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Fiscal Policy and Economic Balance in Libya

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Abstract:
The aim of this research is to investigate the impact of fiscal policy on the internal and external economic balance in the Libyan economy during the period 1990-2020.To achieve this goal, the research employed the developed ARDL model.The most important results of the research indicated that there is a negative relationship between the fiscal policy index represented by public spending and the two general economic balance indicators represented by the price level represented by the consumer price index as a representative of the internal economic balance in Libya, and the trade balance index used as a representative of the external economic balance in the Libyan economy.
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1. Introduction:

Fiscal policy is distinguished from other economic policies by the tools used, which are public revenues and public expenditures. The position occupied by fiscal policy in the modern era has become more developed than it was in ancient times ad a reason of the great contribution of the great economist Keynes in 1936 through his influential book “The General Theory of Employment, Interest and Money”, that led as a result to a dominantion of demande side policies and to more state intervention in economic activity through fiscal policy.

Since then, the fiscal policy is considered an essential element in the state's economic policy in directing the economic activity. It is related to the volume of public expenditures and public revenues, and seeks to achieve its objectives within the limits of the available resources, in a way that pushes the wheel of development forward, and seeks to achieve general economic balance and development, within the framework of the principles it adopts and the foundations on which it is based.

The economic importance of the fiscal policy lies in view of the active role it plays in raising labor employment rates and achieving economic growth, which in turn contributes to reducing poverty and unemployment rates. State resources between the public sector and the private sector to reach the optimal production volume, and this stimulates investments, which increases the demand for work and reduces unemployment rates.

The fiscal policy also targets other tasks, including protecting local commodities, controlling imports, and maintaining the general level of prices. It can achieve social justice among citizens by redistributing production and incomes. The Libyan economy, which contributes to achieving general balance and economic stability.

The importance of government economic policies, foremost among which is fiscal policy, has emerged in influencing economic activity since Keynes called for the need for state intervention to restore balance at the macro level. As for the effectiveness of fiscal policy, the economic literature indicates that it was the subject of widespread controversy among economists, led by Keynes and the monetarists, where the hard-

line Keynesians emphasized the importance of fiscal policy in influencing production and employment, while the monetarists emphasized the importance of monetary policy in influencing production and employment.

The difference between these two schools narrowed a lot in the seventies and eighties, when the Keynesians recognized that monetary policy affects production and employment, and the critics also recognized that fiscal policy affects production and employment.

Libya has been a substantive producer of oil since the early 1960s, and it makes a significant contribution to the economy from a number of perspectives (Ali & Harvie, 2015). As a result, it became highly dependent on exhaustible and volatile hydrocarbon resources, which constitute the bulk of government revenues (Caceres, 2015).

Considering that Libya is one of the developing countries in which the state intervenes in its economy, this study attempts to identify a standard model test to study the effectiveness of fiscal policy in achieving macroeconomic balance in the Libyan economy during the study period. This study aims to estimate the effectiveness of fiscal policy in the Libyan economy during the period 1990-2020.

2. **Theoretical Background:**

In general, Internal balance is related to the situation of aggregate demand for domestic output that must be equal to the aggregate supply of domestic output at full employment. If this condition is not fulfilled, there will be inflationary pressure or recessionary potential according to whether aggregate demand exceeds or falls short of, the level of full employment output. On the other side, External balance implies that the balance of trade equals (net) capital exports at the fixed exchange parity. If the balance of trade exceeds capital exports, there will be a balance of payments surplus and a tendency for the exchange rate to appreciate, which the central bank restrains by accumulating stocks of foreign exchange. And likewise, if the balance of trade falls short of capital exports, there will be a balance of payments deficit and a tendency for the exchange rate to depreciate, which the central bank prevents by dispensing with stocks of foreign exchange. (Mundell, 1962).

Recent developments in macroeconomic modeling and economic policy challenges have revived the classic debate on the effectiveness and the role of fiscal policy as a tool of macroeconomic stabilization (van der Ploeg, 2005). The effect of Fiscal policy on macroeconomic stability can be achieved through three main channels. The first is what's called "the automatic stabilizer mechanism" which means the automatic reduction in government saving during downturns and increase during upturns, cushioning shocks to national expenditure. This mechanism occurs because tax revenues tend to be broadly proportional to national income and expenditure, whereas public spending reflects government commitments independent of the business cycle and entitlement programs specifically designed to support spending during downturns, including unemployment benefits.Second, governments can use their power to change and manipulate public spending and tax instruments to offset business cycle fluctuations. Third, the structure of the tax and transfer system can be designed to maximize economic efficiency and market flexibility, thereby sustaining the resilience of the economy in the face of shocks. (Debrun & Kapoor, 2010).

