition to its dependence on the imports sector.

3. *The Methodology and The empirical study*

In this section, we will develop an econometric model using ARDL Bounds Testing Approaches depend on the macroeconomic theory and the literature review. The proposed model will represent an attempt to evaluate the impact of both the external and domestic factors on the inflation in Algeria, both in the long and short-run. The study uses ARDL Bound Test to find out a co-integration relationship between the inflation and its determinants.

3.1 Data and the Econometric Methodology

The study uses quarterly data. Its sample comprises 72 observations spanning from 2000 to 2017. The World Bank (World Bank indicators-WDI) and Office of National Statistics (ONS) databases are the main sources of these data. Annex.1 shows the descriptive statistics of the variables.

In the light of the theory, previous studies, and the nature of the Algerian economy, we propose the next model contains the common determinants of inflation in order to determine the dominating

factors that influence the inflation trend both in the short and lon-run. For this purpose, we suggest the following model that contains six variables as follow:

LCPI = ƒ (LMONEY, LGOV, LNON-OIL GDP, LIMPO, LNEER)

Table 1. Description of the Model's Variables

Variables	Definition	Channel	Expected singe
Dependent Variable			
LCPI	Logarithm of Consumer Price Index (CPI). used as a proxy of inflation		
Independent Variables			
Domestic factors			
LMONEY	Logarithm of broad money (Bank of Algeria called it M2).	Monetary channel	+
LGOV	Logarithm of real government spending	Demand channel	+
LNon-oil GDP	real GDP of the non-oil sector	Supply channel	-
External factors			
LIMPO	Logarithm of import prices index	Import prices channel	+
LNEER	Logarithm of Nominal effective exchange rate	Exchange rate channel	+

Source: Prepared by the authors

The ARDL model is characterized as a co-integration approach testing the existing of a level relationship between a dependent variable and a set of independent variables, whether they are trend or first difference stationary. (M. HASHEM PESARAN, 2001, p. 289). It has some advantages in comparison with the other co-integration approaches. The following mathematical form is proposed to represent the ARDL inflation model:

$$\Delta LCPIt = \beta 0 + \sum_{i=1}^{n} \alpha i \Delta LCPIt - 1 + \sum_{i=0}^{n} \alpha i \Delta LMONEYt - 1 + \sum_{i=0}^{n} \alpha i \Delta LGOVt - 1$$

$$+ \sum_{i=0}^{n} \alpha i \Delta LNONOIL\ GDPt - 1 + \sum_{i=0}^{n} \alpha i \Delta LIMPOt - 1 + \sum_{i=0}^{n} \alpha i \Delta LNEERt - 1$$

$$+ \beta 1 \Delta LNEERt + \beta i \Delta LCPIt - 1 + \beta i \Delta LMONEYt - 1 + \beta i \Delta LGOVt + \beta i$$

$$- 1 \Delta LNONOIL\ GDPt + LIMPOt - 1 + \beta i \Delta LNEERt + \varepsilon i$$

Where: **βi** Are the long-term coefficients of the variables.

Δ: Denotes of the differences

εt : Are the error terms.

3.2 Unite root tests:

Applying ARDL models requires at first step determining stationary of all-time series. In the dynamic time series analysis, Unite root test is regarded as a necessary step in order to avoid the spurious regression. Therefore, we should to confirm the degree of stability of each time series before using this approach. In order to do this, we used Philips Peron test (PP) test. The unite root test is based on two hypotheses as follows:

The null hypotheses: (H_0): the time series has a unite root

The alternative hypotheses: (H_1): the time series does not has a unite root.

Table 2. The PP test of unite root results

Time series	Level		First difference		I(d)
	Constant	Constant, Linear Trend	Constant	Constant, Linear Trend	
LCPI	-2.27(0.99)	-1.37(0.87)	-3.01**(0.04)	-3.44***(0.05)	I(1)
LMONEY	-3.17(0.03)	-0.71(0.97)	-2.76***(0.07)	-3.06***(0.09)	I(1)
LGOV	-1.017(0.74)	-1.15(0.91)	-2.93**(0.04)	-3.01***(0.09)	I(1)
LNon-oil GDP	-1.63(0.46)	0.89(0.99)	-2.87***(0.08)	-3.00***(0.09)	I(1)
LIMPO	-2.57(0.10)	0.36(0.99)	-2.86***(0.06)	-3.63**(0.03)	I(1)
LNEER	0.96(0.99)	-.48(0.98)	-3.03**(0.04)	-3.50**(0.04)	I(1)

*MacKinnon (1996) one-sided p-values **, *** Significant at 5% 10% respectively

Source: Calculated by the authors using Eviews 10.

