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Interaction between Fiscal and Monetary Policies: Directions of Causality in Case of Jordan 1990-2011

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Abstract- This paper is an effort to explore the interaction between fiscal and monetary policies in Jordan through investigating the short-term and long-term relationship between government expenditure as a fiscal policy, money supply as a monetary policy, and inflation as a result and cause of these policies. Using annual data for the period 1990-2011, the study applies cointegration test, Granger-causality, and VECM techniques to inspect the long-term and short-term relationship and the directions of causality, also the speed of adjustment toward long-term equilibrium between the variables. The estimation of cointegration, Granger-causality and VECM tests reveal that there is no significant direct interaction between government expenditure as fiscal policy and money supply as monetary policy or indirect interaction through inflation among them. This study does not provide much support for the hypothesis that government expenditure causes monetary expansion and, therefore, leads to inflation or vice versa.

The study suggests that policies makers should considered these findings while designing the fiscal and monetary policies to deal with the economic problem, and pay attention to others factors which induce inflation especially the external factors mainly international prices of food and oil.

Keywords: fiscal policy, monetary policy, government expenditure, money supply, inflation, granger-causality, co-integration, jordan.

I. Introduction

Jordan has been experiencing economic deformations, which includes chronic deficits in the budget and trade account, high level of unemployment and public debt. Theoretically, there are a number of factors that cause economic deformations, so the government of Jordan has taken a number of fiscal and monetary measures as tools to tackle these problems and to achieve economic stabilization. Monetary policy is controlled by the Central Bank of Jordan, which is responsible to take on monetary measures to provide the appropriate amount of domestic liquidity (Money Supply) in order to encourage growth, and to sustain the stability of the Jordanian dinar. Tools of monetary policy include open market operations, discount policy and reserve requirements. These tools affects both real variables (real GDP, Unemployment ….) and nominal variables (inflation and the exchange rate …) in the short-term, but, in the long-term, only nominal variables could be controlled by these tools. On the other hand, Ministry of Finance is responsible for Fiscal policy, which involves deliberate changes in government expenditures and taxes to control economic activity. Government budget is the main tool through which fiscal policy is carried out. Government expenditures are a vital element of aggregate demand. So, it directly affect the level of economic activity; while transfer payments and taxes affect disposable income and consequently influence the other two major elements of aggregate demand, consumption and investment. Therefore, Fiscal policy works through changes in government budget like increasing expenditure to induce economic growth and creation of jobs. This may induce inflation and possible crowding out effect, which in turn affects interstate rate. Likewise, government expenditure is affected by Inflation and interest rate.

The interaction between fiscal and monetary policies and the different agencies responsible for implementation of these policies imply there are no exclusive effective fiscal and monetary measurements for dealing with these deformations, given that each policy has its own supporters. So, most countries have been adopting monetary policy, fiscal policy, or a mix of both policies to tackle their economic problems.

In the late 1980s, Jordan started to face serious economic problems, seeing that inflows of both official transfers and remittances fell, with substantial unfavorable consequences on budgetary revenues. Initially, the authorities resorted to external borrowing to fill the revenue gap, leading to a sharp increase in external debt. In 1989, Jordan had a 30-35 percent unemployment rate and was struggling with its inability to pay its loans. Structural weaknesses in Jordan's public finances and balance of payments were soon exposed, leading the authorities to request the country's first arrangement with the International Monetary Fund (IMF) in 1989 to facilitate orderly external financial relations and reverse a sharp decline in economic growth.

Thus, Economic reforms were initiated as part of an agreement between Jordan and the IMF. The key objectives of the economic reforms in the kingdom focused on the reduction of public debts, reduction of

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the government expenditures, controlling of inflation, tax reforms, credit policy reforms, investment incentives, privatization and easier trade policies. Nevertheless, a highly growing population and the unstable political situation in the region have been major impediments to immediately reaping the benefits of IMF-introduced economic reforms.

During 2011-2012 Jordan's economy has been suffering from exogenous shocks. Repeated and extensive disruption to the flow of natural gas from Egypt due to the damage of the Sinai Peninsula pipeline, together with high and rising oil prices have required imports of expensive fuel products for electricity generation. At the same time, regional tensions and the global economic downturn have adversely affected tourism, worker remittances, and foreign direct investment. As a result, growth has slowed. Despite improvement in tourism income and remittances in 2012, along with the projected decline in oil prices, the external current account deficit is expected to widen to an estimated 14 percent of GDP in 2012, from 12 percent of GDP in 2011.

