

## **The Effectiveness of Fiscal and Monetary Policies: New Evidence from The Jordanian Economy Using ARDL Techniques**

**By**

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### **Abstract**

The study tries to investigate the relative effectiveness of fiscal and monetary policies in the Jordanian economic growth process, based on the St. Louis equation modified for annual data during the period (1970 –2020). The study uses Autoregressive Distributed Lag (ARDL) techniques, to verify the existence of long- and short-run effects of monetary and fiscal policies on the Jordanian economy. The results showed that government expenditures as a representative of fiscal policy are greater and faster in enhancing the stability of the Jordanian economy than the money supply as a representative of the monetary policy. The result supports the Keynesian view that fiscal policy is more capable of achieving economic stability in Jordan than monetary policy. based on the results, both policies should be viewed as complementary to each other, so combining monetary policy compatible with the expansionary fiscal policy will achieve much better results, to promote Jordanian economic growth.

**Keywords:** Jordan, Fiscal Policy, Monetary Policy, Economic Growth, ARDL

### **Introduction**

Stable and noninflationary economic growth is the most important objective of both fiscal and monetary policies, The Keynesian view has been reflected in many discussions of fiscal policy's effect on economic growth (Andersen & Jordan, 1968). The fiscal actions impact is often measured by government expenditure changes, tax revenues, or budget deficits and surpluses. Therefore, fiscal policy through revenue or expenditure policy or both play a pivotal role in influencing the level of national income through their impact on aggregate demand. fiscal policy aims to achieve stability, by increasing the government expenditures, compared to the government revenues in the event of a recession, following an opposite policy in the case of inflation. In general, aggregate demand can be directed to a higher level through government expenditures, by stimulating government demand for goods and services, which leads to an increase in demand for factors of production, thus increasing the national income level (NI). Through the multiplier and accelerator effect, the government can affect the (NI) level, up or down, based on the economic situation. the overall effect of the fiscal policy on the (NI) level consists of the direct and the indirect effects of the change in the government expenditure, and taxes revenues. In developing countries, the fiscal policy usually goes with the economic cycle (pro-cyclical), where government expenditures increase and taxes fall in the case of economic recovery, in contrast, government expenditures decrease and taxes rise in the event of an economic decline (Alesina, Campante, & Tabellini, 2008).

The monetary policy includes central bank decisions to control the money supply, to achieve economic stability (Abata, Kehinde, & Bolarinwa, 2012). The monetary policy includes changes in the government securities portfolio, the bank reserve requirements, and the central bank's discount rate (Emery, 1993). Commercial banks and the public also participate in monetary procedures. The decisions of commercial banks to hold excess reserves constitute a monetary action. Also, due to differential reserve requirements, decisions of the public to hold deposits in commercial banks or currencies related to demand deposits are a form of monetary action but are not viewed as stabilization measures (Andersen & Jordan, 1968).

Economic thought has witnessed a great debate in macroeconomic policy over the past decades in terms of the effectiveness of the fiscal and monetary policies in economics in theory and practice) Arestis & Sawyer, 2004(. The viewpoint of economic thought on fiscal policy is linked to the government's role in the economic activity, Therefore, some schools emphasized the vital role of the market in the economy, while the role of the government is limited to its traditional tasks such as security, defense, and justice, then its role evolved to include creating the appropriate legislative environment to promote the market economy, remove obstacles that prevent the private sector from participating in economic activities, in addition to adopting macroeconomic policies. On the other hand, the economic thought's view of monetary policy has been linked to the role of money in economic activities. Although most economists agreed that changes in money supply and demand play a central role in the economy, they differ on the mechanism by which these changes are transmitted to the economy. The nature of monetary policy has witnessed significant shifts from controlling the money supply to focusing on interest rates as a major policy tool. In addition to the shift towards adopting an inflation targeting policy .On this basis, opinions differed about the relative role of fiscal and monetary policy in addressing economic problems according to schools of economic thought over time. Debate rages over which of these policies are more effective. That is why Keynesians defend the fiscal policy, and monetarists defend the monetary policy in terms of its importance in strengthening the economy (Aigheysi, 2011).

