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THE LONG RUN EFFECTS OF OIL PRICES ON ECONOMIC GROWTH: THE CASE OF LIBYA

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ABSTRACT

The aim of this paper is to study the impact of price shocks on economic growth in Libya using a sample of annual observations from 1990 to 2016. We apply autoregressive distributed lag (ARDL) models for the analysis of long-run relations between variables. Our estimates suggest that oil price increases have a statistically significant and positive effect on the economic growth of Libya. However, that the positive change 1% in the shock of crude oil prices has a positive impact on Libya's GDP by 0.29%. In addition, the error correction (ECM) results showed that 68% of the imbalance from the previous year's shock converges to the long-term equilibrium in the current year. Overall, the results indicate that crude oil prices have had a positive impact on economic growth in the long-term, while trade openness and imports have had a negative impact on economic growth. Finally, to overcome the impact of fluctuations in oil prices, long-term plans should be initiated to diversify the Libyan economy and gradually reduce dependence on the oil.

Contribution/ Originality: The paper's primary contribution is to identify the long run effects of oil prices on Libyan economic growth. It is hoped that the findings of this study will contribute positively to the formulation of policies designed to the performance of the Libyan economy.

1. INTRODUCTION

Oil is one of the most important economic variables that take into account in the design and implementation of economic policies or the interpretation of some cases and phenomena experienced by the economies of oil-exporting countries, which depend on it as a major source of revenue and support its economy. Impact shocks of oil price on economic growth is the subject of many economists because shocks of oil price create long-term economic effects (Akıncı *et al.*, 2013). Doğrul and Soytas (2010) the relationship of oil price shocks to global economic growth has attracted the attention of academic researchers since the early 1980s. In this context, Hamilton believes that changes in oil prices are responsible for 99 % of the deterioration of economic growth, especially in oil-producing countries (Hamilton, 2009). Since the recession in 1970 was due to the increase in oil prices, the oil sector has become one of the most important global economic indicators, and the relationship between oil and economic activity is mostly investigated through international oil prices. Therefore, the rise or fall in oil prices is important to the global economy and can have a positive or negative impact on various indicators of economic performance, such as economic growth. The impact on shocks on economic growth varies depending on the source of the shock (Bjørnland, 2009). Several studies have confirmed that a high oil prices have strong and negative consequences of some economies. A number of authors found that there is a negative correlation between high oil prices and economic activity (Bjørnland, 2000; Rafiq *et al.*, 2009; Hamilton, 2011).

The results were largely in opposition to the prevailing view among many economists in the 1980's that oil price shocks were the main cause of stagnation and inflation in the 1970's and prompted many economists to explore new mechanisms for amplification. The main idea of the researcher was that the response of the economy to the positive and negative shocks to oil prices, as the shock of positive oil prices generates a large recession, while negative oil price shocks have a slight impact on economic performance. In 1983, Hamilton found that most of the post-World War II US economic recession was caused by an increase in oil prices. There is widespread concern that large price shocks are slowing growth in oil-importing countries and exporting countries. There was a widely accepted negative correlation between oil price shocks and economic growth. According to Hamilton, oil prices increase the growth of the US economy during the period from 1948 to 1980 (Sauter and Awerbuch, 2003).

In the early 1970's, commodity prices rose sharply, exacerbating the effects of economic growth and inflation. Most oil economists concluded that most of the post-World War II US recession, caused by the recession in 2001, was caused by large increases in oil prices. Every time oil prices have risen over the past four decades, it has caused a recession in the global economy. For example, since 1973, when the OPEC countries stopped taps on about 8 percent of world oil supplies by reducing shipments of the United States (Mehrara, 2007) and Aimer (2017;2018). The global recession of 1974/75 was caused by three-fold increases in oil prices after the Iran-Iraq war. While some empirical estimates of the impact of the 1973/74 oil shock suggest an impact on GDP of 7 percent, other researchers found it difficult to reconcile the magnitude of this effect with the smallest share of oil in the gross national product (GDP) of 1.5% (Papapetrou, 2001) and Aimer (2016).