In response to the negative external shocks, the Jordanian government has asked for financial assistance from the IMF, and adopted another reform program. In this context, it took significant measures to bring back fiscal and energy policies to a sustainable path.

Government expenditure may exceed its revenue for a given period. This generates budget deficit, so it is important to find remedy for financing government expenditure to eliminate the negative effects. Government expenditure could be financed by increasing seigniorage revenue. In this case the central bank is assumed to print money for the treasury department without there being any obligation on the part of the government to pay interest or repay the principal. As the government spends this cash it simultaneously increases aggregate demand and the currency in circulation, leading to the growth of the financial wealth of the private sector and of the broad money supply. Broad money demand, private consumption and private investment are affected with a lag of two or three periods. In turn, it increases price level which induces inflation. Likewise, inflation is critical in the determination of government revenue and spending which induces government expenditure.

General notions imply that steadily high government expenditures increase inflation and inflation induces government expenditure. However, the results of empirical studies which examines this issue are inconclusive, demonstrating that the link from government expenditures to monetary expansion and then to inflation and vice versa from inflation to government expenditure might be less crucial in determining the track of relationship. Furthermore, lack of monetization in the face of increasing government expenditures presents an additional argument on that point. Nevertheless, even when a central bank does not monetize the budget deficit, adjustments in the private sector to higher deficit policies may lead to inflation.

In general, there is little disagreement that in the long-run inflation is primarily a monetary phenomenon. Jordan's experience is not different in that respect as inflation is generally associated with monetary expansion. Therefore, a rise in the general price level can most often be traced to money supply growth. However, the developments in the fiscal sector are also considered to be an important factor in explaining price fluctuations.

Following five years of inflation running below 2%, as measured by the change in the consumer price index, it has started to climb in the last few years, reaching 5.4% in 2007. However, it is still lower than its record high of 6.3% recorded the previous year. Inflationary pressures continue in 2008 with inflation hitting 12% on the back of the full liberalization of oil prices in the domestic market which took place in early February 2008. It will also be affected by the general salary increases in the public sector and the escalation in food and metal prices in the international market. The government also raised the price of water and electricity. Data show that inflation in September of 2008 reached 20% year on year. Then, it slows down to reach 5.5% in 2011.

Both domestic and foreign factors have had a say in the rise in consumer prices in Jordan over the last five years. Rising international prices of food, oil and metals, as well as the weakening of the US dollar against other major currencies, were major external factors contributing to higher inflation rates, whereas expansionary fiscal and monetary policies were among the leading domestic factors.

This paper aims to explore the interaction monetary policy and fiscal policy in Jordan for the period 1990 – 2011, through investigation of the short-term and long-term relationship, and direction of causality among between supply of money (M2) as monetary policy, government expenditure (G) as fiscal policy and inflation (INF) as a result and cause of these policies.

The rest of the paper is organized as follows. Section 2 provides a brief review of literature. Section 3 shows model specification for the study. The methodology is introduced in Section 4, while Section 5 contains data description and empirical findings. Section 6 concludes the study.

II. Literature Review

In economic literature, numerous models have been developed to analyze the long-run relationship among government expenditure, money supply and inflation. However, evidence from the empirical literature is mixed:-

Sulaiman D Mohammad, S Khurram Arslan Wasti, Irfan Lal and Adnan Hussain (2009) investigate long run relationship among M2, inflation, government expenditure impact and economic growth in case of Pakistan. Using Johnson co integration test to find out long run association and Granger causality test to find out bilateral and unilateral causality, based on annual data from 1977 to 2007. The finding shows that there is unidirectional causality running from public expenditure cause to money supply inflation, and bidirectional causality between money supply and inflation. This study lends support for the hypothesis that government expenditure causes monetary expansion and, therefore, leads to inflation. As well, Ignacio Lozano (2008) analyzed the evidence of the causal long-term relationship between government expenditure, money growth and inflation in Colombia considering the standard (M1), the narrowest (M0-Base) and the broadest (M3) definitions of money supply. Using a vector error correction (VEC) model with quarterly data over the last 25 years, the study found a close relationship between inflation and money growth on the one hand, and between money growth and fiscal deficit, on the other. Likewise, Agha and Khan (2006) examine the long-run relationship between inflation and fiscal indicators in Pakistan for the period 1973-2003. The empirical results, using Johansen co-integration analysis, indicate that in the long-run inflation is not only related to fiscal imbalances but also to the sources of fiscal deficit financing. The authors conclude that inflation in Pakistan is strongly affected by government's bank borrowing for budgetary support as well as fiscal deficits and, consequently, that fiscal policy is an important factor in explaining price movements. Also, the study by Catao and Terrones (2003) shows that there is a strong positive relationship between government expenditures and inflation among developing countries as well as countries characterized by high inflation, but not among advanced economies with low-inflation. Durevall and Ndung'u (2001), using a dynamic error correction model of inflation for Kenya, find that money supply affects prices only in the short-run. Vieira (2000) investigates the relationship between fiscal deficit and inflation in the case of six major European economies. The results provide little support for the proposition that government expenditure has been an important contributing factor to inflation in these economies over the last 45 years. Similarly, De Haan and Zelhorst (1990) analyze the relationship between government expenditure and money growth in developing countries. The overall conclusion of this study does not provide much support for the hypothesis that government expenditure causes monetary expansion and, therefore, leads to inflation.