As can be seen from the results given in table above, we can note that all-time series are non-stationary. At level, the PP test confirmed the null hypothesis (H0) of no stationary (rejected the alternative hypotheses (H1) of stationary) for all the time series. At the first difference, the test rejected H0 (confirm (H1)). It is, therefore, all the variables are integrated of order one (I (1)). These results allow us to move on to the second step in developing ardl model.

3. 3 Co-integration test:

As previously mentioned, the ARDL bound testing approach is a test designated to find out whether there is a long-term relationship between a dependent variable and its determinants or not. It is based on standard F- and t-statistics to test the significance of the lagged levels of the variables (M. HASHEM PESARAN, 2001, p. 289). This approach depends on the bound test, and the following hypotheses:

$$H_0: \beta 0 = \beta 1 = \beta 2 = \beta 3 = \beta 4 = \beta 5 = \beta 6 = 0$$

H_1: $\beta0 \neq \beta1 \neq \beta2 \neq \beta3 \neq \beta4 \neq \beta5 \neq \beta6 \neq 0$

Table 3. The Bound test results

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signifiant.	I(0)	I(1)
F-statistic	12.71627	10%	2.08	3
		5%	2.39	3.38
K	5	2.5%	2.7	3.73
		1%	3.06	4.15

Source: Calculated by the authors using Eviews 10.

The results of bound test above indicated the existing of a long-term (co-integration) relationship between LCPI and the dependent variables since F-Statisstic value is greater than the critical value of the upper bound (I(1)) at the 1% level of significance (12.71 > 3.06). This result support H1 hypothesis (rejected H0).

3. 4 Results and Discussion :

Tables.4 and.5 shown the results of the estimation process. It contains two types of equations, the short-run or error correction equation and the long-term or co-integration equation.

Table 4. The **Short-run estimation results**

Variable	coefficient	Std. Error	t-Statistic	Prob
D(LCPI(-1))	0.288211	0.065923	4.371948	0.0001
D(LIMPORT)	-0.059956	0.016701	-3.589917	0.0009
D(LIMPORT(-4))	-0.062163	0.015541	-3.999973	0.0003
D(LM2)	-0.099337	0.020145	-4.931156	0.0000
D(LNEER)	-0.064567	0.028438	-2.270437	0.0289
D(LNEER(-4))	-0.125003	0.028911	-4.323776	0.0001
D(LNOILGDP(-4))	0.038737	0.069487	5.574692	0.0000
D(LRGOV(-4))	0.013574	0.043072	3.151334	0.0032
CointEq(-1)*	-0.118786	0.011700	-10.15228	0.0000

Source: Calculated by the authors using Eviews 10.

In the short-run, LCPI (domestic prices index) is determined mainly by the first lag of the change in domestic prices D(LCPI(-1)) and the changes in the nominal effective exchange rate D(LNEER), and limited by the changes in the other variables. These results indicate that all the independent variables included in the model have significant but different impacts on the domestic price (LCPI) in the short-run.

The error correction term value (CointEq(-1)= -0.1188) is negative and significant. It represents the speed of adjustment (11.87% each quarter). It means that the correction process needs 8.4 quarters (about 3 years) to complete. Although this rate is relatively low, this result seem to be deeply compatible with the econometric theory.

Table 5. The **Long -run estimation results**

Variable	coefficient		Std. Error	t-Statistic	Prob
LIMPORT	-0.027838	0.082459		-0.337603	0.7375
LM2	0.324801	0.158350		2.051160	0.0472
LNEER	0.445071	0.122567		3.631236	0.0008
LNOILGDP	0.021399	0.222817		0.096036	0.9240
LRGOV	-0.023973	0.176222		-0.136040	0.8925
Constant	-2.143560	2.345948		-0.913729	0.3666
R^2	0.999965	Adj-R^2		0.979939	
F-stat	38731.32	D-W stat		1.954931	
	(0.00000)				
S.E	0.001652				

Source: Calculated by the authors using Eviews 10.