The global recession broke out in 1980-1981 during the subsequent war with Iraq and Iran's revolution. The unrest in Iranian production during the revolution led to higher crude oil prices, causing a recession in the North American economy in the mid-1980. Prices fell in 1986 due to the supply shock that followed OPEC's increase in production. There was no change in the growth of the economies of industrialized countries in 1986. The US economic recession during the period 1990-1991 was partially attributed to the increase in oil prices following the war between Iraq and Kuwait in mid-1990. Kilian (2009) that the effects of high oil prices on real gross domestic product and consumer price inflation in the United States depend on the reason for the increase in oil prices. The global and US recession in 2001 was partly due to the sharp rise in oil prices following the tensions in the Middle East and the California energy crisis of 2000 (see Aimer (2019). The graph below shows the relationship between oil prices and inflation for the period from 1946 to 2017 (Partial) Figure 1.

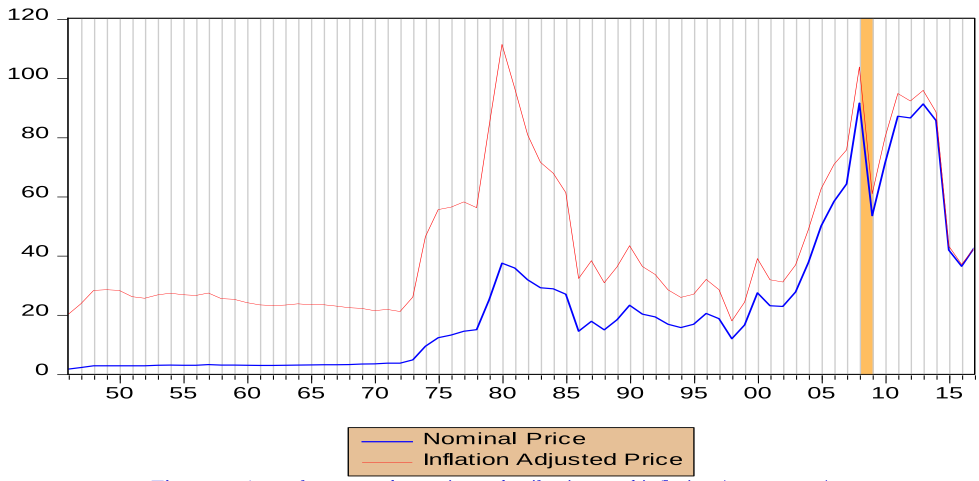

Figure-1. Annual average domestic crude oil prices and inflation (1946- 2017).

Overall, oil price shocks have played an important role in the impact on economic activity and inflation. In particular, many economists tend to worry more about output than inflation during the oil shock period in 1970 and when formulating the policy of oil shocks did not take into account the inflationary side. In addition, these subsequent oil fluctuations did not cause changes in inflation, output growth, or unemployment (see Cunado and De Gracia (2005).

2. DESCRIPTIVE ANALYSIS

The data used in this study were derived from various sources, crude oil, GDP, trade openness, trade balance, and imports. The graph below shows the direction of the variables between 1990 and 2016 Figure 2.