A much closer connection between fiscal policy and the business cycle can be found in the traditional Keynesian IS-LM model, which gives the explanation behind the standard prescription for using

countercyclical fiscal and monetary policies to stabilize output. This explanation is the basis of most policy discussions on the need for countercyclical policy. (Fatás & Mihov, 2012).

For the external balance, The relationship between fiscal policy and the current account has always aroused much debate and interest among economic academics and policy makers alike, from various angles. For example, the potential link between the fiscal deficit and the current account deficit has prompted many studies to analyze what is called the "twin deficit" hypothesis, which means a double deficit in the public budget and the current account. For countries where current account imbalances are particularly large, the relevant question has been to what extent fiscal adjustment can contribute to resolving external imbalances (ABBAS, BOUHGA-HAGBE, FATA´S, MAURO, & VELLOSO, 2011).

3. **Empirical study:**

3.1. **Research Methodology**:

3.1.1. **The model**:

The theoretical economic model for this research consists of two models or two equations. Each model will be estimated separately using the single equation system. These equations can be detailed as follows:

3.1.2. **Data and Variables:**

_ Dependent variable

The first dependent variable of the first model represented by equation No. (1) can be represented by the rate of inflation and symbolized by the symbol (INF). This variable was inferred by the consumer price index and symbolized by the symbol (CPI) at the prices of the year 2015, and it is one of the important indicators for representing inflation. The dependent variable in the second model is the trade balance and is symbolized by the symbol (TRB). The value of the trade balance was obtained by subtracting the value of exports from the value of imports. This indicator is used to indicate the external economic balance. Data for the dependent variable were obtained in the first model. Through the source of the International Monetary Fund, the data of exports and imports that were used in calculating the value of the trade balance representing the dependent variable in the second model were obtained through the database of the United Nations Conference on Trade and Development (UNCTAD).

_ Independent Variables

The independent variables in the first model are as follows:

_ Money supply (MNS): It represents the broad sense of money supply, and it is one of the recognized indicators as determinants of local inflation. Data on this variable was obtained from the statistical bulletins of the Central Bank of Libya.

_ Public spending (EXP): It represents the fiscal policy, and the data on this variable were obtained from the Benghazi Economic Research Center.

_Trade openness (TOP): It was calculated by the researcher based on the database of the United Nations Conference on Trade and Development (UNCTAD).

_ The Import Price Index (IPI): the data on it were obtained from the International Monetary Fund (IMF).

The independent variables in the second model are as follows:

_ Public spending: As mentioned previously.

_ Oil prices (OIP): the data for this variable was obtained from the STATISTA database.

_ Gross Domestic Product (GDP): the data for this variable were obtained from the database of the United Nations Conference on Trade and Development (UNCTAD).

_ Trade openness: As mentioned previously.

3.1.3. **The standard method used in the research**:

In this study, we will use the developed ARDL methodology developed by Pesaran & Shin (1998) and Pesaran et al. (2001). It is an important test in determining and studying variables in the long term because this method does not require that the time series be integrated. of the same degree, and Pesaran believes that the cointegration test using ARDL is done through the Bound Test method, which can be applied regardless of the properties of the time series, whether they are stable at their levels (0)I or integral of the first order (1)I or A mixture of the two, the only condition for applying this test is that the time series are not integrated of the second degree (2)I.

The Pesaran method has better properties in the case of short time series compared to other usual methods of cointegration testing such as the Granger-Engle (1987) method with the predicted phase cointegration test in terms of Durbin-Watson (Test CRDW) or the cointegration test of Johansen in the framework of The VAR model, where the ARDL model enables us to separate the effects of the short term from the long term, as through this methodology we can determine the complementary relationship of the dependent variable and the independent variables in the long and short term in the same equation, in addition to determining the size of the effect of each of the independent variables on the variable The dependent, and therefore we can estimate the parameters of the independent variables in the short and long term, and its estimated parameters in the short and long term are more consistent than those in other methods, and the results of applying this method are good if the sample size or the number of observations is small Unlike most other co-integration tests that require a large sample size for results to be more efficient.

The ARDL model is considered the most appropriate model with the sample size used in this research, which amounted to 37 observations from 1990 to 2020.