In the long-term, LCPI is determined only by two main variables, LNEER and LM2, while the other variables are insignificant. If LNEER and LM2 increase by one percent on average, they lead to a similar increase in the LCPI by 0.45 and 0.32 percent respectively. These results support the monetary theory and reflect well the impact of the enormous growth in money stock during the study period.

The independent variables included in the model explained 97.99% of the changes in the LCPI. F-stat is significant and D-W statistics indicated that the model is free from the autocorrelation. Jacque-Bera Test indicated the residuals appear to be normally distributed. LM and Breusch-Pagan-Godfrey tests indicted no evidence of autocorrelation and heteroskedasticity respectively.

Tab.6. The Econometric tests' results

Test	Value	Prob
Breusch-Godfrey Serial Correlation LM Test (F-statistic)	0.707717	0.4995
Heteroskedasticity Test: Breusch-Pagan-Godfrey (F-statistic)	0.627521	0.8987
Normality test Jarque-Bera	0.198022	0.905733

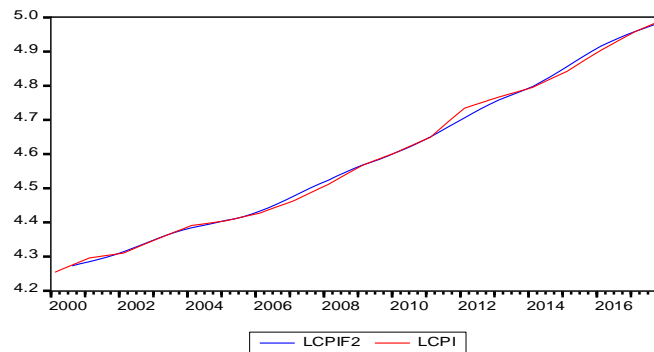**Source: Calculated by the authors using Eviews 10.**

The plots of CUSOM test shown in figures 1 is inside the critical bounds at 5% of significance. It confirm the structural stability of the estimated parameters. Finally, we can note from the figure.3, which shows the plots of actual and fitted LCPI that the model estimated tracks the domestic prices very well. It is very clear that the two graphs are approximately identical.

Fig.2. Plot of CUSUM Test
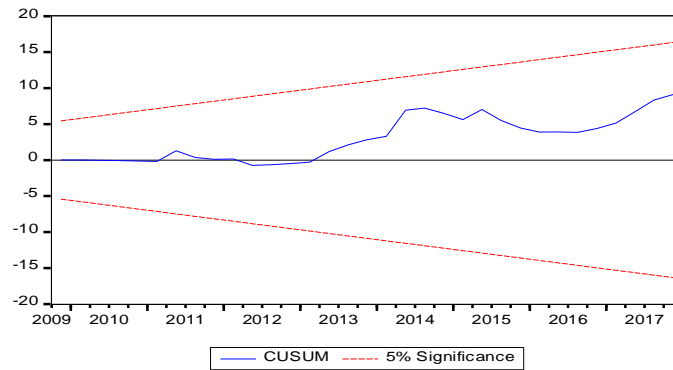
Source: Prepared by the authors using Eviews 10.

Fig.3. Actual and Fitted LCPI

Source: Prepared by the authors using E-Views 10.

4. *CONCLUSION*:

In this paper, we tried to reveal the main factors that affect the inflation movements in Algeria, both in the short-run and long-term. For this purpose, we used the dynamic time series analysis. ARDL Bounds Testing approach was used to find out the existing of long-term (co-integration) relationship. This analysis was different in comparison with the past similar studies in the case of Algeria . We proposed an indirect relationship between the oil prices fluctuations and the inflation in Algeria through two main channels, the monetary channel, and the demand channel. Thus, the proposed model did not consist the oil prices as an explained variable of the inflation due to the absence of a direct relationship between them.

The relationship between oil prices and inflation in Algeria appears to be indirect relationship. The impact of oil prices on the domestic prices pass-through two channels. The monetary channel appears to be the main channel but the demand channel is also stay a key channel.