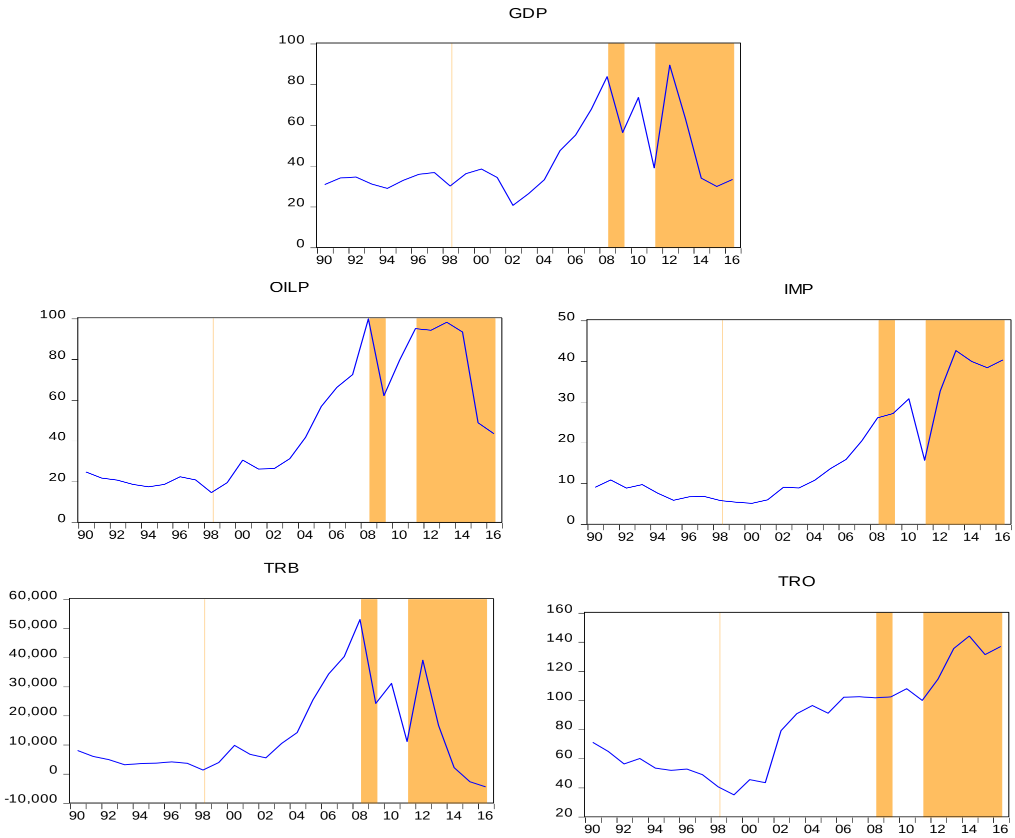

Figure-2. Variables used in the analysis.

3. EMPIRICAL MODEL AND DATA

The model includes five variables represented in gross domestic product (GDP); crude oil price (OILP); imports from goods (IMP); trade openness (TRO); and trade balance (TRB). As for the reason for choosing these variables, four of them were adopted because they directly affect the economic growth impact of gross domestic product (GDP); crude oil price (OILP); imports from goods (IMP); trade openness (TRO); and Trade balance (TRB), as an important and essential element in Libyan economic life, and an essential contributor to economic growth. Table 1 shows the definition of data.

Table-1. Definition of variables.

Variable	Definition
OILP	Crude oil price/ year Cushing ok WTI spot price FOB dollars per Barrel Data source: Thomson Reuters, https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=rwtc&f=a
GDP	Gross domestic product/ Data is in current U.S. dollars. (billion US dollars) Source: World Bank. The primary World Bank collection of development indicators, compiled from officially-recognized international sources. It presents the most current and accurate global development data available, and includes national, regional and global estimates. https://knoema.com/search?query=gdp%20of%20libya
TRO	Trade openness%, % (exports plus imports as percent of GDP)/ "Merchandise trade as a share of GDP is the sum of merchandise exports and imports divided by the value of GDP, all in current U.S. dollars". http://www.theglobaleconomy.com/Libya/trade_openness/
IMP	Imports from goods (IMP)/ Imports of goods and services (current US$) million US dollars. Source: World Bank national accounts data, and OECD National Accounts data files. http://www.indexmundi.com/facts/libya/imports-of-goods-and-services
TRB	Trade Balance, million dollars. The trade balance, also known as the balance of trade (BOT), is the calculation of a country's exports minus its imports. https://countryeconomy.com/trade/balance/libya

3.1. Data Collection Methods

The dependent variable of the study is the GDP, Independent variables are crude oil price (OILP), imports from goods (IMP), trade balance (TRB), and trade openness (exports plus imports as percent of GDP) (TRO), these variables have the ability to interpret the dependent variable, i.e., the effect on it by the nature of the relationship between them.

3.2. Stationarity Test

The results of ADF in the table that all variables are unstable at their first levels, as the calculated values are lower than the tabular values at the levels of 1%, 5% and 10% are stable at the level thus accepting the null hypothesis of the existence of the unit root. Therefore, the time series are considered unstable at the level. By repeating the same test for the first difference, the first differences show that all variables have stabilized at levels of 1 percent and 5 percent, from which the null hypothesis is rejected and accept the alternative hypothesis and thus the time series stability at the first level, as the Table 2.