The two search models illustrated by equations (1) and (2) can be presented in ARDL format:

3.2. **Analyzing and discussing the results**:

3.2.1. **The time series graph of the research variables**:

The graph is used in the field of time series analysis as a primary statistical tool to identify the most important characteristics of time series, and it is known that time series in general have components of these components, including the seasonal component, including the periodic component, including the random component, and the general trend component, and considering that the data that we have is annual data Thus, there is no seasonal component because the data is not daily, monthly or quarterly, and there is a random component and a cyclical component. But by looking at the graph, we are interested in focusing on the characteristic of the general trend component because it is important in the analysis of time series since it is any time series that has a general trend. This is humiliating. In most cases, this series is not static in the level ($\neq$I0), because the general trend is that the arithmetic mean does not change, meaning

that the series is time-related, meaning that it increases with time and decreases with time.

In view of the following figure No. (1), which represents the graph of the time series of the study variables, and by focusing on the first characteristic, which is the characteristic of the extent to which these time series contain a general trend, we note by looking at the drawing that most of the time series of the study variables have a general trend, and this general trend seems more clear in Variables (LNCPI, LMMES, LNMNS, LNTRB, and LNMNS), although even the rest of the time series of the study variables, it is clear from the drawing that they have a general trend, but this general trend may not be clear, as in the series (LNIPI) and the series (LNOIP), due to the large number of structural changes In this series, which leads to a sudden change in the value of the series, sometimes it is high and sometimes it is low, and this may indicate something important, which is that the time series contains structural changes.

The presence of the general trend in the time series of the research variables is meaningful in two things: the first thing is that there is a high probability that these series are not static in the level, and the second thing is that we will choose the appropriate model to represent these series in the unit root tests, and since these time series contain a trend General, therefore, the model containing the fixed limit and the general trend will be tested in the unit root tests, because this model is the model that represents the time series of the research variables more accurately. The second characteristic that we are interested in by looking at the graph is the extent to which the time series of the search variables contain structural changes (shocks). Structural changes or shocks are represented in sudden changes in the value of the chain up or down, and therefore we find there are shocks in these chains from time to time.

We benefit from this feature in two things: the first is to add another unit root test that takes into account the presence of structural changes in the time series of the research variables, as the presence of structural changes in the time series of the research variables makes relying on traditional unit root tests useless. These results may be unrealistic and incorrect in the presence of structural changes.

Therefore, the Phelps-Pyron test, which will be used to test the unit root, will be reinforced with another test, which is the ZA test, which takes into account the presence of structural changes in the time series of the research variables. . The other thing that we benefit from the presence of structural changes in the time series is that we will take this into account when estimating the research standard models, as estimation problems may arise due to the presence of structural changes in the time series of the research variables. With our knowledge of the existence of these changes, we will address these standard problems resulting from the presence of structural changes using dummy variables, which is what was actually done in the estimation of these two models for this research.

3.2.2. **Descriptive Statistics and Correlation Matrix:**

Looking at the following table 1 which shows the descriptive statistical properties of the time series for the research variables, the arithmetic mean of the LNCPI variable has reached a value of 4.007185, while the arithmetic mean of the LNMNS variable has reached 9.237146, the arithmetic mean of the LNIPI variable is 4.523074, the arithmetic mean of the LNTOP variable is 3.719978, and the arithmetic mean of the variable LNEXP is 3.467997, LNTRB is 8.901653, LNOIP is 10.94156, and LNGDP is 10.94156.

Also, the data does not have a large dispersion, and therefore this data can be represented around the general trend line or around the regression line accurately, and therefore the relationships that will be estimated will have a large type of accuracy because there is no large dispersion of the data.

3.2.3. **Unit root tests for time series of variables**:

Unit root tests are used in the field of time series to identify the degree of static of the time series and the degree of integration of these series, and this matter is very important in the selection of estimation methods and methods of economic measurement, and then two tests are used in this research. It is used to test time series quiescence and the degree of their integration and the Zivot Andrews ZA test that takes into account the presence of structural changes in the time series.

It is clear from the following table 2 that shows the results of the PP and ZA tests that all time series are static after taking the first difference, and are therefore integrated of the first degree I (1).

3.2.4. **Co-integration test results**:

In this research, the developed limits test for cointegration was used, based on the model of Sam et al. (2019), where through this test it is possible to identify the extent to which there is a long-term equilibrium relationship between the research variables in both research models. The following table No. (4) shows the joint integration test between the research variables in the first model that represents the impact of fiscal policy on the internal economic balance, and through the table it is noted that the value of the F-Bounds Test total statistic has reached a value of 16.77439, and by comparing this value with the minimum critical values I (0) for the critical values and the upper limit I (1) for the critical values It is noted that the test statistic has exceeded the upper limit of the critical values I (1) at all levels of significance, and this indicates the possibility of rejecting the null hypothesis that there is no co-integration between the independent variables and the dependent variable in the first model of the research.