Empirical tests appeared in discussing the relative role of fiscal versus monetary policy in the economy. New Keynesians maintain that even purely fiscal policy is effective, but that it depends on the elasticity of demand for money. Only a few economists have gone so far as to stress that money does not matter (Chingarande, 2012). While monetarists believe that money is the most important factor for changes in nominal and real income, the financial motive is also the most influential factor in the changes in prices, production, and employment. Most monetarists also believe that purely fiscal policies, such as increased government spending, which is financed by taxes, do not affect real output (Chingarande, 2012). These results indicated the re-emergence of monetary theory, declaring the effectiveness of monetary policy in achieving its objectives, depends on the macroeconomic environment, the choice of tools used, and the institutional framework (Falade & Folorunso, 2015).

The Jordanian government relied on fiscal and monetary policies in economic reform programs to achieve economic stability. Hence the importance of this study, as it aims to analyze the role of fiscal and monetary policies in Jordan, to identify the nature of the effects on the targeted economic activity during the past decades., with the aim of reaching results that help economic policymakers. Given the challenges facing the Jordanian economy, which are represented by the persistence of the budget deficit, indebtedness, the spread of poverty, and unemployment, this requires serious work to overcome them, by continuing economic reforms, applying appropriate macroeconomic policies. This study comes as a continuation of previous studies conducted on the Jordanian economy to determine the extent of the effectiveness of macroeconomic policies in the economy.

## Theoretical Review

The effectiveness of fiscal and monetary policy can be evaluated through the use of macroeconomic models, including the IS/LM model (Romer, 2000), Where the (IS) curve shows the equilibrium in the real sector and is affected by the financial policy tools, it can be interpreted as follows (Romer, 2012):

$$E = C(Y - T) + I(i - \pi^e) + G \quad (1)$$

$$E = Y \quad (2)$$

Compensating (2) in (1) produces:

$$Y = E(Y, i - \pi^e, G, T) \quad (3)$$

where: E is planned real spending, Y: real output, i: the nominal interest rate,  $\pi$ : the expected inflation rate, G: the government expenditures, and T: taxes. The (LM) curve, represents the equilibrium in the monetary sector, and it is affected by monetary policy decisions in relation to the money supply. it can be interpreted as follows:

$$\frac{M}{P} = L(i, Y), \quad (4)$$

One of the models that provide a basis for analyzing the effects of fiscal and monetary policies in an open economy is the Mundel-Fleming model, the IS/LM model in an open economy. This model makes it possible to monitor capital inflows and outflows, and the correlation between interest rates prevailing in different economies (Romer, 2012) .so, equation (2) becomes as follows:

$$E = C(Y - T) + I(i - \pi^e) + G + NX\left(\frac{\varepsilon P^*}{P}\right) \quad (5)$$

Where, NX: net foreign trade, and  $\varepsilon$ : Exchange rate. P: the local price level. P\*: The world price level.  $\frac{\varepsilon P^*}{P}$  Real exchange rate, Thus, in the case of an open economy, equation (4) becomes:

$$Y = E\left(Y, i - \pi^e, G, T, \frac{\varepsilon P^*}{P}\right) \quad (6)$$

The model showed that the effectiveness of fiscal and monetary policy in the case of an open economy depends on the exchange rate system, where the exchange rate plays a critical role in economic fluctuations, whereby fiscal policy is more effective under fixed exchange rates, and monetary policy is stronger under flexible exchange rates (Hemming, Kell, & Mahfouz, 2002). In an open economy, we have two equations:

$$\frac{M}{P} = L(i^*, Y) \quad (7)$$

$$Y = E\left(Y, i^* - \pi^e, G, T, \frac{\varepsilon P^*}{P}\right) \quad (8)$$

Under the fixed exchange rate regime, Monetary policy devotes its efforts to the exchange rate that any attempt to change demand by changing the money supply can generate a corresponding movement in international reserves that limits the effects of monetary policy on the economy. Conversely, the expansionary fiscal policy leads to raising interest rates, which encourages capital flows, and tends to raise the exchange rate, since, the central bank is committed to maintaining exchange rate fixed, it seeks to balance the effect of the high exchange rate by buying foreign currency and then expanding the money supply, reducing interest rates, enhancing the positive impact of expansionary fiscal policy on GDP. In light of the flexible exchange rate regime, the monetary expansion of domestic interest rates would encourage the capital flows, leading to a lower exchange rate and giving an additional boost to income as a result of the increase in net exports resulting from the exchange rate depreciation. On the other hand, the expansion of fiscal policy leads to raising interest rates and attracting more capital flows to the economy, this causes an appreciation in the exchange rate and decreases net exports, thus balancing the impact of the increase in national income resulting from the expansionary monetary policy. so, the fiscal policy has less effect on national income under a flexible exchange rates regime, and the monetary policy is effective in influencing some variables such as prices and output.

## **Empirical Literature Review**

The empirical discussions of the effectiveness of fiscal and monetary policies go back to scholars Andersen and Jordan (1968) considered the first scientific study of the effectiveness of fiscal and monetary policy in the economy. Andersen and Jordan (1968) concluded that monetary policy is more effective than fiscal policy in influencing the economy. Since then, the relative effectiveness of monetary and fiscal policies has become the subject of many scholars. Many scholars agreed that monetary policy was superior to fiscal policy in size, predictability, and lag in the impact (Atcharyachanvanich, 2007). However, empirical studies have revealed inconclusive results regarding the effectiveness of the fiscal and monetary policy. Some studies support the Monetarists' view, which indicates that monetary policy is more effective than fiscal policy in promoting economy, such as (Adefeso & Mobolaji, 2010; Aigheyisi, 2011; Ajayi & Aluko, 2016; Ali, Irum, & Ali, 2008; Arestis, Şen, & Kaya, 2021; Batten & Hafer, 1983; Chingarande, 2012; Hasan et al., 2016; Havi & Enu, 2014; Hussain & Niazi, 1992; Idris, 2019; Musa, Asare, & Gulumbe, 2013; Rahman, 2005; Rakić & Rađenović, 2013; Richard, Muriu, & Maturu, 2018; Şen & Kaya, 2015; Tarawalie & Kargbo, 2020; Yien, Abdullah, & Azam, 2019). Pereira (2012) indicated that in recent years the United States is witnessing a near stabilization in the impact of monetary policy, while the weakness in the impact of fiscal policy continues. Moreover, some studies indicate that not only monetary policy is effective but fiscal policy is also ineffective (Ajisafe & Folorunso, 2002; Batten & Hafer, 1983; Hsing, 2019; Iyeli, Uda, & Akpan, 2012; Muhammad et al., 2009) found that expansionary fiscal policy reduced output and that expansionary monetary increased output in India (Chugunov et al., 2021). showed that in 19 emerging economies there were negative effects of government expenditures on per capita GDP growth.

The Keynesian view in favor of the superiority of fiscal policy has been supported by scholars includes those (Awad & Al Sowaidi, 2005; Bokreta & Benanaya, 2016; Chigbu & Njoku, 2013; Chowdhury, 1986; Ehikioya, Uduh, & Edeme, 2018; Hussain, 1982; Özer & Karagöl, 2018; Tadesse & Melaku, 2019; Topcu, Kuloglu, & Lobont, 2012). Satrianto (2018); Siyan and Adegioriola (2015) the government expenditure is relatively more effective compared

with money supply on economic activities (Hasan, 2001).

