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The Impact of Fiscal and Monetary Policies on Inflation Empirical Evidence from Egypt from (1990 to 2020)

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ABSTRACT

This paper studies the impact of fiscal and monetary policies on inflation in Egypt. Using a sample period from 1990–2020, we investigated the relationship between both of them by using the ARDL Bounds test for the co-integration test, where the dependent variable is inflation and government expenditure, tax revenue, and money supply as independent variables, using the stationary test first and estimating the short- and long-run relation. The empirical study found that all variables have a positive and significant impact according to the co-integration bound test, and the ECM error correction model finds that there is long-run causality between variables. The study recommends that the best policy to get rid of inflation is discipline in monetary and fiscal policies.

KEYWORDS

Egypt, Inflation, Fiscal Policy, Monetary Policy, Government Expenditure, Taxation, Money Supply.

1. INTRODUCTION

Inflation has become a recurring phenomenon over the decades, affecting global economies. Inflation is considered to be one of the most important as well as influential economic indicators that should be supervised (Höflmayr, 2022). When the inflation rate exceeds 2%, it rings a dangerous bill for the economy. Nevertheless, the threshold of 2% is chosen by developed economies to operationalize price stability (IMF, 2022). Which, 2% number is not unique in itself or related to any economic phenomenon. It is important to highlight that high rates of inflation lead to serious consequences, as many studies have shown. The empirical literature proves that both fiscal and monetary

policies are the most significant factors affecting inflation rates (Mehrara, 2016). Keeping inflation rates within an acceptable range for a country's economic level is one of the main targets of different central banks. The central banks, often referred to as the monetary authorities, regulate monetary policy by setting interest rates, conducting open market transactions, and managing banking reserve requirements.

Inflation is the continued increase in price levels over time, which results in a decrease in the value of money as a unit of exchange.Maintaining price stability is the primary goal of policymakers for the majority of worldwide governments, especially in developing countries. Consequently, huge attention has been given to fiscal policy as its main aim is to promote sustained growth and boost the purchasing power of households (Adegbite, 2019).The relationship between inflation and government spending has to be highlighted. According to the Keynesian school of thought, the government increases its expenditures to increase economic growth, productivity, and investments. However, increasing expenditures will increase inflation as well (Olayungbo, 2013).

According to a study by Fatum and Hutchison (2010), fiscal policy can have a short-term and long-term impact on inflation. In the short run, fiscal expansion can lead to an expansion in demand and production, which will increase prices. In the long run, however, the effect of fiscal policy on inflation depends on the degree of monetary accommodation. If the central bank accommodates fiscal expansion by increasing the money supply (i.e., engaging in expansionary monetary policy), inflationary pressures will be reinforced.

In Addition to, according to the literature, inflation is a monetary phenomenon; hence, reducing inflation is essentially the domain of monetary policy. Inflation is based on the quantity theory of money and the only factor affecting it is the shift in the relative supply of commodities and money. The monetary policy is the responsibility of the central bank that influences its economic and financial status. Collins et al. (2017) state that monetary policy supports the long-run growth of the country as well as preserving price stability.The type of exchange rate regime specifies the dynamic relationship between inflation and M2 in the economy. Under a fixed exchange rate regime, inflation and M2 are closely related. When the exchange rate is floating, the relationship between inflation and M2 becomes weaker. In other words, Inflation is affected by M2 growth in an economy, if it increases inflation increases as well, and vice versa (Collinset et al., 2017).

1.1. Research Questions

- How Fiscal policy cause inflation?
- How the increasing of money supply increase inflation rates?
- Is the interdependence between Fiscal and monetary policy affect inflation?
- Is inflation in Egypt a fiscal phenomenon?
- What causes inflation more taxation or government expenditure?
- Does inflation affect the Market in Egypt?

1.2. Research Hypotheses

This research examines the following hypotheses.

- H1: Government expenditure has a positive and significant impact on inflation.
- H2: Taxes have a negative and significant impact on inflation.
- H3: Money supply has a positive significant impact on inflation.