Table-2. Results from augmented dickey-fuller test

At level		GDP	OILP	IMP	TRB	TRO
With constant	t-statistic	-2.6222	-1.3424	0.0192	-1.8795	-0.1028
Constant & trend	t-statistic	-2.8930	-1.5608	-2.0208	-1.7169	-2.4658
Without constant & trend	t-statistic	-0.9016	-0.5048	1.5472	-1.4277	1.0469
At first difference		D(GDP)	D(OILP)	D(IMP)	D(TRB)	D(TRO)
With constant	t-statistic	-7.603***	-5.201***	-6.131***	-6.846***	-4.374***
With constant & trend	t-statistic	-7.553***	-5.200***	-14.135***	-7.080***	-4.482***
Without constant & trend	t-statistic	-7.767***	-5.293***	-5.804***	-6.971***	-4.173***

Notes: a: (***) significant at the 1%. b: Lag length based on AIC.
Source: by the researcher depending on EViews10.

The test (Phillips and Perron, 1988) differs from the previous test in that it does not contain a slow rate of variance, which takes into account the correlation in the first differences in the time series using non-parametric correction, average of zero and a linear trend of time is allowed. However, it is based on the same formulas as the

Dickey and Fuller (1981) test as the same critical values are used. The following table shows the results of the Phillips and Perron test (PP) at the level and the first difference of the variables under study, as the Table 3.

Table-3. Results from Phillips and Perron test

At level	GDP	OILP	IMP	TRB	TRO
With constant	-2.6390*	-1.3424	-0.3174	-1.8715	-0.0184
Constant & trend	-2.8299	-1.5608	-2.2503	-3.1636	-2.4658
Without constant & trend	-0.5760	-0.5048	0.7294	-1.4926	1.1203
At first difference	D(GDP)	D(OILP)	D(IMP)	D(TRB)	D(TRO)
With constant	-7.6047***	-5.2015***	-5.9343***	-7.0363***	-4.3742***
Constant & trend	-7.5412***	-5.2000***	-4.5087***	-7.1572***	-4.4856***
Without constant & trend	-7.7682***	-5.2932***	-5.7148***	-7.1725***	-4.1843***

Notes: a: (*) Significant at the 10%; (***) Significant at the 1%. b: Lag length based on SIC.

For the Philips Peron test, it is clear that the time series is unstable at the level and that it stabilized after taking the first differences. In this step, using the previous three tests. The results of all tests show that all the strings are integrated at the first difference. Thus, the study can use the ARDL test application for the co-integration test to illustrate the long-run relationship between the variables of the study.

4. ESTIMATING REGRESSION MODEL

In order to ensure the condition of the ARDL test application which is represented in degree of integration of time series of study variables, so that the degree of integration of variables must be either in I (0) or I (1). The ARDL model can be formulated as in Equations 1, 2, 3, 4, 5:

$$\Delta(GDP)_t = \alpha_0 + \sum_{i=1}^{m1}\beta_i\Delta(GDP)_{t-i} + \sum_{i=0}^{m2}\gamma_i\Delta(TRB)_{t-i} + \sum_{i=0}^{m3}\lambda_i\Delta(OILP)_{t-i} + \sum_{i=0}^{m4}\theta_i\Delta(TRO)_{t-i} + \sum_{i=0}^{m5}\vartheta_i\Delta(IMP)_{t-i} + \pi_1(GDP)_{t-1} + \pi_2(TRB)_{t-1} + \pi_3(OILP)_{t-1} + \pi_4(TRO)_{t-1} + \pi_5(IMP)_{t-1} + \eta_t \quad (1)$$

$$\Delta(TRB)_t = \alpha_0 + \sum_{i=1}^{m1}\beta_i\Delta(TRB)_{t-i} + \sum_{i=0}^{m2}\gamma_i\Delta(GDP)_{t-i} + \sum_{i=0}^{m3}\lambda_i\Delta(OILP)_{t-i} + \sum_{i=0}^{m4}\theta_i\Delta(TRO)_{t-i} + \sum_{i=0}^{m5}\vartheta_i\Delta(IMP)_{t-i} + \pi_1(GDP)_{t-1} + \pi_2(TRB)_{t-1} + \pi_3(OILP)_{t-1} + \pi_4(TRO)_{t-1} + \pi_5(IMP)_{t-1} + \eta_t \quad (2)$$