Also, it is also clear that the t-Bounds Test statistic has reached a value of -5.613672 and the value of the t-statistic has exceeded the upper limit of the critical values I (1) at all levels of significance, and this indicates that there is co-integration between the search variables, and that the research model is free from the second non-generating case of cointegration.

The value of the F statistic amounted to 20.39142, and it was statistically significant, and it was greater than the critical value of the test at the level of significance of 5%, and the upper value reached 4.70. From the table, the research variables in the first model are associated in the long term with a equilibrium relationship, and that this paves the way for estimating the error correction model, identifying the dynamics of the short term, and identifying the relationship between the dependent variable and the independent variables in the short term.

3.2.5. **Short Run Dynamics and Error Correction Model**:

Table 4 shows us the results of estimating the unconstrained error correction model (UECM) for the first standard model, and through this table it is possible to identify or focus on two things. The first thing is the error correction parameter whose value amounted to -0.211435 and it was negative and statistically significant. This means that the two necessary conditions are available in this parameter, which is that it is negative and statistically significant. In the short term, any deviation from the long-term equilibrium relationship, this deviation will be corrected and the relationship will return to balance, and through the error correction parameter of -0.211435, it is noted that 21.14% of the short-term errors are corrected during the time unit that represents the year in this research.

In Table 4, the effect parameters were estimated during the short term. The first effect parameter, C, is this fixed limit and was statistically significant, and D. This difference (LNCPI(-1)) means the first slowing period of the dependent variable, and this does not concern us much, but its parameter reached 0.245224 and was statistically significant.

At a value of 0.0037, which is less than 5%. To interpret the first parameter, the parameter of the short-term effect of the first slowing down period of the dependent variable reached a value of 0.245224 and was statistically significant at the level of significance 5%. This indicates that any change of 1% in the past year in the dependent variable leads to a positive change in the dependent variable this year In the same direction) by approximately 0.245%, and that any change in the variable (LNEXP) by 1% will lead to a change in the dependent variable by approximately 0.04% and in the opposite direction (because the sign is negative). And for D_1989, D_1994, D_2002 and D_2005 are dummy variables from which structural changes were controlled for in the estimated model.

3.2.6.**Estimation of Long-Term Parameters Using the OLS Method**:

Table 5 shows the estimation of the long-term parameters using the OLS method for the long-term relationship between the independent variables and the dependent variable in the first model.It is clear from the table that there is a direct relationship between the LNMNS representing the money supply and the dependent variable representing the level of inflation.

The regression parameter for this relationship amounted to 0.867425, which indicates that any change of 1% in the money supply variable will lead to a change of the dependent variable in the same direction by approximately 0.87%. It is clear from the table that there is a direct relationship between the LNIPI variable that represents the import price index and the dependent variable that represents the level of inflation.

The regression parameter for this variable has a value of 1.022917. This indicates that any change in the independent variable by 1% will lead to a change in the dependent variable by 1.02. % approximately and in the same direction. As for the relationship of the LNTOP variable representing trade openness with the dependent variable representing the level of inflation, it was a negative and statistically significant relationship.

TOP representing trade openness will lead to a change in the dependent variable representing the price index or the level of inflation by approximately 0.6-5% and in the opposite direction. As for the LNEXP variable, which is the variable of interest and represents the fiscal policy, its relationship to the level of inflation was negative and statistically significant at the level of significance of 5%. The value of the regression parameter of this variable reached a value of -0.498046. % will change the dependent variable by 0-50. % approximately and in the same direction.

3.2.7.**Diagnostic Tests for Estimated model**:

The diagnostic tests of the estimated econometric model are considered one of the most important statistical tests through which we make sure that the economic model is estimated, and therefore the estimates that we obtained are statistically correct and do not suffer from any statistical or standard problem.

Table 6 shows the results of the (Jarqu) test - Bera) for the normal distribution, through which it is clear that the test statistic has reached a value of 0.202000, and the probability value associated with this

statistic has reached a value of 0.903933, which is greater than 5%, and this means that the test statistic is not statistically significant, and therefore we accept the null hypothesis that says that The regression residuals are normally distributed, so the result of this test is clear that the residual series of the estimated economic model is normally distributed, and this is the first condition of applying the method of least squares available in the standard model, which is a good thing.