The results of the econometric study denoted the existing of a long-term relationship between the LCPI (as a proxy of the inflation) and the independent variables, LM2, LGOV, LNON-OIL GDP, LIMPO, LREER.

In the short-run, the domestic prices index is determined mainly by the changes in the first lag of the change in domestic prices D(LCPI(-1)) and the changes in the nominal effective exchange rate D(LNEER), and limited by the changes in the other variables.

In the Long-term the domestic prices index is affected only by two main variables, money stock (LNEER) and the nominal effective exchange rate (LM2). While the other variables have no significant impact. This results reflected well the indirect impact of the oil prices on the domestic prices through the monetary channel (look at the figure.1), and represent well the charastiristcs of the Algerian economy which depends heavily on the forigne goods (imports) both for consumption or investment.

The results above revealed that the inflation fluctuations in Algeria reflects the fact of the heavily dependency on the oil sector in addition to the failure of the monetary policy to control the inflation factors and sterilizing the impact of high oil prices on the domestic prices through the monetary channel.

The Algerian government must reduce the heavily dependence on the oil sector, creating a new strength growth model that can stimulate the investment in the other productivity sectors in order to diversify the economy, and reducing its dependence on the foreign goods (import). These necessary procedures can lead to diminishing the impact of foreign (external) factors (oil prices, import goods prices, and exchange rate) on the domestic prices. This target can also help to reduce reliance on devaluation of the local currency (Dinar) which considered as the main factor of the inflationary pressures in the long-term.

As for the Bank of Algeria, as a monetary authority must take action over the inflationary pressures through determining clearly its objective about the inflation (the inflation target) in addition to preparing effective monetary policies and reducing the money growth.

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6. *Appendices*

Figure.1. Impulse response of LCPI

Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.
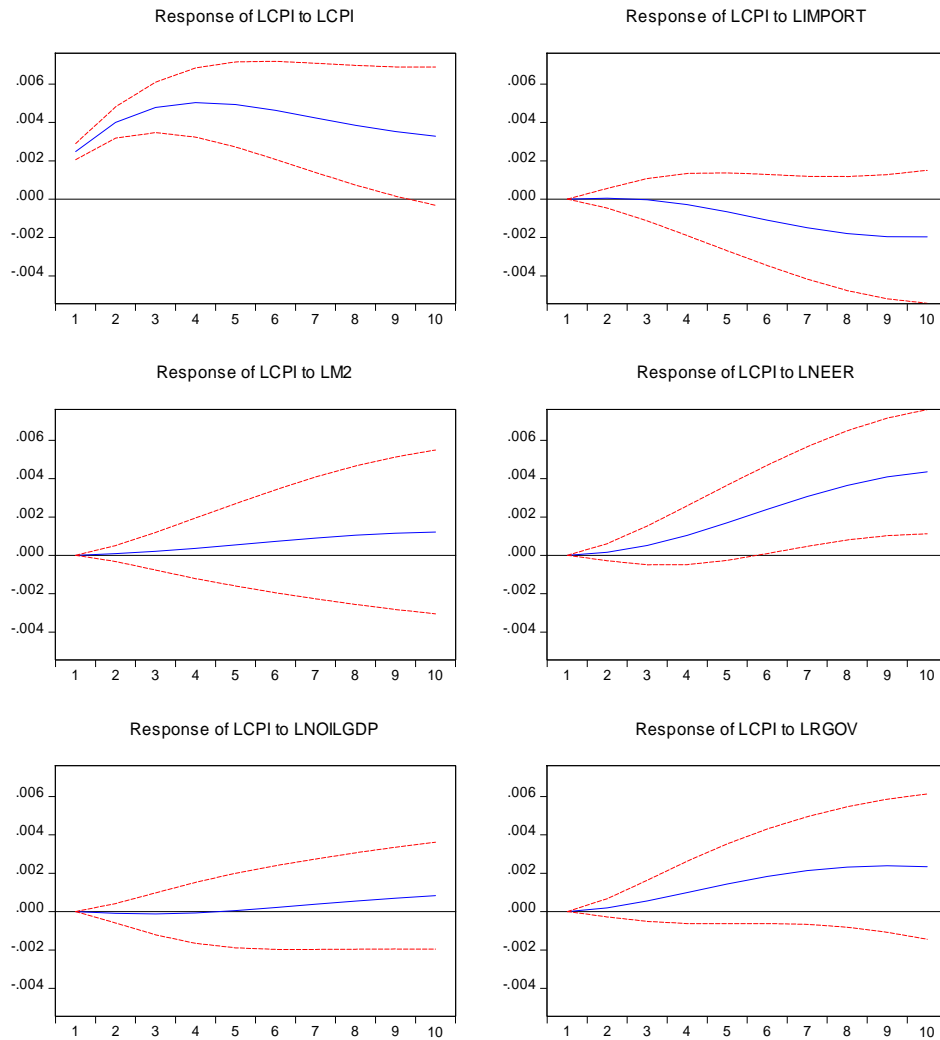
Source: Prepared by the authors using Eviews 10.