2. LITERATURE REVIEW

In the literature, two main approaches explain inflationary pressures: the monetary approach and the fiscal approach. There is agreement that the main driver of inflation is the growth of the money supply, as monetarists consider inflation a monetary phenomenon that means that an increase in the money supply raises prices. When the amount of domestic credit or the monetary base exceeds the required limits, the monetary and real markets will be unbalanced.

However, they will eventually return to equilibrium as the general price level rises. According to the fiscal policy, inflation is attributed to large fiscal imbalances. This approach discussed the effect through two methods. The first is through wealth and increased government spending while tax collection decreases, which increases disposable income and, as a result, raises aggregate demand and the rate of inflation. The second one is by attempting to finance the fiscal deficit of the state by expanding its monetary base. The fiscal deficit may lead to resorting to debt, and the state will be exposed to debts, and the public debt will rise, which will lead to a rise in the rate of inflation (Ibrahim, 2020).

2.1. *Inflation Follows Government Spending: Empirical Literature.*

Several studies have investigated the impact of government expenditures on inflation. Among those studies is the study of Olayungabo (2013), who studies the link between government spending and inflation from 1970 to 2010. A vector auto-regression (VAR) model is conducted to analyze the relationship. The results showed that a unidirectional causality exists so that low or contractionary government spending leads to high inflation. However, their result implied that inflationary pressure in Nigeria is state-dependent; that is, high inflation is mainly due to low government spending.

Moreover, from 1959 to 2010, Mehrara and Sojoudi (2015) investegate the link between inflation, money supply, and government spending in Iran by applying the Bayesian econometric approach. The results of the model showed that the money growth rate had the greatest impact on inflation. The results indicated that increasing government spending, the GDP growth rate, and the exchange rate don't affect inflation.

While Nuguyen (2019) examines both the long-run and short-run impacts of government spending on inflation in three Asian emerging economies (India, China, and Indonesia) by using time series data from 1970 to 2010 and conducting the co-integration and vector error correction models, the results indicated a co-integrating causal relationship between government spending and inflation in the long run in the three countries, while government spending seemed to have a negative effect on inflation in China and, on the other hand, a positive effect in Indonesia and India in the short run.

Nevertheless, Chidinmaetal (2020) investigates the impact of government spending on Nigeria's inflation rate from 1999 to 2019 by using the ARDL bounds test. The results indicated a long-run relationship among the variables. while the results showed a positive but insignificant impact of government expenditure on the inflation rate in the short run. However, in the long run, government expenditure has a statistically significant negative impact on the inflation rate. While the money supply has a statistically insignificant impact on the inflation rate in the short run. In the long run, the money supply has a positive and significant relationship with the inflation rate.

2.2. Inflation Follows Money Supply: Empirical Literature.

In this part of the literature, several papers focus on investigating the effect of the money supply on inflation. Starting with the study by Mbonogo et al. (2014), investigate the effect of money supply on inflation in Tanzania. The study applied OLS, VAR, and ECM approaches to investigate the impact of selected variables on inflation in Tanzania. Results indicated that both the short- and long-run money supply and exchange rate have a significant impact on inflation. VAR findings indicated that past inflation can influence current inflation.

In another empirical finding by Ofori et al. (2017), using time series annual data from 1967 to 2015 and applying the simple regression model, the study aimed to investigate the impact of money supply on inflation in Ghana. Results indicated a long-run positive link between money supply and inflation based on ordinary least squares.

Moreover, Uttam (2021) explored both the long-run and short-run impacts of the money supply on inflation in Nepal. By using a sample period from 1965 to 2019, to investigate the relationship between both of them, we tested it using the ARDL Bounds test for co-integration, where the dependent variable is inflation and money supply and Indian inflation rates were taken as independent variables to estimate the model. The result showed that the long-run cointegration between the variables was significantly negative, and the error correction term was found to be negative in the long run.