$$\Delta(OILP)_t = \alpha_0 + \sum_{i=1}^{m1}\beta_i\Delta(OILP)_{t-i} + \sum_{i=0}^{m2}\gamma_i\Delta(TRB)_{t-i} + \sum_{i=0}^{m3}\lambda_i\Delta(GDP)_{t-i} + \sum_{i=0}^{m4}\theta_i\Delta(TRO)_{t-i} + \sum_{i=0}^{m5}\vartheta_i\Delta(IMP)_{t-i} + \pi_1(GDP)_{t-1} + \pi_2(TRB)_{t-1} + \pi_3(OILP)_{t-1} + \pi_4(TRO)_{t-1} + \pi_5(IMP)_{t-1} + \eta_t \quad (3)$$

$$\Delta(TRO)_t = \alpha_0 + \sum_{i=1}^{m1}\beta_i\Delta(TRO)_{t-i} + \sum_{i=0}^{m2}\gamma_i\Delta(TRB)_{t-i} + \sum_{i=0}^{m3}\lambda_i\Delta(OILP)_{t-i} + \sum_{i=0}^{m4}\theta_i\Delta(GDP)_{t-i} + \sum_{i=0}^{m5}\vartheta_i\Delta(IMP)_{t-i} + \pi_1(GDP)_{t-1} + \pi_2(TRB)_{t-1} + \pi_3(OILP)_{t-1} + \pi_4(TRO)_{t-1} + \pi_5(IMP)_{t-1} + \eta_t \quad (4)$$

$$\Delta(IMP)_t = \alpha_0 + \sum_{i=1}^{m1} \beta_i \Delta(IMP)_{t-i} + \sum_{i=0}^{m2} \gamma_i \Delta(TRB)_{t-i} + \sum_{i=0}^{m3} \lambda_i \Delta(OILP)_{t-i} + \sum_{i=0}^{m4} \theta_i \Delta(TRO)_{t-i} + \sum_{i=0}^{m5} \vartheta_i \Delta(GDP)_{t-i} + \pi_1(GDP)_{t-1} + \pi_2(TRB)_{t-1} + \pi_3(OILP)_{t-1} + \pi_4(TRO)_{t-1} + \pi_5(IMP)_{t-1} + \eta_t \quad (5)$$

The ARDL model shows that GDP can be explained by its lagging values, and the lagging values of independent variables. Joint integration according to Pesaran *et al.* (2001) in ARDL models based on the following hypothesis test:

$$\begin{cases} H_0: \pi_1 = \pi_2 = \pi_3 = \pi_3 = \pi_4 = \pi_5 = 0 \\ H_1: \pi_1 \neq 0, \pi_2 \neq 0, \pi_3 \neq 0, \pi_3 \neq 0, \pi_4 \neq 0, \pi_5 \neq 0 \end{cases}$$

If the calculated F value is greater than the tabular value, in this case the null hypothesis and the acceptance of the alternative hypothesis (there is a co-integration between the variables) are rejected. In contrast, if the calculated F value is less than the crosstab value in this case, the null hypothesis is accepted (no co-integration), the stage involves of estimating the long-term Equation 6.

$$GDP_t = f(OILP_t, IMP_t, TRO_t, TRB_t) \quad (6)$$

Table-4. Estimation model.

Variable	Coefficient	Std. error	t-statistic	Prob.*
GDP(-1)	0.316	0.128	2.466	0.027
IMP	1.365	0.226	6.038	0.000
IMP(-1)	-1.837	0.424	-4.325	0.000
IMP(-2)	0.696	0.242	2.874	0.012
OILP	0.252	0.066	3.767	0.002
OILP(-1)	-0.211	0.079	-2.659	0.018
OILP(-2)	0.158	0.123	1.280	0.221
TRB	0.000	0.000	4.766	0.000
TRO	-0.431	0.078	-5.501	0.000
TRO(-1)	0.272	0.105	2.574	0.022
C	22.145	6.152	3.599	0.002
R^2	0.98	Adjusted R^2		0.97
F-statistic	100.39***	DW stat		2.30

Note: ARDL (1, 2,2,0,1) selected based on AIC.

From Table 4, given that the value of the F-statistic is sensitive to the number of lags imposed each time on the differenced variables (Bahmani-Oskooee and Goswami, 2003). Therefore, the appropriate delay length must be determined in the first phase of the ARDL model.

In this stage, the variables are tested with different delay combinations and the lowest value (according to the AIC, SIC or HQ criteria) is selected as the appropriate model according to the information criterion.