Raj and Siklos (1989) indicated that both fiscal and monetary policy have a positive long-run effect on aggregate demand. Also, some empirical studies have proven that both fiscal and monetary policies have a positive effect in promoting economic growth including (Alavi, Moshiri, & Sattarifar, 2016; Ayobami & Olalekan, 2020; Darrat, Tah, & Mbanga, 2014; Hussain & Zafar, 2018; Kaur & Kaur, 2008; Musa et al., 2013; Noman & Khudri, 2015). found that narrow and broad money, exchange rate, government spending, and revenue have a positive relationship with the real GDP in Bangladesh. Falade and Folorunso (2015) concluded that fiscal and monetary policies in Nigeria are complementary, As well as Confirmed that both policies are equally necessary for Pakistan's economy. Lukianenko and Dadashova (2016) proved that the combination of moderate monetary expansion and balanced fiscal constraints is most appropriate for economic growth in Ukraine. Okorie, Sylvester, and Simon-Peter (2017) Conclude the optimal use of the two policies depends on the objectives of the monetary and fiscal authorities, an expansionary monetary policy is used if the government wants to increase GDP faster, but fiscal policy is used if the government wants a greater impact on GDP .Crowley and Hudgins (2018) for South Africa, found that restrictive fiscal policy is the best option for economic growth rather than restrictive monetary policy. While, Dosi et al. (2015) suggested that a policy mixes that links unrestricted, countercyclical fiscal policy and employment-targeted monetary policy is required to stabilize the economy. Effiong and Okon found that fiscal and monetary variables had a strong positive impact on short-run GDP growth and a negative impact on long-run GDP growth in Nigeria. Conversely, Adegioriola (2018) confirm gfd that government expenditure, revenue, and money supply had a positive effect on economic growth. while interest rate and budget deficit have a negative impact on economic growth in Nigeria. Choi and Beladi (2000) concluded that the effect of monetary policy increases in the case of uncertainty while reducing the effectiveness of the fiscal policy. Pesaran and Shin (1995) showed that active monetary policy promotes economic growth in the short and long run. Active fiscal policy can promote economic growth only in the short run, due to the loss of efficiency in the government expenditures in the long run.

Furthermore, studies conducted in multiple countries yield very mixed results. / no agreement across countries regarding the relative effectiveness of any monetary or fiscal policy. as well as (Hussain, 2014) confirmed the same results for Pakistan, Sri Lanka, Bangladesh, India, and Nepal. Tan et al. (2020) found the fiscal policy is more effective in Thailand, while it is the opposite in Malaysia and Singapore.

In the context of Jordan, Quraan (1998) Proved that monetary policy outweighs the fiscal policy as well as faster in influencing the gross national product (GNP). in Jordan for the period 1969-1994. Moreover, Malawi (2009) showed that fiscal policy has a stronger impact than monetary policy on the economy in Jordan 1969-1994. On the other hand, proved that the GDP growth in Jordan does not show any significant reaction to monetary and fiscal policy. However, recent studies conducted on economic policies in Jordan separately showed the existence of positive effects of monetary variables on GDP growth, see for example (Mugableh, 2019a; Obeid & Awad, 2017), as well the fiscal policy positively affect the economic growth. Al-Masaeed and Tsaregorodtsev (2018); (Alzyadat & Al-Nsour, 2021; Mugableh, 2019a). Moreover, a recent study by Alzyadat and Al-Nsour (2021) examines the relationship between fiscal and monetary policies in Jordan, the study concluded that fiscal policy through the use of government expenditures, tax revenues, and monetary policy through the money supply go

in the same direction, and they complement each other.

Applied studies unanimously agreed on the role that fiscal and monetary policies play in stimulating the economy, but the relative importance of these effects varies according to the country's economic situation. In some countries, fiscal policy outperforms or vice versa, while in others the results are inconclusive. Therefore, these results do not allow making a generalization regarding the effectiveness of each policy. As there are no distinct roles for monetary and fiscal policies in influencing economic growth in countries with mixed policies. The situation seems to be country-specific. The contradictory empirical results found from the above studies may be attributed to a number of factors, depending on country-specific factors such as institutions, level of economic development, political factors, etc., as well as methodologies used, variables selected, etc. Therefore, this study was an attempt to analyze the effectiveness of fiscal and monetary policy in Jordan.