2.3. Inflation Follows Taxation: Empirical Literature.

Many studies are concerned with the effect of taxation on inflation. Among the first is the study of Sunday (2015), which use time series data from 1981–2012 in Nigeria. The Johansen Co-integration Test Method, Ordinary Least Squares Technique, and Granger Causality/Block Exogeneity Wald Test are a few of the estimate techniques that were used in the study. The estimated findings revealed that tax policy and inflation have a long-term relationship in Nigeria. Personal income tax rates have a negative impact on inflation over time, whereas corporate income tax rates, consumption taxes, and property taxes have a significant positive impact on inflation over time. The consumption tax, property tax, and corporation income tax rate have a long-term, strong positive association with inflation. Also, the outcomes of Granger causality demonstrated that the entire model's included variables jointly cause inflation in Nigeria.

Degbite (2019) sheds light on how Nigerian taxation policy affects inflation. A quantitative study using the VECM model was conducted to reach this conclusion. Empirical research showed that taxes significantly and negatively affected inflation over the long and short terms. Inflation in Nigeria was not caused by all taxation-related factors. Furthermore, the findings show that taxation is a powerful inflation restraint.

Based on a consistent and predictable relationship between taxes and inflation, this study looked at how taxes affect inflation in Nigeria. According to Keynesian economics, taxes influence aggregate demand and can lower private-sector spending, easing market pressure and containing inflation. However, others who reject the aforementioned structure contend that tax hikes tend to raise production costs, which are then passed on to consumers as indirect taxes, driving up the cost of goods and services. The study's findings demonstrated that taxes had no discernible impact on inflation and had no long-term impact on inflation.

2.4. Fiscal and Monetary Policies' Mutual Interactions' Impact on Inflation: Empirical Literature.

Many papers have been conducted to examine how fiscal and monetary policies affect inflation, such as the study by Ndari et al. (2012), which study the effect of fiscal policy on output and inflation, and a look at discretionary fiscal policy and how it impacts the fluctuations of output and inflation. The Model Vector Error Correction Model (VECM) is applied using quarterly data from 1990 to 2009. Empirical results showed that an increase in government spending causes a decrease in inflation, while tax increases lead to higher inflation. This study also implies that there was an absence of discretionary fiscal policy made by the government of Indonesia.

Also, a mutual causality is found between the fiscal deficit and inflation volatility in Nigeria from 1981 to 2014 by using quarterly time series data on the fiscal deficit and consumer price index as a measure of the inflation rate (Oseni and Sanni, 2016). The pair-wise Granger causality test was implemented.

A study by Heba Y.M. (2017) implemented a structural vector auto-regression (SVAR) approach to examine the impact of fiscal shocks on monetary policy and the overall price level in Egypt. By using quarterly data from 2005 to 2015, the empirical model results found evidence supporting the application of the fiscal theory of prices in Egypt. The most important finding is that inflation in Egypt is primarily a fiscal phenomenon rather than a monetary one, as the impulse response functions have shown that a positive shock to the fiscal deficit leads to a significant increase in CPI.

While M. Ibrahim (2022) re-investigate the relationship between the fiscal deficit and inflation from 1981 to 2020, running the Vector Error Correction Model (VECM) and the Granger causality test, the results indicate that fiscal deficits have a significant impact on inflation in the long run, as an increase in fiscal deficits increases the inflation rate. The results of the Granger causality test indicate a two-way causal relationship between the fiscal deficit and inflation in the short run.

Moreover, Trong T.A. et al. (2022) examine the impact of fiscal and monetary policies on inflation in Vietnam during the period from 1997 to 2020. The study applies the vector auto-regression (VAR) model. The results indicate that Vietnam’s inflation is positively influenced by a fiscal deficit (2.943), money supply (2.672), government expenditure (8.347), and interest rate (3.187). Of all the factors, government expenditure has the highest impact on inflation. Besides, trade openness (-0.311) also impacts inflation, but the effect is negative.

In the same context, Agenes L. (2022) examines how the expansive fiscal policy in terms of supportive measures during the pandemic has affected inflation in Sweden by creating an autoregressive model using monthly data from January 2018 until January 2022. Previous studies on the effects of fiscal policies when interest rates are low showed that expansive measures increase GDP and therefore have a positive effect on inflation. The expansive measures during the pandemic are correlated with inflation, although they show a negative impact on the rate of inflation.