Table.1 Variance Decomposition of LCPI

Period	LCPI	LIMPORT	LM2	LNEER	LNON-OILGDP	LRGOV
1	0.002480	0.000000	0.000000	0.000000	0.000000	0.000000
	(0.00021)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
2	0.003998	4.59E-05	8.77E-05	0.000158	-8.38E-05	0.000199
	(0.00041)	(0.00026)	(0.00021)	(0.00022)	(0.00025)	(0.00024)
3	0.004781	-3.39E-05	0.000213	0.000515	-0.000116	0.000558
	(0.00066)	(0.00055)	(0.00049)	(0.00051)	(0.00055)	(0.00054)
4	0.005034	-0.000282	0.000366	0.001047	-6.54E-05	0.000999
	(0.00090)	(0.00081)	(0.00079)	(0.00077)	(0.00080)	(0.00081)
5	0.004934	-0.000661	0.000543	0.001698	5.35E-05	0.001446
	(0.00111)	(0.00102)	(0.00108)	(0.00098)	(0.00097)	(0.00104)
6	0.004629	-0.001092	0.000729	0.002397	0.000212	0.001839
	(0.00128)	(0.00119)	(0.00134)	(0.00115)	(0.00109)	(0.00123)
7	0.004237	-0.001494	0.000904	0.003069	0.000384	0.002140
	(0.00142)	(0.00134)	(0.00159)	(0.00130)	(0.00118)	(0.00140)
8	0.003848	-0.001798	0.001049	0.003649	0.000552	0.002326
	(0.00156)	(0.00149)	(0.00181)	(0.00143)	(0.00125)	(0.00157)
9	0.003521	-0.001962	0.001153	0.004089	0.000703	0.002392
	(0.00169)	(0.00162)	(0.00199)	(0.00153)	(0.00133)	(0.00173)
10	0.003284	-0.001967	0.001217	0.004360	0.000832	0.002343
	(0.00180)	(0.00173)	(0.00214)	(0.00162)	(0.00139)	(0.00189)

Cholesky Ordering: LCPI LIMPORT LM2 LNEER LNOILGDP LRGOV

Source: Calculated by the authors using Eviews 10.

Table.2 Descriptive statistics of the variables

	LCPI	LIMPORT	LM2	LNOILGDP	LNEER	LRGOV
Mean	4.584206	5.776878	15.73387	8.813484	4.380280	13.58914
Median	4.560006	6.064307	15.78205	8.818277	4.332688	13.61326
Maximum	4.990024	6.459517	16.60183	9.648740	4.746540	13.90679
Minimum	4.254761	4.605170	14.51984	7.826842	4.167905	13.20697
Std. Dev.	0.221149	0.602090	0.629803	0.592056	0.153958	0.231484
Skewness	0.258838	-0.661811	-0.311113	-0.098037	1.255475	-0.108650
Kurtosis	1.767516	1.951480	1.754368	1.590812	3.354482	1.435889
Jarque-Bera	5.361010	8.554100	5.816298	6.072766	19.29158	7.480992
Probability	0.068529	0.013884	0.054577	0.048008	0.000065	0.023742
Sum	330.0628	415.9352	1132.839	634.5708	315.3802	978.4182
Sum Sq. Dev.	3.472400	25.73834	28.16231	24.88769	1.682920	3.804524
Observations	72	72	72	72	72	72

Source: Calculated by the authors using Eviews 10.