## Methodology

based on the St. Louis equation proposed by (Andersen & Jordan, 1968). Referring to the various empirical studies, the potential impact of monetary and fiscal policies on economic growth, expressed in the following general form .

$$Y = F(\text{FP}, \text{MP}) \quad (9)$$

Where Y (real GDP) is a proxy for economic activities, FP represents fiscal policy variables (government expenditures in terms of current and capital, tax revenues, government revenues, or deficit/surplus in the public budget). MP represents monetary policy variables (money supply, interest, banks credit, or private demand deposits). The model was used to substantiate the views that changes in money supply and government expenditure affect GDP.

$$\Delta Y_t = a_0 + \sum_{i=0}^n b_2 \Delta G_{t-i} + \sum c_t \Delta M_{t-i} + \varepsilon_t \quad (10)$$

Where,  $\Delta$ , indicates the percentage change of the representative variables, n represent the lag length of the underlying variables. Y, the output, measured by GDP. G, and M, fiscal and monetary variables, respectively. G: the actual government expenditure, M : the money supply.  $\varepsilon_t$ : the random error term.

modified the original Andersen and Jordan (1968) equation to compare the relative fiscal and monetary effect. Included export of goods as an independent variable to reflect the potential effects of opening up the economy.:

$$Y_t = \alpha_0 + g G_{t-1} + \varphi_m M_{t-i} + \varphi_r EX_{t-i} + \varepsilon_{5t}. \quad (11)$$

the study uses the Autoregressive Distributed Lag (ARDL) technique, flowing: (Mahmood, & Sial, 2011; Özer, & Karagöl, 2018; Tan, et al. 2020; Arestis, et al. 2021), to find out the effectiveness of macroeconomics policies in the Jordanian's economy, over the period 1970 to 2020. The ARDL proposed by Pesaran and Shin (1998) and Pesaran et al. (2001). is as follows:

$$\Delta Y_t = \delta_{0i} + \sum_{i=1}^q \alpha_1 \Delta y_{t-i} + \sum_{i=1}^k \alpha_2 \Delta X_{t-i} + \delta_1 Y_{t-i} + \delta_2 X_{t-i} + \varepsilon_{it} \quad (12)$$

Where Y is the dependent variable, Xs are the explanatory variables. The maximum lag

lengths of q and k for the dependent and control variables. rewrite the ARDL technique as a conditional error correction model:

$$\Delta \text{LinGDP}_t = \gamma_0 + \gamma_1 \text{LinGDP}_{t-1} + \gamma_2 \text{LinG}_{t-1} + \gamma_3 \text{LinM}_{t-1} + \gamma_4 \text{LinEX}_{t-1} + \sum_{i=1}^p \delta_1 \Delta \text{LinGDP}_{t-i} + \sum_{i=0}^p \delta_2 \Delta \text{LinG}_{t-i} + \sum_{i=0}^p \delta_3 \Delta \text{LinM}_{t-i} + \sum_{i=0}^p \delta_4 \Delta \text{LinEX}_{t-i} + \varepsilon_t \quad (13)$$

Where  $(\delta_1 - \delta_4)$  represent the coefficients off short-run relationships of the variables in the model.  $\varepsilon$  the error correction term (ECT) the speed of short-run adjustment of the model's convergence to equilibrium in the long-run, it has to be statistically significant and negative to show that the variables were converted to the long-run equilibrium. short-run elasticities can be derived from the following EC model:

$$\Delta \text{LinGDP}_t = \sum_{i=1}^p \delta_1 \Delta \text{LinGDP}_{t-i} + \sum_{i=0}^p \delta_2 \Delta \text{LinG}_{t-i} + \sum_{i=0}^p \delta_3 \Delta \text{LinM}_{t-i} + \sum_{i=0}^p \delta_4 \Delta \text{LinEX}_{t-i} + \delta_5 \text{EC} + \varepsilon_t \quad (14)$$

Test the hypothesis  $H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = 0$  against  $H_A: \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq 0$ . While  $(\gamma_1 - \gamma_4)$  represent the of the long-run coefficients, p is the lag length order of the VAR. The bounds test procedure for the relationships between variables after excluding the lag level for the variables.