3. DATA AND METHODOLOGY

The study aims to explore the relationship between the fiscal and monetary policies on the inflation rate in Egypt during 1990–2020, which are measured by government expenditure and tax revenue according to fiscal policy and money supply m2 according to monetary policy, which includes CPI as a dependent variable whereas money supply, government expenditure, and tax revenue are independent variables, to find out whether fiscal and monetary policies impact inflation in Egypt. For the data source, this study used annual time series data from the World Bank development indicators of Egypt from 1990 to 2020, as Egypt was specifically chosen because it is among the countries suffering from the phenomenon of inflation over the years.

3.1. The Model

For the empirical analysis, the variables were assessed by the ARDL model, which is applied for inferential analysis to investigate the impacts of two policies (fiscal and monetary) on inflation in Egypt. In this study, the log of CPI is taken as a dependent variable, and the log of money supply (M2), the log of government expenditure, and the log of tax revenue in Egypt are taken as independent variables for estimation. These variables are taken from numerous studies that directly or indirectly affect the inflation in Egypt. The model for the study can be built as:

$$\log CPI = \log M2 + \log Government\ Expenditure + \log Tax\ Revenues + C$$

3.2. Model Specification

The study tends to use the auto-regressive distributive lag model (ARDL) to study and measure the impact of fiscal and monetary policies on inflation, which is measured by government expenditure and tax revenue according to fiscal policy and money supply M2 according to monetary policy. Inflation is indexed by the Consumer Price Index (CPI). The study on time series data in Egypt from 1990 to 2020 included 30 observations. The ARDL model can be applied whether the variables under study are integrated at zero I (0), one order I (1), or integrated to different degrees; that is, it can be applied when the order of integration is unknown or not uniform for all variables, but it must also be indicated that it cannot be applied if there is one of the variables built into the order.

Independent variables

- Government expenditure
- Tax revenue
- Money supply M2

Dependent variables

- Inflation (CPI)

3.3. Descriptive Statistics

Table 1: Descriptive Statistics

Variables	Obs	Mean	Std. Dev	Min	Max
Gov. expenditure (x1)	**30**	**87.83754**	**4.243813**	**82.88813**	**98.21614**
Tax revenue (x2)	**30**	**14.75637**	**1.924752**	**12.22014**	**19.04743**
Money supply(m2) (x3)	**30**	**84.05367**	**8.10101**	**69.71546**	**98.13613**
Inflation (Y)	**30**	**10.01766**	**5.970417**	**2.269757**	**29.50661**

Notes: Obs denotes observation, Std. Dev is standard deviation, min and max are minimum and maximum respectively.

4. FINDINGS

4.1. Unit Root Test (Stationary Test)

It is an econometric approach that tests whether the mean and variance change over time, while the value of the covariance between two time periods depends only on the gap between the periods and not the actual time at which this covariance is considered. The variables were assessed for stationarity using the traditional Augmented Dickey-Fuller (ADF), which is a common statistical test used to test whether a given time series is stationary or not. It is one of the most commonly used statistical tests when it comes to analyzing the stationary of a series because the stationary is a very important factor in a time series. The number of differences required must be determined to make the series stationary because the model cannot forecast non-stationary time series data. So this test measures whether the variables are stationary or not.

The variables are considered stationary at level (I0), and the first difference (I1) and second difference (I2) are canceled because they are considered non-stationary. As a result, it is not possible to generalize its relevance to other periods. Therefore, for forecasting, such nonstationary time series may be of little practical value. According to table 2, CPI and government expenditures are stationary at levels, while M2 and tax revenues are stationary at first difference.