The maximum number of lag is one in the analysis and the appropriate delay lengths for the variables were determined according to the Akaike information criterion (AIC) and the Schwarz criterion (SC) as suggested by Pesaran *et al.* (2001).

According to this criterion, ARDL (1,2,2,0,1) model is determined. The results of the model estimated with the least squares method are given in Table 5.

To determine the number of optimal deceleration times, we calculated the Akaike standard for several time decelerations Figure 3.

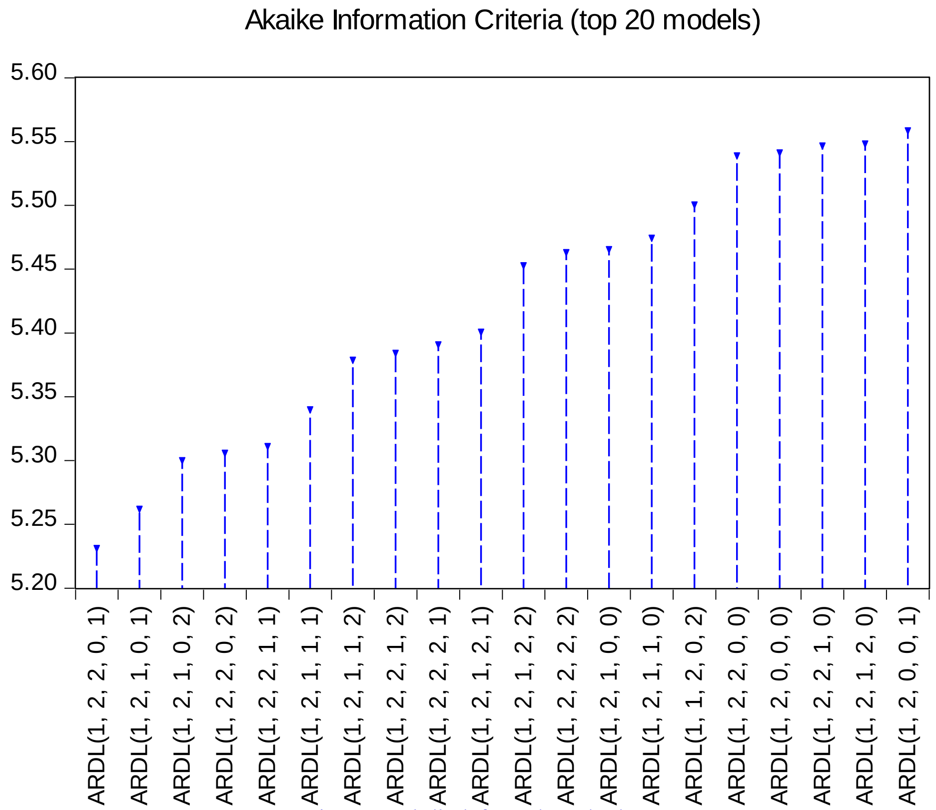

Figure-3. Akaike information criteria.

Depending on Akaike info criterion (AIC), deceleration periods were determined, showing that the model (1,2,2,0,1) is the optimal model. According to the previous points, the optimal standard formula for the model Equation 7:

$$f(GDP_t / IMP_t, OILP_t, TRB_t, TRO_t) \quad (7)$$

Table-5. ARDL Co-integrating and long-run relations.

Variable	Coefficient	Std. error	t-statistic	Prob.
IMP	0,328	0,526	0,624	0,542
OILP	0,290	0,156	1,854	0,084
TRB	0,0008	0,000	8,337	0,000
TRO	-0,231	0,070	-3,267	0,005
C	32,404	2,502	12,949	0,000

Note: ARDL (1, 2,2,0,1) selected based on AIC.

According to the previous points, the optimal standard formula for the model is:

$$GDP = 0.3286{*}IMP + 0.2908\ OILP + 0.0008\ TRB - 0.231{*}TRO + 32.4047$$

Table-6. ARDL bounds test.

F-bounds test		Null hypothesis: No levels relationship		
Test statistic	**Value**	**Sign.**	**I(0)**	**I(1)**
F-statistic	12.07014	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Critical values taken from: Bounds testing to the analysis of level: Pesaran *et al.* (2001) relationships unrestricted intercept and no trend.