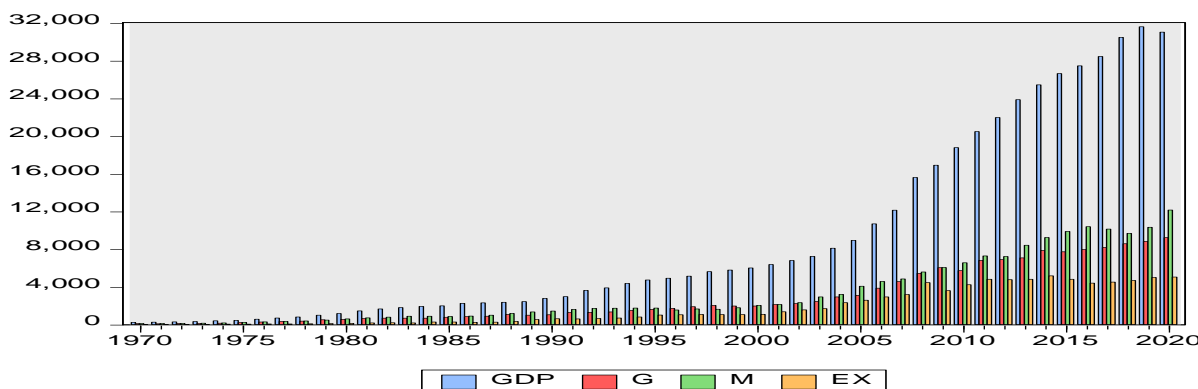
$$\text{LinGDP}_t = \gamma_0 + \gamma_1 \text{LinGDP}_{t-1} + \gamma_2 \text{LinG}_{t-1} + \gamma_3 \text{LinM}_{t-1} + \gamma_4 \text{LinEX}_{t-1} + \varepsilon_t \quad (15)$$

Testing the hypotheses:  $H_0: \gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = 0$  against  $H_A: \gamma_1 \neq \gamma_2 \neq \gamma_3 \neq \gamma_4 \neq 0$

The study employs annual secondary data from Central Bank of Jordan. The dependent variable is real GDP measured the economic growth. The independent variable: the government expenditures, money supply, and export of goods as a control variable, to reflect the potential effects in open economy .the study applies the ARDL technique to analyze data for the period (1970 - 2020).

## Results and Interpretations

Figure (1) shows that the government expenditures, money supply and exports in Jordan scaled on GDP, the variables continue increasing trend throughout the period (1970 – 2020). Table (1) also shows the main descriptive statistical properties of the data. the mean value of GDP is 8876.775, as the mean value of the government expenditure 2839.682 and 3270.629 for money supply during the study period.



**Figure 1;** the GDP, government expenditure, money supply, and exports in Jordan

**Table (1):** the main descriptive statistics properties

	<b>GDP</b>	<b>G</b>	<b>M</b>	<b>EX</b>
Mean	8876.775	2839.682	3270.629	1729.865
Median	4714.700	1604.800	1716.100	1004.534
Maximum	31597.06	9211.300	12150.30	5163.029
Minimum	228.4000	76.50000	105.4000	8.817000
Std. Dev.	9966.176	2909.037	3498.361	1871.927
Skewness	1.128444	0.961083	1.118173	0.768618
Kurtosis	2.808051	2.409210	2.859839	1.925516
Jarque-Bera	10.90208	8.592972	10.66938	7.474929
Probability	0.004292	0.013616	0.004821	0.023814
Sum	452715.5	144823.8	166802.1	88223.13
Sum Sq. Dev.	4.97E+09	4.23E+08	6.12E+08	1.75E+08
Observations	51	51	51	51

In ARDL, it is not necessary to test the integration properties, but a unit root test is applied to check whether the data is stationary, as expressed by Pesaran, Shin, and Smith (2001), for ARDL bounds test, the variables should be  $I(0)$ ,  $I(1)$ , or both., the augmented Dickey-Fuller test (ADF) used to unit root tests to evaluate the order of series integration:. Table (2) results indicate that the null hypothesis of the unit root of the variables in the level cannot be rejected. However, when the test is applied to variables with first differences, the null hypothesis is rejected. This means that the variables are stationary at the first order level  $I(1)$ . Since none of the variables appear to be integrated, the ARDL bounds test approach can be use in this study.