Table 2: Unit Root Test Results

Variable	Stationarity	Integrated Level
CPI	(0.0468) **	I(0)
Government Expenditures	(0.0493) **	I(0)
M2	(0.0026) **	I(1)
Tax Revenues	(0.0001) ***	I(1)

4.2. ARDL Model

The ARDL model is considered the best econometric in cases where the variables are stationary at I(0) or integrated of order I(1). For checking co-integration, the study used the ARDL co-integration, commonly known as the bounds test, proposed by Pesaran et al. (2001) to verify the presence of long-run interactions in the model. The ARDL approach is appropriate for generating short-run and long-run elasticities for a small sample size at the same time without affecting the quality or efficiency of the result. For checking co-integration, the study used the ARDL co-integration, commonly known as the bounds test, proposed by Pesaran et al. (2001) to verify the presence of long-run interactions in the model. The ARDL approach is appropriate for generating short-run and long-run elasticities for a small sample size at the same time without affecting the quality or efficiency of the result.

According to table 3,when government expenditures increase by 1 unit, inflation increases by 1.26 units at a 10% level of significance. At the 3rd lag of expenditures, when it increases by 1 unit, the inflation tends to decrease by 0.955297 units at a 5% level of significance.As for the tax revenues, when it increases by 1 unit, inflation will increase as well by 0.0758, however, there is not enough evidence to prove such a relationship. Also, the result of the relationship between money supply and inflation doesn't gather enough evidence to be proven.Nevertheless, when the first lag of money supply changes by 1 unit, inflation will increase by 0.639 units at 5% level of significance. The independent variables explain the dependent variable with 79%, which corresponds to the R-squared.

Table 3: ARDL Model Results

Variable	Coefficient	R-Squared
Government Expenditures	**(1.26) ***	**79%**
Government Expenditures$_{-3}$	**(-0.955297) ****	
Tax Revenues	**0.075820**	
Money Supply	**0.080166**	
Money Supply$_{-1}$	**(0.639114) ****	

4.3. Lag Selection Criteria

According to Akiake information criteria, the best lag would be model 109ARDL (4,0,3,1) as chosen by the ARDL because it is considered the lowest number and the lowest is the better as it is considered the best model. Results are available upon request.

4.4. Short-Run Causality: Wald Test

According to table 4,there is short-run causality between X1 and y because the chi-square probability is less than 0.05.Moving to tax revenues, there is no short-run causality between X2 and Y because the chi-square probability is greater than 0.05. Lastly, there is short-run causality between X3 and Y because the chi-square probability is lower than 0.05.

Table 4: Wald Test Results

Variable	Wald Test Output
Government Expenditures (X1)	Wald Test: Equation: Untitled Test Statistic | Value | df | Probability F-statistic | 5.280038 | (4, 15) | 0.0074 Chi-square | 21.12015 | 4 | 0.0003 Null Hypothesis: C(5)=C(6)=C(7)=C(8)=0 Null Hypothesis Summary: Normalized Restriction (= 0) | Value | Std. Err. C(5) | 1.260636 | 0.402875 C(6) | 0.311466 | 0.508649 C(7) | 0.165024 | 0.498344 C(8) | -0.955297 | 0.415475
Tax Revenues (X2)	Wald Test: Equation: Untitled Test Statistic | Value | df | Probability t-statistic | 0.120543 | 15 | 0.9057 F-statistic | 0.014531 | (1, 15) | 0.9057 Chi-square | 0.014531 | 1 | 0.9041 Null Hypothesis: C(9)=0 Null Hypothesis Summary: Normalized Restriction (= 0) | Value | Std. Err. C(9) | 0.075820 | 0.628985 Restrictions are linear in coefficients.
Money Supply (X3)	Wald Test: Equation: Untitled Test Statistic | Value | df | Probability F-statistic | 14.85839 | (2, 15) | 0.0003 Chi-square | 29.71679 | 2 | 0.0000 Null Hypothesis: C(10)=C(11)=0 Null Hypothesis Summary: Normalized Restriction (= 0) | Value | Std. Err. C(10) | 0.080166 | 0.178042 C(11) | 0.639114 | 0.175400 Restrictions are linear in coefficients.