III. Model Specifications for the Study

Using annual data from CBJ's database and IMF's database the present paper examines the relationship between government expenditure, money supply and inflation in Jordan, while our model will be:

$$INF_t = \alpha + \beta_1 M2_t + \beta_2 G_t + U_t \quad (1)$$

Where G_t is government expenditure, M2 is money supply and INF_t is inflation which is measured by consumer price index (CPI_t) while α and β are the coefficient to be estimated and the U_t is error term.

This can be reformulated to examine the link between government expenditure and other variables as follows:-

$$G_t = \alpha + \beta_1 M2_t + \beta_2 INF_t + U_t \quad (2)$$

Taking the logarithm form of equation (1) will yield equation (3) below with "ln" standing for the natural logarithm

$$\ln G_t = \alpha + \beta_1 \ln M2_t + \beta_2 \ln INF_t + U_t \quad (3)$$

IV. Econometric Methodology

The objective of this section is to examine the presence of interdependence and the direction of causality between government expenditure, money supply and inflation in Jordan.

In order to examine the relationship and the directions of causality between government expenditure, money supply and inflation in Jordan, a two-step procedure is adopted. The first step investigates the existence of a long-run relationship between the variables through a co-integration analysis. The second step explores the causal relationship between the series as follows:-

a) Long run relationship

We perform our investigation of existence of co-integration which clarifies the long run relationship between variables in two steps. First, we test for unit root vs. stationary. Then we test for no co-integration vs. co-integration.

b) Unit root test

The objective of unit root test to empirically examine whether a series contains a unit root. Since many macroeconomic series are non stationary (Nelson and Plosser 1982), unit root test are useful to determine the order of integration of the variables and, therefore, to provide the time-series properties of data. If the series contains a unit root, this means that the series is non-stationary. Otherwise, the series will be categorized as stationary. In order to implement a more rigorous test to verify the presence of a unit root in the series, an Augmented Dickey-Fuller (ADF) is employed.

c) Co-integration test

Johansen and Juselius procedure is applied to test for the existence of co-integration. The Johansen technique enables us to test for the existence of non-unique co-integration relationships in more than two variables cases. Through Johansen procedure of co-integration two tests statistics are suggested to determine the number of co-integration vectors determined based on a likelihood ratio test (LR): the trace test (λ_{trace}) and the maximum eigenvalues test statistics (λ_{max}).

d) Granger-causality test

Pair wise causality relationship between variables should be tested through the implementation Granger causality test; Granger (1969), the concept of "causality" assumes a different meaning with respect to the more common use of the term. The statement(y) Granger causes (x) or vice versa, in fact, does not imply that (y) and (x) is the effect or the result of (y) and (x), but represents how much of the current (y) and (x) can be explained by the past values of (y) and (x) and whether adding lagged values of (y and x) can improve the explanation. For this reason, the causality relationship between (y and x) can be evaluated by estimating the following regressions:

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{m} \beta_{1i} \Delta Y_{t-i} + \sum_{i=1}^{n} \beta_{2i} \Delta X_{t-i} + \varepsilon_i \quad (4)$$

$$\Delta X_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta Y_{t-i} + \sum_{i=1}^{m} \beta_{2i} \Delta X_{t-i} + \varepsilon_i \quad (5)$$

Where (m and n) represents the lag length and should set equal to the longest time over which one series could reasonable help to predict the other.