The Breusch-Godfrey Serial Correlation LM Test showed that it showed regression guards completely free from the problem of serial autocorrelation, and in some detail it can be said that his F-statistic for this test amounted to 0.673503 and it was not significant because it is greater at the level of Significance is 5%, and therefore the null hypothesis is accepted that there is no serial autocorrelation problem in the regression residuals.

By looking at the Obs *R-squared statistic, we find that its value amounted to 2.019420 and it was statistically insignificant, and therefore we accept the null hypothesis that says that the regression residuals are free of The problem of serial autocorrelation, and we understand from all of this that the regression residuals are free from this problem and that this condition is the second condition available in the research form from the conditions for applying the method of least squares.

The Breusch-Pagan-Godfrey test shows that the F-statistic had a value of 0.611009 and it was statistically insignificant, therefore we accept the null hypothesis that the regression residuals are free from the problem of inhomogeneity of variance, and by looking at the Obs*R-squared statistic we find that it has reached Its value is 7.805415 and it was not statistically significant, and therefore we accept the null hypothesis that there is no problem of heterogeneity of variance in the regression residuals of the estimated standard model. The value of the Obs*R-squared statistic that shows the results of the conditional variance heterogeneity test for the regression residuals was 0.002137, which is not statistically significant. Therefore, we accept the null hypothesis that the regression residual is free from the problem of conditional variance heterogeneity.

Table 6 also shows the results of the estimated standard model characterization test through the Ramsey RESET Test, whose f-statistic reached a value of 0.123788, and the associated probability value amounted to a value of 0.7279, which is greater than 5% and was statistically insignificant, and therefore we accept the null hypothesis The judge that the model has been well described and free from problems of mischaracterization.

3.2.8. **CUSUM و CUSUM of squares Tests:**

Figure 2 shows the results of the CUSUM and CUSUM of squares test, which are used to measure the structural stability of the estimated standard model. Looking at the CUSUM and CUSUM of squares test, we find that the curve representing the test statistic represented in blue is located in both tests between the two critical limits represented in red. The estimated standard model is structurally stable and free from problems related to structural instability.

3.3. **Testing the effectiveness of fiscal policy on the external balance in the Libyan economy:**

3.3.1. **Cointegration test between research variables**:

In this research, the developed bound test for cointegration was used based on the model of Sam et al. (2019), which enables us to identify the extent to which there is a long-term equilibrium relationship

between the research variables. Table .... shows the joint integration test between the research variables in the second model that represents the impact of fiscal policy on the external economic balance. Through the table, it is noted that the value of the total F-Bounds Test statistic has reached a value of 98.90339, and by comparing this value with the minimum critical values (0I for the critical values and the upper limit, I (1), for the critical values.

It is noted that the test statistic has exceeded the upper limit of the critical values, I (1) at all levels of significance. This indicates the possibility of rejecting the null hypothesis that there is no co-integration between the independent variables and the dependent variable in the model. By looking at the table, it is also clear that the t-Bounds Test statistic reached a value of -15.78294, and the value of the t-statistic exceeded the upper limit of the critical values (I(1) at all levels of significance from 1% to 10%, and this indicates that There is cointegration between the variables and the research model is free from the second non-generating case of cointegration.

It is clear that the value of the Exogenous F statistic that reached a value of 54.68513 is statistically significant and was greater than the critical value of the test at the level of significance 5% and the upper value reached 4.70. It is evident that the research variables in the second model are associated in the long term with a equilibrium relationship, and that this paves the way for estimating the error correction model, identifying the dynamics of the short term, and identifying the relationship between the dependent variable and the independent variables in the short term.

3.3.2. **Short Run Dynamics and Error Correction Model:**

Table 8 presents the results of estimating the unconstrained error correction model (UECM) for the second standard model. Through this table, it is possible to identify or focus on two things. The first thing is the error correction parameter. The error correction parameter reached a value of -0.790996 and was negative and statistically significant.

This means that the two necessary conditions are available in this parameter, which is that it is negative and statistically significant. If there is any deviation in the short term from the long-term equilibrium relationship, this deviation will be corrected and the relationship will return to equilibrium. Through the error correction parameter of -0.790996, it is noted that 79.09% of the short-term errors are corrected during the time unit that represents the year in this search.

The effect parameters have been estimated during the short term. The first effect parameter C is this fixed limit and it was statistically significant, and D this difference (LNTOP) means the first slowing down period of the dependent variable. D(LNEXP) amounted to -0.544601 and was negative.