4.5. Co-integration test in ARDL(Bound test) (long run)

The study used the ARDL co-integration, commonly known as the bounds test, proposed by Pesaran et al. (2001) to verify the presence of long-run interactions in the model. Under the null hypothesis of no cointegration, the Bounds test is mostly dependent on the common F statistic, whose asymptotic distribution is non-standard. If the calculated value of F is greater than the upper bounds, then in this case the null hypothesis is rejected and the alternative hypothesis is accepted, meaning that there is a co-integration, and then the long-term equation must be estimated.On

the contrary, if the computed F is less than the lower bounds, then the null hypothesis is accepted, meaning that there is no co-integration, that is, there is no relationship in the long term. If the calculated value of F falls between upper and lower bonds, then the result is inconclusive.
The findings show that the critical values are given under the number of variables, k=3. The value of f-statistics is 8.926624 which is greater than the upper bound (3.2,3.67,4.08 and 4.66) so this means that there is a long-run relation at a significant level (10%,5%,2.5% and 1%). Whichmeans that there is a co-integration and long-run relation between the variables.

As for the long-run coefficient (T-bound distribution), the results are stated in table 5.When X1is increased by 1-unit Y will be increased by 1.269. T-statistics of X1 = 2.602 which is greater than 2 so this variable is significant in the long run. The P-value of X1 = 0.0200 which is less than 0.05 so this variable is significant in the long run. When X2is increased by 1-unit y will be increased by 0.1230. T-statistics of X2 = 0.1247,which is less than 2 so the variable is insignificant in the long run. P-value of X2 = 0.9024, which is greater than 0.05 so the variable is insignificant in the long run. When x3 increases by 1-unit Y will be increased by 1.1677. T-statistics of X3 =1.648,which is less than 2 so the variable is insignificant in the long run. The P-value of X2 =0.1200, which is greater than 0.05 so the variable is insignificant in the long run.

Table 5: Bound Test Results

Variable	Coefficient
X1	**(1.269276) ****
X2	**(0.123092)**
X3	**(1.167729)**
C	**(-204.0087) ****
EC = Y-(1.2693*X1 + 0.1231*X2 + 1.1677*X3 – 204.0087	

4.6. Long–run causality (ECT) the Error Correction Term

According to the ECM regression result, CoinEq(-1) *equals -0.615964 so it is a negative value. The probability of CoinEq(-1) * equals 0.0000 which is less than 0.05so it is significant.As a result, this means that there is a long-run causality on the long-run.

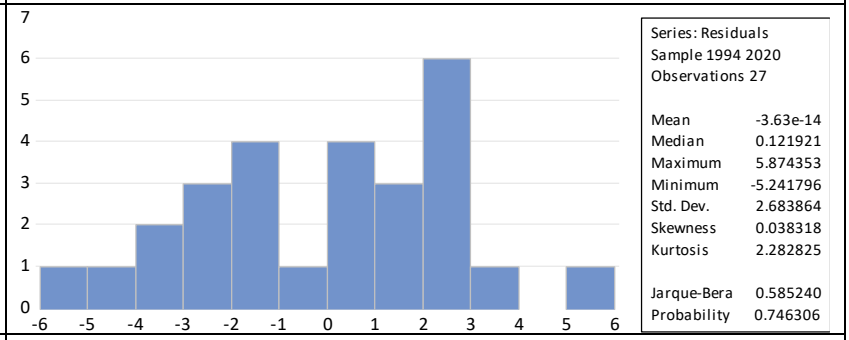
ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Y(-1))	-0.556078	0.120101	-4.630098	0.0003
D(Y(-2))	-0.370599	0.147249	-2.516817	0.0237
D(Y(-3))	-0.409890	0.142882	-2.868730	0.0117
D(X1)	1.260636	0.340201	3.705560	0.0021
D(X1(-1))	0.790273	0.339296	2.329151	0.0342
D(X1(-2))	0.955297	0.339763	2.811656	0.0131
D(X3)	0.080166	0.107932	0.742739	0.4691
CointEq(-1)*	-0.615964	0.081921	-7.518995	0.0000