Following this approach, the null hypothesis that (x) does not granger cause (y) in regression (4) and that (y) does not Granger cause (y) in regression (5) can be tested through the implementation of a simple F-test for the joint significance of, respectively, the parameters β1i and β2i. Following the equations (4) and (5) were estimated using four lags of each variable which should represent and adequate lag-length over which one series could help to predict the other.

The results of stationarity and cointegration tests determine how Granger-causality test should be applied, as follows:

If the variables (y) and (x) are stationary, the standard Granger-causality test should be carried out by estimating the following regressions:-

$$Y_t = \alpha + \sum_{i=1}^{m} \beta_{1i} Y_{t-i} + \sum_{i=1}^{n} \beta_{2i} X_{t-i} + \varepsilon \quad (6)$$

$$X_t = \alpha + \sum_{i=1}^{n} \beta_{1i} Y_{t-i} + \sum_{i=1}^{m} \beta_{2i} X_{t-i} + \varepsilon_i \quad (7)$$

If the variables (y) and (x) are non-stationary and integrated of order (1), but, they are not co-integrated, the Granger-causality test could be carried out by estimating regression models (4 and 5) using the first difference series of both variables (Yoo and Kwak, 2004). In general, if the origin series of both variables are non-stationary and the variables are not co-integrated, the Granger-causality test could be performed by using the same order of integration for both series, and reforming model (5 and 6) to suit the order of difference series.

In model (4 and 6), (Y) is caused by past values of both (Y) and (X). Likewise, in model (5 and 7), (X) is caused by past values of the two variables. According to Granger, (X) causes (Y) in model (4 and 6) if (β2i) is significant from zero, and that (Y) causes (X) in model (5 and 7) if (β1i) is significant from zero. On other hand, (X) does not cause (Y) if (β2i) in model (4 and 6) is insignificant from zero, and that (Y) does not cause (X) if (β1i) in model (5 and 7) is insignificant from zero. These hypotheses can be verified depending on the joint significance of the parameters (β1i, β2i) which can be tested through the implementation of a simple F-test.

If the variables (Y) and (X) are non-stationary, integrated of the same order (d), and co-integrated which means that they have a long-run equilibrium relationship, the Granger-causality test should be carried out through estimating Error Correction Model (VECM) which could have the following form:

$$\Delta Y_t = \alpha + \sum_{i=1}^{m} \beta_{1i} \Delta Y_{t-i} + \sum_{i=1}^{n} \beta_{2i} \Delta X_{t-i} + \beta_3 \eta_{t-1} + \varepsilon_i \quad (8)$$

$$\Delta X_t = \alpha + \sum_{i=1}^{m} \beta_{1i} \Delta X_{t-i} + \sum_{i=1}^{n} \beta_{2i} \Delta Y_{t-i} + \beta_3 \eta_{t-1} + \varepsilon_i \quad (9)$$

Where (η_{t-1}) is error-correction term. The error correction term (η_{t-1}) is the lagged value of the residuals from the OLS regression of Y_t on X_t in (8), and the lagged value of the residuals from the OLS regression of X_t on Y_t in (9). In (8) and (9), ΔY_t, ΔX_t and ε i are stationary, implying that their right-hand side must also be stationary. It is obvious that (8) and (9) compose a bivariate VAR in first differences augmented by the error-correction terms (η_{t-1}), indicating that ECM model and co-integration are equivalent representations.

According to Granger (1969; 1988), in a co-integrated system of two series expressed by ECM representation causality must run in at least one way. Within the ECM equation (8), (X_t) does not Granger cause (Y_t) if all β2i = 0 and β3 = 0. Equivalently, in

equation (9) (Y_t) does not Granger cause (X_t) if all β2i = 0 and β3 = 0. Also, (β3s) the parameters of the error correction term indicate the speed of adjustment of any short-run disequilibrium towards a long-run equilibrium between both variables.

The Granger-causality could be claimed if the parameters (β2i and β3) in (8) and, or (β2i and β3) in (9) are jointly significant from zero which can be tested by a simple F-test. Similarly, Long-run causality could be claimed if (β3) the parameter of the error correction term in (8 or 9) is statistically significant which can be tested by t-test.

What have been mentioned above clarifies that testing of stationary then co-integration are an essential requirements which determine how we do Granger-causality test.

Finally, as co-integration, causality tests and VECM model are sensitive to lag length (m) the choice of the number of lag actually employed was assigned to LR: sequential modified LR test statistic (each test at 5% level).