To interpret the first parameter, the short-term effect parameter for the first slowing period of the dependent variable reached a value of 0.956496 and was statistically significant at the level of significance of 5%. This indicates that any change of 1% in the past year in the dependent variable leads to a change The dependent variable this year is positive (in the same direction) by approximately 0.157%, and any change in the variable (LNEXP) by 1% will lead to a change in the dependent variable by approximately 0.5% and in the opposite direction (because the sign is negative). To D_1988, D_1992, D_1993, D_1996, D_1997, D_1998, and D_2014 these are dummy variables from which structural changes were controlled for in the estimated model.

3.3.3. **Estimation of Long-Term Parameters Using the OLS Method**:

Table 9 represents the estimation of the long-term parameters using the OLS method for the long-term relationship between the independent variables and the dependent variable in the second model.It is clear from the table that there is a direct relationship between the LNGDP representing the gross national product and the dependent variable LNTRD representing the trade balance. The regression parameter for this relationship reached a value of 2.979972, and this indicates that any change of 1% in the gross national product will lead to a change in the dependent variable in the same direction.

The table also shows that there is a direct relationship between the LNOIP variable representing oil prices and the dependent variable LNTRD representing the trade balance. The regression parameter for this variable reached a value of 0.921785. This indicates that any change in the independent variable by 1% will lead to a change in the dependent variable by approximately 92.17%.

In the same direction, as for the relationship of the LNTOP variable representing trade openness with the dependent variable LNTRD representing the trade balance, it was a negative and statistically significant relationship. 1% in the variable LNTOP representing trade openness will lead to a change in the dependent variable representing the number of the trade balance by approximately 0.04% and in the opposite direction.

As for the variable LNEXP, which is the variable of interest and represents the fiscal policy, its relationship to the trade balance was negative and statistically significant at the level of significance 5%. The value of the regression parameter of this variable has a value of -0.378081, which indicates that any change in the independent variable represented in public spending of 1% will lead to a change of the dependent variable by approximately 0.38% and in the same direction.

3.3.4. **Diagnostic tests**:

The diagnostic tests of the estimated econometric model are considered one of the most important statistical tests through which we make sure that the economic model is estimated, and therefore the estimates that we obtained are statistically correct and do not suffer from any statistical or standard problem.

Table 10 shows the results of the (Jarqu) test - Bera) for the normal distribution, through which it is clear that the test statistic has reached a value of 0.738354, and the probability value associated with this statistic has reached a value of 0.691303, which is greater than 5%, and this means that the test statistic is not statistically significant, and therefore we accept the null hypothesis that says that the regression is normally distributed, so the result of this test is clear that the residual series of the estimated economic model is normally distributed and that this is the first condition for the application of the method of least squares available in the standard model and this is a good thing.

The Obs * R-squared statistic related to the Breusch-Godfrey Serial Correlation LM Test had a value of 0.236051 and it was statistically insignificant, and therefore we accept the null hypothesis which says that the regression residuals are free from the serial autocorrelation problem.

By looking to the value of the Obs*R-squared statistic within the test of heterogeneity of variance for the regression residuals through the Breusch-Pagan-Godfrey test, we find that it amounted to a value of 8.942879 and was statistically insignificant, and therefore we accept the null hypothesis that there is no

problem of heterogeneity of variance in the regression residuals of the estimated model.

The associated probability statistic has reached a value of 0.1211 which is greater than 5%, and therefore we accept the null hypothesis that judges null Regression residuals from the conditional variance heterogeneity problem.

The Ramsey RESET Test whose f-statistic reached a value of 1.227881 is statistically insignificant. Therefore, we accept the null hypothesis that the model has been described well and that it is free from mischaracterization problems.

The following figure 3 shows the results of the CUSUM and CUSUM of squares test, which are used to measure the structural stability of the estimated model, and by looking at the figure, we find that the curve representing the test statistic represented in blue is located in both tests between the two critical limits represented in red and for this reason the estimated standard model is stable Structurally, it is free from problems related to structural instability.

4.**Conclusion**:

The aim of this research, in general, is to investigate the impact of fiscal policy on the internal and external economic balance in the Libyan economy, during the period 1990-2020.To achieve this goal, the research relied on the standard method based on time series analysis, in which the autoregressive distributed delay model developed augmented ARDL was employed.