From Table 6, F-statistics is greater than the upper bond at 1%, 5% and 10% levels, which indicates the existence of long run relationship, we have to reject the null hypothesis if the value of computed F-statistic is higher than the upper bound value of the Pesaran *et al.* (2001) table at 5% level of significance. We find that our computed F-statistics is 12.070, which is higher than the upper bound values in Pesaran table.

After these results, the standard equilibrium equation is estimated. As shown in Table 6, the long-run estimated elasticity of GDP in relation to the price of crude oil is significant and its numerical value is 0.29, which is consistent with the economic outlook, which indicates the oil prices increase leads to a relative increase in GDP.

The R^2 value is described in the linear regression equation as independent variables, and commodity imports in the dependent variable (GDP in Libya) by 99 percent.

The remaining part of GDP is affected by other macroeconomic variables that only one percent. In terms of oil prices, an important variable in this study, the study found in Equation 1 that GDP is positively correlated with the price of oil and trade balance (TRB), and negatively related to the trade openness. Economic theory says that the value of imports is affected by the level of GDP and that imports are linked to gross domestic product in a direct relationship, that the increase in the level of GDP allows the state to increase the import of goods needed by the population and fill the deficit in domestic production. Overall, all the results of the transactions are correct and are consistent with the economic outlook. In addition to, Equation 1 shows the fixed value of 32.4 that means the dependent variable (GDP) changes by 32.4% with the remaining independent variables remaining constant. It was also noted that oil prices shock has a positive impact on GDP by 10%, and showed that the positive change 1% in the shock of crude oil prices had a positive impact on Libya's GDP by 29%, the remainder percent 71% is due to other factors. Which is consistent with the study (Berument *et al.*, 2010). Table 6 shows the points to the negative effect of imports on GDP as the 1% increase in imports leads to an increase GDP of 32%. Economic theory says that the value of imports is affected by the level of GDP and imports are directly related to GDP. In other words, increasing the level of GDP allows the state to increase its imports of goods needed by the population and fill them with domestic production deficits. While, trade openness has a negative impact on Libya's gross domestic product, since increasing trade openness by 1% will reduce GDP by 23 %, the remainder percent 77 % is due to other factors. This is due to the decrease in the volume of non-oil exports, which still did not exceed 2%. This indicates that Libya, despite all its efforts in the framework of the development of trade outside hydrocarbons, is still suffering from single-export and the problem of dependence on oil revenues. This leads to the search for new policies to build an economy that is resilient to economic fluctuations, planning for the post-oil phase. In addition, the negative impact of trade openness is due to the weakness of the Libyan industrial base and its inability to compete with foreign products, which has increased the pressure on the balance of payments and economic growth.

Overall, the results indicate that crude oil prices and GDP have had a positive impact in long-term on economic growth, while trade openness and imports has had a negative impact on economic growth. After estimating the regression model, we make sure that there is no serial correlation of the model variables.

Table 6, Bounds test results (k=5 is the number of independent variables in the equation, AIC is used at the specified delay length Critical value limits are taken from table C1(iii) of Pesaran *et al.* (2001). Table 6 shows the F-statistic value calculated to test the null hypothesis that there is no co-integration relation between variables and the critical values of Pesaran *et al.* (2001). The F statistic value (17.66) calculated at the 5% significance level is greater than the upper critical limit (5.73). For this reason, it shows that there is a long-term relationship between oil prices and economic growth.

5. DIAGNOSTIC TEST STATISTICS AND ITS INTERPRETATION FOR LONG-RUN

5.1. Diagnostic Test of Serial Correlation for Long Run

The Lagrange multiplier (LM) test is a general test for error autocorrelation. The results below show that the null-hypothesis of no correlation cannot be rejected. The Table 7 shows the results of this test.

Table-7. Results of Breusch-Godfrey serial correlation LM test.

Breusch-Godfrey serial correlation LM test:			Probability
F-statistic	0.7565	Prob. F (1,13)	0.4002
Obs*R-squared	1.3749	Prob. Chi-square (1)	0.2410

Source: The researcher depending on eviews.

From the previous table, the probability of F is 0.40 (greater than 0.05) and this indicates that there is no problem of serial correlation between residues. It is therefore possible to rely on these results to judge the acceptance or rejection of the hypothesis.