V. Estimation and Interpretation of Results

This study uses annual observations for the period 1990-2011 for three variables: government expenditure (G), money supply (M2) and inflation (consumer price index (CPI)) in order to analyze the possibility of co-integration and causality relationship among them.

a) Unit root test

The first step in analysis is to test the unit roots in each variable. Consequently, we apply augmented Dickey-Fuller (ADF) unit root test on logarithms of G, M2 and INF (LG, LM2 and LINF). From the results of the ADF test presented in Table 1.

Table 1 : Unit Root Tests

Series	With intercept	With intercept and trend	Decision	Order of integration
Levels	ADF	ADF		
LG	-1.418137 [-3.012363]	-1.100418 [-3.644963]	Not stationary	-
LM2	0.722843 [-3.012363]	-0.773098 [-3.644963]	Not stationary	-
LINF	-0.030729 [-3.012363]	-1.361985 [-3.644963]	Not stationary	-
First difference				
ΔLG	-4.140659* [-3.020686]	-4.865945* [-3.658446]	stationary	I(1)
ΔLM2	-3.190892* [-3.020686]	-3.622737 [-3.658446]	stationary	I(1)
ΔLINF	-4.834829* [-3.020686]	-4.862575* [-3.658446]	stationary	I(1)

- *Note: * test critical values which denotes significant at 5% level.*
- *The number in parenthesis is the [t] statistic value.*

As a sum up, (LG, LM2 and LINF) are stationaries in the first difference. This implies that all the series are integrated of order one I(1). This making co-integration tests relevant.

b) Testing Co-integration and Error Correction mechanism

Since the first difference series are stationary, Let us examine the existence of co-integration between variables on bivariate bases. Johansen-Juselius procedure is used to test for co-integration between variables. Tables 3-1,3-2,3-3 reports the results obtained from the co-integration tests and presents the result of the trace test (λ trace) and maximum eigenvalues test (λ max) statistics for the existence of long run equilibrium between the variables:

Table 3-1 : Co-integration test: (LG↔LM2)

Null Hypothesis	λ_{trace}	λ_{max}
r=0	11.49574 [15.49471]	10.38150 [14.26460]
$r \leq 1$	1.114242 [3.841466]	1.114242 [3.841466]

*- *terms in [ ] indicates 5% level critical value.*

The null hypothesis of no Cointegration (r=0) based on both the trace test and the maximum eigenvalues test between government expenditure (LG) and money supply (LM2) could not be rejected at (5%) level of significance. The estimated tests indicate that there is no Cointegration vector between the two variables.

Table 3-2 : Co-integration test: (LG↔LINF)

Null Hypothesis	λ_{trace}	λ_{max}
r=0	16.87893 [15.49471]	14.40104 [14.26460]
$r \leq 1$	2.477893 [3.841466]	2.477893 [3.841466]

*- *terms in [ ] indicates 5% level critical value.*

The null hypothesis of no Cointegration (r=0) based on both the trace test and the maximum eigenvalues test between government expenditure (LG) and inflation (LINF) is rejected at (5%) level of significance. However, the null hypothesis that ($r \leq 1$) could not be rejected. The estimated tests indicate that there is only one Cointegration vector between the two variables.

Table 3-3 : Co-integration test: (LM2↔LINF)

Null Hypothesis	λ_{trace}	λ_{max}
r=0	10.12480 [15.49471]	8.948506 [14.26460]
$r \leq 1$	1.176294 [3.841466]	1.176294 [3.841466]

*- *terms in [ ] indicates 5% level critical value.*

The null hypothesis of no Cointegration (r=0) based on both the trace test and the maximum eigenvalues test between money supply (LM2) and inflation (LINF) could not be rejected at (5%) level of significance. The estimated tests indicate that there is no Cointegration vector between the two variables.

c) Causality test

Now we can turn our attention to the question of direction of causality. It contains three elements: (a) does government expenditure cause money supply, or does money supply cause government expenditure? (b) Does money supply cause inflation, or does inflation cause money supply? And (c) does government expenditure cause inflation, or does inflation cause government expenditure?