4.7. Diagnostic Tests

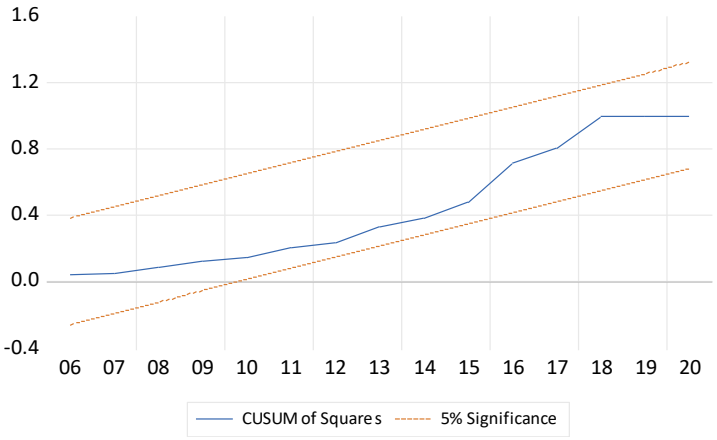
As for diagnostic tests, the study applies serial correlation, normality, and heteroscedasticity tests, results are illustrated in table 6.Serial correlation test is used to measure whether there is a relationship between error terms. The findings show that the data doesn't suffer from serial correlation problem chi-square probability is greater than 0.05.Moreover, normality test results show that the data is normally distributive because Jarque Bera probability is greater than 0.05. Besides, heteroscedasticity test measures the variance of error terms is constant or not. There is no Heteroskedasticity problem chi -square probability is greater than 0.05.

Table 6: Diagnostics Test Results

Diagnostic Test	Result
Serial Correlation	Breusch-Godfrey Serial Correlation LM Test: Null hypothesis: No serial correlation at up to 2 lags F-statistic 0.152444 Prob. F(2,13) 0.8601 Obs*R-squared 0.618718 Prob. Chi-Square(2) 0.7339
Normality	
Heteroscedasticity	Heteroskedasticity Test: Breusch-Pagan-Godfrey Null hypothesis: Homoskedasticity F-statistic 2.341401 Prob. F(5,23) 0.0740 Obs*R-squared 9.781977 Prob. Chi-Square(5) 0.0817 Scaled explained SS 9.303274 Prob. Chi-Square(5) 0.0976

4.8. Stability test

The study applies the CUSUM of Squares test to identify the stability of the predetermined coefficients bythe ARDL model. The result shows that the identified coefficients are stable over as output lies within a stable range of 5% level of significance.



5. CONCLUSION

5.1. Discussion

The study findings show that the ARDL bound test result rejects the null hypothesis, concluding that there is a significant long-run relationship between variables (government expenditure, taxes, and money supply) as independent variables and inflation as a dependent variable, and the ECT (error correction term) was found to be significantly negative, which means that there is a long-run causality between variables. In addition, there is a positive and significant relationship between government expenditures and inflation in the long run, but there is a negative and significant relationship in the short run, which means that an increase in government expenditures will increase inflation in the long run.

According to the Wald test (short-run causality), there is a short-run causality between government expenditures and inflation. The study also showed that there is a positive and insignificant relation between tax revenue and inflation in the short and long run. In addition, the Wald test (short-run causality) showed that there is no short-run causality between tax revenue and inflation, which represents fiscal policy.

On the other hand, the monetary policy represented money supply M2, so the result showed that there is a positive and significant relationship between money supply (M2) and inflation in the short run, in addition to a positive and insignificant relationship between money supply (M2) and inflation in the long run. Moreover, the Wald test (short-run causality) showed that there is short-run causality between money supply (m2) and inflation.

According to the studies mentioned before, the study agreed with the study of Olayungabo (2013), which showed there is a negative relationship between government expenditure and inflation, and the study of Mehrara and Sojoudi (2015) showed that the money supply affected inflation positively.