**Table 2.** Unit Root Augmented Dickey-Fuller Test

Variable	Level		1 <sup>st</sup> difference		The result
	Intercept	Trend and Intercept	Intercept	Trend and Intercept	
GDP	-0.586683	-1.806450	-1.845422	-3.276354	I (1)
G	3.094491*	-0.533962	-4.441901*	-2.281846*	I (1)
M	0.576472	-0.680129	-1.947105	-1.947105	I (1)
EX	0.561428	-1.795087	-8.384651	-8.720912	I (1)

\* Means that it is significant at the level of 5%

Table (3): presents the selecting the maximum order criteria for of lag length from the vector autoregressive (VAR) by using the Akaike Information Standard (AIC), Schwarz Information Standard (SCI) and Hannan-Quinn Information (HQ) criteria. Based on the results in table 3 this study considers the maximum lag number as four in both the AIC, SCL and HQ.

**Table 3:** The results of the Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1507.154	NA	9.93e+22	64.30441	64.46187	64.36366
1	-1291.013	386.2945	1.99e+19	55.78777	56.57507	56.08404
2	-1260.459	49.40568	1.09e+19	55.16848	56.58561	55.70175
3	-1220.572	57.70905	4.11e+18	54.15200	56.19897	54.92229
4	-1179.354	52.61890*	1.52e+18*	53.07889*	55.75570*	54.08619*

\* indicates lag order selected by the criterion



Bounds test uses to test the existence of a cointegration relationship, which tests the null of no cointegration relationship against alternative. The cointegration test results in table (4), shows that the values of the F-statistic (57.7) were found to be greater than the upper bound, so the null hypothesis of no cointegration relationship is rejected at 1%, 25%, 5%, and 10% levels of significance. so, the bounds test proves the existence of a long-run relationship between the economic growth and the underlying variables in the model

**Table 4: F-Bounds Test Results**

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	57.76028	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Table (5) presents the results of the estimated long- and short-run ARDL cointegration model (2, 2, 2, 2,) that selected automatically by applying the AIC and SCI. Table 5 shows the results obtained from ARDL approach for the economic growth in Jordan. the results indicate that there are positive and significant relationships between government expenditure as a representative of fiscal policy and GDP in the long and short run. The government expenditure coefficients are positive and statistically significant at 5% significance levels in the short and long run. Numerically, the coefficients indicate that in the long run, a 1% increase in the government expenditure is associated with an increase in GDP growth of about 1.5%. This is consistent with theoretical expectations, and support the Keynesian view that expansionary fiscal policy will increase economic growth. The results are in line with the studies by (Al-Masaeed & Tsaregorodtsev, 2018; Alzyadat & Al-Nsour, 2021; Mugableh, 2019a), Fiscal policy through government spending positively affects economic growth in Jordan. this can be explained by the argument of some economists that an increase in government where a portion of government spending goes to capital projects to build domestic production capacity, this may lead to crowding in investment in addition to increasing aggregate demand, this will boost economic growth. But the study of Alzyadat (2020) confirms the strong relation between government expenditure and public debt in Jordan.

The coefficient of money supply in the long run has a positive and statistically significant at 5% level of significance. In the long-run, a 1 percentage point increase in money supply leads to a 0.9 percentage point increase in output growth, while in the short-run money supply has a negative and statistically significant effect on output growth. The results revealed that the impact of monetary policy on the Jordanian economy is improving over time. Its immediate effect is negative, but over time it becomes positive. This is consistent with the monetary theory that expansionary monetary policy will boost output growth. Also, consistent with the studies that showed the existence of positive impacts of monetary policy on real output growth in Jordan, see for example (Mugableh, 2019a, 2019b; Obeid & Awad, 2017) The results also reveal that exports have a strong positive and statistically significant impact on the growth of the Jordanian economy in both the short and long run. These results confirm the critical role of exports in promoting economic growth in Jordan over the past decades.