The most important results of the research indicated that there is a negative relationship between the fiscal policy indicator represented by public expenditure and the two public expenditure indicators represented by the price level represented by the consumer price index as a representative of the internal economic balance in Libya, and the trade balance index used as a representative of the external economic balance in the Libyan economy.

The current practice in the Libyan economy has negative effects on the economic balance in Libya, which means that it is inconsistent with the objectives of the macroeconomic policy that the country aspires to achieve.

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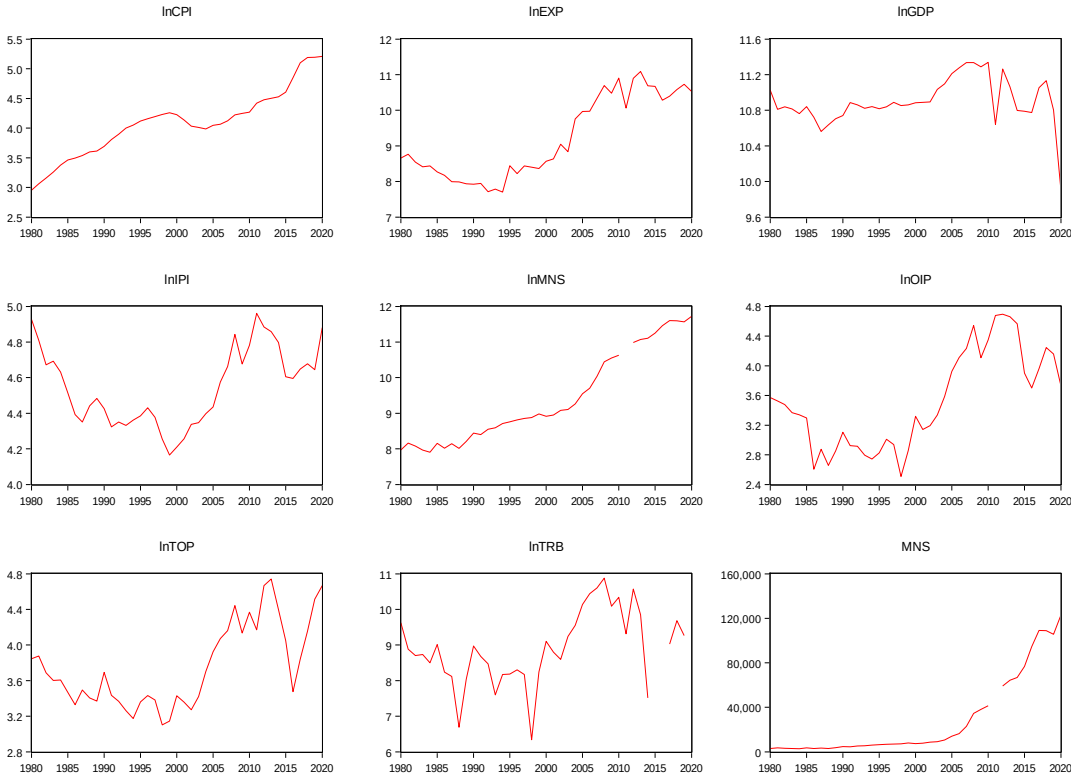
6. Appendices :



Table(01) : Descriptive Statistics and Correlation Matrix

Variables	Mean	Maximum	Minimum	Std. Dev.	Jarque-Bera	Obs.
LNCPI	4.007185	5.19424	2.953136	0.530499	0.388731**	37
LNMNS	9.237146	11.59992	7.90522	1.177884	4.581755**	37
LNIPI	4.523074	4.926778	4.165071	0.21077	2.362155**	37
LNTOP	3.719978	4.740296	3.101185	0.457215	3.836792**	37
LNEXP	9.072377	11.08649	7.703549	1.12853	4.392133**	37
LNTRB	8.901653	10.87711	6.338594	1.048552	0.154996**	37
LNOIP	3.467997	4.695468	2.507972	0.653567	2.996443**	37
LNGDP	10.94156	11.33887	10.56275	0.208966	2.779021**	37

Table(02): Unit root tests results

Variables	PP	ZA
LNCPI	-2.233254**	-5.253593**
LNMNS	-5.746242**	-7.459512**
LNIPI	-5.013104**	-5.853013**
LNTOP	-5.903616**	-6.445239**
LNEXP	-8.493151**	-10.72581**
LNTRB	-6.279538**	-6.689536**
LNOIP	-5.832046**	-6.504915**
LNGDP	-5.565709**	-6.356685**