The study agreed with Nuguyen (2019) that their study investigated both long-run and short-run impacts of government spending on inflation and also saw that there is a negative relationship between government expenditure and inflation in the short run in China. Moreover, according to the agreement with the study of Mbonogo et al. (2014), it showed that there is a significant impact in the short and long term between money supply and inflation, in addition to the study of Ofori et al. (2017) Their results showed a long-run positive relationship between the money supply and inflation. The study by Uttam (2021) explored the long-run and short-run impact of money supply on inflation in Nepal, and the results showed long-run co-integration between the variables, so the study agreed with this.

The study also agreed with the study of Sunday, 2015, whose result showed that the consumption tax, property tax, and corporation income tax rate have a long-term, strong positive relationship with inflation. In addition to the study of Ndari et al. (2012), empirical results showed that the increase in government spending causes a decrease in inflation, which is a negative relationship, and tax increases lead to higher inflation, which is a positive relationship, so the study agreed with this. Alongside a study made by Heba Y.M. (2017), the study also agreed that it showed the impulse response functions had shown that a positive shock to the fiscal deficit leads to a significant increase in consumer price index (which means that the expenditure of the government is higher than their revenues) in the same way as the study by M. Ibrahim 2022). The last study that the study agreed with is (Trong T.A et al, 2022) it is showed that the government expenditure, money supply affected positively on the inflation on Vietnam. Also, the study agreed with Oseni and Sanni (2016) that there is a bi-directional causality between the fiscal deficit and inflation volatility in Nigeria.

On the other hand, the study disagrees with the study of Mehrara and Sojoudi (2015), which show that government expenditure had no significant effect on inflation. Also, the study by Chidinma et al. (2020) explore that there is a positive but insignificant relationship between government expenditure and the inflation rate in the short run. Moreover, in the long run, government expenditure has a negative statistically significant impact on the inflation rate, and money supply has a negative statistically insignificant impact on the inflation rate in the short run, so the study disagrees. The last study the study contradicts with (Degbite, 2019). It is empirical research that showed that taxes significantly and negatively affected inflation over the long and short terms.In conclusion,the study agreed with 12 studies and disagreed with 3 studies only.

5.2 Recommendations

Because of this, both monetary and fiscal policies have an impact on inflation in Egypt. Accordingly, the study suggests that the government saves money to prevent any shock to its level of expenditure. Borrowing might not be a smart move at this time given the state of the economy and the nation's debt load; instead, the monetary authorities should work together to develop and implement efficient macroeconomic policies to ensure sustainable government expenditure. Additionally, the fiscal authorities should assist the monetary authorities in their work by monitoring government spending trends and providing budgetary measures to uphold fiscal discipline. This is the best strategy to combat inflation.

Moreover, a sound framework for tax policy and a more promising implementation plan must be adopted by the government and our tax authorities. The government should also set targets and actively pursue them. This might improve tax assessment, collection, and enforcement. This should facilitate better tax administration and more efficient tax utilization for managing the economy. According to the money supply, the independence of the central bank is important for policymakers to reduce the effects of the money supply on inflation. The monetary policy should impose tight monetary policies and expand the proportion of money in the economy from informal to formal transactions. Controlling the money supply is considered the most suitable solution to eliminate the inflation rate in Egypt because the growth rate of money has the highest impact on inflation.

The challenge is to strike a balance between curbing inflation and not stifling economic growth too much. Monetary policy and the central bank can work through interest rate adjustments, but they can also use tools such as open market operations, quantitative tightening, reserve requirements, and inflation targeting. Each of these tools works by affecting demand, money supply, or expectations.

Fiscal policy is a powerful tool for controlling inflation rates that involves government spending and tax decisions to influence the economy. Although monetary policy is the primary tool, fiscal policy can complement monetary policy in controlling inflation by reducing demand, either through cutting government spending or raising taxes. In addition, targeted measures, such as raising taxes on luxury goods or cutting subsidies, can help to tame inflation without excessively hurting basic consumption or investment. Fiscal discipline, such as reducing the deficit or public debt, helps stabilize inflation expectations and encourage long-term economic stability. However, these measures must be carefully balanced to avoid stifling economic growth excessively.

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