As the variables (LG) and (LINF) are non-stationary at level, integrated of the same order (d), and co-integrated, the Granger-causality test is carried out through estimating Vector Error Correction Model (VECM). Table 4-1 shows the findings of VECM for both variables government expenditure (LG) and inflation (LINF):-

Table 4-1 : Vector Error Correction Model.(LG↔LINF)

Regression	ΔLG	ΔLINF
CONSTANT	0.066760 [1.94392]	0.048762 [4.34105]
Error Correction Term (η_{t-1})	-0.173714 [-0.74059]	-0.225798 [-2.94314]
ΔLG_{-1}	0.006863 [0.02267]	-0.023081 [-0.23311]
$\Delta LINF_{-1}$	0.390044 [0.62228]	-0.225798 [-1.52933]
R^2	0.045572	0.469093
S.E	0.075045	0.024546

*- *terms in [ ] are t – statistics.*

The lagged error term coefficient (η_{t-1}) in (LG) equation is negative and statistically insignificant. Likewise, the lagged error term coefficient (η_{t-1}) in (LINF) equation is positive and statistically significant. These results indicate that there is no long-run equilibrium relationship between the variables government expenditure and inflation Furthermore, the

estimates of the VECM does not support the existence of causation relationship in the short run between them.

Then, the existence of Granger-causality between government expenditure (LG) and money supply (LM2) are investigated by estimating regression models (4 and 5) using the first difference series of each variable. Since, they are non-stationary at level and integrated of order (1), but, they are not co-integrated. Table 4-2 shows the results of estimation:

Table 4-2 : Granger-causality test (LG↔LM2)

Regression	Lag	F-statistics	P-Value	Granger-causality
ΔLG on ΔLM2 Null hypothesis: ΔLM2 does not granger cause ΔLG	1	0.63976	0.4348	NO
ΔLM2 on ΔLG Null hypothesis: ΔLG does not granger cause ΔLM2	1	1.40816	0.2517	NO

The results of Granger-causality test in Table 4-2 reveal that there is no causation between government expenditure (ΔLG) and money supply (ΔLM2).

Similarly, the existence of Granger-causality between money supply (LM2) and inflation (LINF) are investigated by estimating regression models (4 and 5) using the first difference series of each variable. Since, they are non-stationary at level and integrated of order (1), but, they are not co-integrated. Table 4-3 shows the results of estimation:

Table 4-3 : Granger-causality test (LG↔LM2)

Regression	Lag	F-statistics	P-Value	Granger-causality
ΔLM2 on ΔLINF Null hypothesis: ΔLINF does not granger cause ΔLM2	1	0.25069	0.6230	NO
ΔLINF on ΔLM2 Null hypothesis: ΔLM2 does not granger cause ΔLINF	1	0.19143	0.6672	NO

The results of Granger-causality test in Table 4-3 reveal that there is no causation between money supply (LM2) and inflation (LINF).

The findings of Granger-causality test and VECM reveal that there is no significant direct interaction between government expenditure as fiscal policy and money supply as monetary policy or indirect interaction through inflation among them.

VI. Conclusion

In the last three decades Jordan has been suffering from serious Economic deformations, which includes chronic deficits in the budget and trade account, high level of unemployment and public debt. This highlights the need of efficient fiscal and monetary policies to tackle these problems and to achieve economic stabilization. The interaction between fiscal and monetary policies and the different agencies responsible for implementation of these policies imply there are no exclusive effective fiscal and monetary measurements for dealing with these deformations, given that each policy has its own supporters. So, most countries have been adopting monetary policy, fiscal policy, or a mix of both policies to tackle their economic problems.

In Jordan, notions imply that expansionary fiscal and monetary policies were crucial domestic factors in rise in consumer prices in the country over the last two decades .whereas, raising international prices of food, oil and metals, as well as the weakening of the US dollar against other major currencies, were major external factors contributing to higher inflation rates in Jordan.

Based on annual data covering the period 1990-2011for Jordan. This study has used Granger-causality, cointegration and VECM techniques to investigate short-run and long-run relationships also the directions of causality between government expenditure as fiscal policy, money supply which belongs to monetary policy and inflation which is mainly induced by money supply and affects government expenditure and vice versa.

The estimation of cointegration, Granger-causality and VECM tests reveal that there is no significant direct interaction between government expenditure as fiscal policy and money supply as monetary policy or indirect interaction through inflation among them. This study does not provide much support for the hypothesis that government expenditure causes monetary expansion and, therefore, leads to inflation or vice versa. Which confirm the findings of De Haan and Zelhorst (1990) and Vieira (2000).

The study suggests that policies makers should considered these findings while designing the fiscal and monetary policies to deal with the economic problem, and pay attention to others factors which induce inflation especially the external factors mainly international prices of food and oil.

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