**Table (5):** the Results of ARDL Long Run Test

Variables	Coefficient	Std. Error	t-Statistic	Prob.
G	1.583533	0.580927	2.725873	0.0095
M	0.908953	0.336032	2.704958	0.0100
EX	2.051576	0.690007	2.973268	0.0050
C	-164.0011	183.3094	-0.894668	0.3763
ARDL short run and Error Correction Regression				
Variable	Coefficients	Std. Error	t-Statistic	Prob.
D(GDP(-1))	0.142660	0.112682	1.266041	0.2134
D(G)	0.533475	0.260789	2.045619	0.0480
D(G(-1))	0.117664	0.227280	0.517707	0.6077
D(M)	-0.286138	0.108100	-2.646974	0.0119
D(M(-1))	-0.830239	0.167891	-4.945114	0.0000
D(EX)	0.758064	0.177103	4.280368	0.0001
D(EX(-1))	-0.512499	0.177997	-2.879252	0.0066
EC(-1)	-0.306030	0.037552	-8.149440	0.0000
R-squared	0.922119	Sum squared resid		2081710.
Adjusted R-squared	0.908822	Log likelihood		-330.6216
S.E. of regression	225.3296	Durbin-Watson stat		2.063477

The ECM is negative and significant. The ECM coefficient is  $-0.37$ , this statistically indicated that approximately 37% of disequilibrium from the previous year shock will be removed in the current term. which means that the economic growth in Jordan moves to its equilibrium due to the changes in the variables (government expenditure, money supply, exports). This means that there is a long run relation between all variables under consideration. The results also suggest that in the short run, the effects of all variables on economic growth are statistically significant. Thus, the results show that Jordan's economic growth path converge toward the steady-state equilibrium. The speed of adjustment implies that it would take about 3 years to converge back to the equilibrium path.

To ensure the fit of the model, and reaffirm the results obtained in the ARDL approach, this study perform several diagnostic tests, to examine the serial correlation, the functional form, normality, and heteroscedasticity related to the selected model. As pointed out by Pesaran et al. (2001), the stability tests, the cumulative sum (CUSUM), and the cumulative sum of squares (CUSUMQ) provide useful information relating to the stability of the regression coefficients. The CUSUM and CUSUMQ tests results not exceeds the critical values, and show that all variables are cointegrated., which ensure that the model is stable and correctly specified

## Conclusions and Policy Implications

The fiscal and monetary policies are considered an important policy to achieve stable and non-inflationary economic growth, although there is agreement on the importance of the two policies in the economy, but the disagreement among economists about the effectiveness of these two policies. The Jordanian government relied on fiscal and monetary policies in economic reform programs to achieve economic stability. Therefore, this study tries to investigate the relative effectiveness of the fiscal and monetary policies in Jordan during the period (1970 – 2020) using the ARDL approach. The results confirm the positive relationships in the long and short run between government expenditure as a representative of fiscal policy

and Jordan's GDP. This confirms the direct effect of fiscal policy on aggregate demand through a change in government expenditure. Fiscal operations are also valuable in encouraging economic growth. The results revealed that the impact of the money supply as a representative of monetary policy on the Jordanian economy is improving over time. Its immediate effect is negative, but it becomes positive over time. Monetary operations tend to be limited because they are mainly confined to the financial and banking sector. Monetary operations may have little effect in encouraging economic growth, but they may effectively limit inflationary trends, in order to limit the public's ability to obtain bank credit. The EC coefficients show that the average adjustment is 37% in the cointegration equation. Therefore, a 37% adjustment for the short run imbalance shows a tendency towards improvement in Jordan's economic growth. In general, the results provide evidence that fiscal and monetary policies have a significant impact on Jordanian long run economic growth, but in the short run, expansionary fiscal policy is only effective. The result supports the Keynesian view that fiscal policy is more effective than monetary policy to achieve economic stability and agrees with the economic theory that fiscal policy is more effective under a fixed exchange rate regime. The results also agree with Malawi (2009) for the Jordanian economy for the period 1969-1994. Based on the results, both policies should be viewed as complementary to each other, so combining monetary policy compatible with expansionary fiscal policy will achieve much better results, to promote Jordanian economic growth.

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