**Stationary at first difference (5%)

Table(03): Co-integration test between research variables

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic	16.77439	5%	3.202	4.544
t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
t-statistic	-5.613672	5%	-2.86	-3.99
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
Exogenous F-statistic	20.39142	5%	2.80	4.70

Table(04) : UECM results

ECM Regression				
Case 3: Unrestricted Constant and No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.334023	0.036563	-9.135664	0.0000
D(LNCPI(-1))	0.245224	0.076894	3.189129	0.0037
D(LNEXP)	-0.043536	0.014174	-3.071417	0.0049
D_1989	-0.080777	0.026368	-3.063442	0.0050
D_1994	-0.086443	0.026708	-3.236602	0.0033
D_2002	-0.100962	0.028950	-3.487504	0.0018
D_2005	0.105514	0.027127	3.889613	0.0006
CointEq(-1)*	-0.211435	0.021493	-9.837446	0.0000

Table(05): Estimated Long-Term Parameters Using the OLS Method:

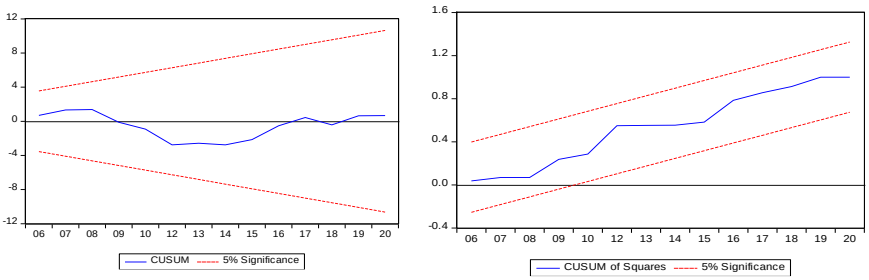
Dependent Variable: LNCPI				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LNMNS	0.867425	0.069258	12.52456	0.0000
LNIPI	1.022917	0.482186	2.121418	0.0436
LNTOP	-0.646863	0.219024	-2.953394	0.0066
LNEXP	-0.498046	0.088426	-5.632329	0.0000

Table(06): Diagnostic Tests for the Augmented ARDL model

Tests	Model (1)
Jarque-Bera normality test	0.202000*
Breusch-Godfrey serial correlation LM Test	2.019420*
Breusch-Pagan-Godfrey Heteroskedasticity test	7.805415*
ARCH test	0.002137*
Ramsey RESET Test (F-statistic)	0.351835*

* P-Value is more than 5%.

Figure(02): CUSUM and CUSUM of squares Tests results



Source: by the author based on E-views program

Table(07): Co-integration test between research variables

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	98.90339	5%	3.202	4.544
t-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-15.78294	5%	-2.86	-3.99
Exogenous F statistic	Value	Signif.	I(0)	I(1)
	54.68513	5%	2.80	4.70

Table(08): UECM results

ECM Regression				
Case 3: Unrestricted Constant and No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-18.29067	0.756493	-24.17825	0.0000
D(LNTOP)	0.956496	0.157245	6.082841	0.0000
D(LNEXP)	-0.544601	0.092052	-5.916255	0.0000
D_1988	-1.140050	0.136551	-8.348874	0.0000
D_1992	-0.350847	0.137075	-2.559525	0.0183
D_1993	-0.873244	0.137345	-6.358040	0.0000
D_1996	-0.420769	0.138672	-3.034266	0.0063
D_1997	-0.349868	0.137881	-2.537465	0.0192
D_1998	-1.612908	0.143173	-11.26548	0.0000
D_2014	-1.463787	0.144793	-10.10953	0.0000
CointEq(-1)*	-0.790996	0.032600	-24.26336	0.0000

Table(09): Estimation of long-term parameters using the OLS method

Dependent Variable: LNTRD				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LNGDP	2.979972	0.296747	10.04212	0.0000
LNTOP	-0.040445	0.256177	-0.157879	0.8761
LNOIP	0.921785	0.228789	4.028973	0.0006
LNEXP	-0.378081	0.120717	-3.131967	0.0050

Table(10): Diagnostic Tests for the Augmented ARDL Model

Tests	Model (1)
Jarque-Bera normality test	0.738354*
Breusch-Godfrey serial correlation LM Test	0.337778*
Breusch-Pagan-Godfrey Heteroskedasticity test	0.495778*
ARCH test	2.434291*
Ramsey RESET Test (F-statistic)	1.108098*

* P-Value is more than 5%.

Figure(03): CUSUM and CUSUM of squares Tests results