5.2. Test for Model Misspecification

Test the appropriateness of determining and designing the estimated model in terms of the vector shape of this model (RESET Ramsey) regression error specification test and the null hypothesis for this test is that the model is not incorrectly specified, as in Table 8.

Table-8. Ramsey RESET test.

Specification: GDP C TRB IMP OILP TRO				
Omitted variables: Squares of fitted values				
	Value	**df**	**Probability**	**Conclusion**
t-statistic	0.6543	13	0.524	Reject H_0 since $0.65 > 0.52$
F-statistic	0.4281	(1, 13)	0.524	

Note: Reject H0 if T stat is greater than P value: * represents the rejection of H0 at 1 percent level of significance.

The Table 8 shows that the value of the T-statistical value (0.654) is greater than the tabular value (0.65). Therefore, we reject the null- hypothesis at the 1 percent level of significance. Thus, the estimation model is good. It can therefore be concluded that the results of this study are reliable.

5.3. Heteroskedasticity Test

Table-9. The results of heteroskedasticity test.

Heteroskedasticity test: Breusch-Pagan-Godfrey			
F-statistic	1.0635	Prob. F(10,14)	0.445
Obs*R-squared	10.792	Prob. Chi-square(10)	0.373
Scaled explained SS	1.8443	Prob. Chi-square(10)	0.997

Source: The researcher depending on eviews10.

In this context, Table 9 shows a breakdown of diagnostic test results. The heteroskedasticity test has R-squared and F statistics, both of which are more than 5%. In addition, the probability value is greater than 5%. Thus, we accept the imposition of nothingness, which assumes that there is no problem of heteroskedasticity, it means that this model has no problem of data heteroskedasticity.

5.4. Parameter Stability Test

In order to ensure that the data used in this study are free of any structural changes, one of the appropriate tests should be used, such as CUSUM and CUSUM of squares Figure 4.

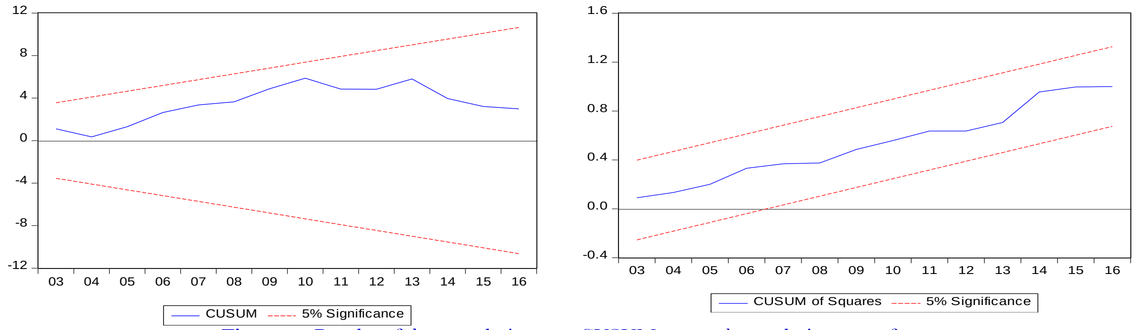

Figure-4. Results of the cumulative sum CUSUM test and cumulative sum of squares.
Source: by the researcher depending on eviews10.

The results showed that we could not reject the null hypothesis because the line falls within the 5% confidence range. Thus, the parameters indicate that the model is stable. It is clear from two tests that there is stability and consistency in the model between long term and short-term results.

6. CONCLUSION

The results of all tests show that the time series of the previous variables proved to be series is unstable at the level I(0) but stable at the first difference at all levels, which means it is an integrated I(1). Moreover, there is a short and long-term relationship between oil prices and study variables, for example that the positive change a 1% in the shock of crude oil prices had a positive impact on Libya's GDP by a 29 % the remainder 71 % is due to other factors and this is consistent with the expectation. Finally, the results showed that each error correction (-1), which represents the speed of adjustment from the short-run deviation to it is the long-term equilibrium after the shock is all negative and statistically significant at 1% operating level. The error correction -0,68 indicate that 68% of the imbalance from the previous year's shock converges to the long-term equilibrium in the current year. To overcome the impact of fluctuations in oil prices, long-term plans should be initiated to diversify the Libyan economy and gradually reduce dependence on the oil sector to avoid the unexpected negative effects of oil price fluctuations, while meanwhile, it is imperative for the government to find alternatives to this commodity.

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