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# **Analysis the Relationship between the Budget Deficit and Cash Supplying**

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## **Abstract**

This investigation is carried out with the objective to reassess this notion in the context of under developed economy. A long run relationship between inflation, money supply and budget deficit is investigated using time series data consisting time period of 1975 to 2017 as a method. As a result, the evidence does not support the hypothesis that money supply is associated with budget deficit in long run. However, inflation and money supply has long run one way relationship in Iraq. Therefore, this research conclude that budget deficit constrains does not bring changes in monetary policy in Iraq.

**Keywords:** Budget Deficit, Money Supply, Iraq.

## **Análisis de la relación entre el déficit presupuestario y la provisión de efectivo**

### **Resumen**

Esta investigación se lleva a cabo con el objetivo de reevaluar esta noción en el contexto de la economía subdesarrollada. Una relación a largo plazo entre la inflación, la oferta monetaria y el déficit presupuestario se investiga utilizando datos de series de tiempo que consisten en un período de 1975 a 2017 como método. Como resultado, la evidencia no apoya la hipótesis de que la oferta de dinero

está asociada con el déficit presupuestario a largo plazo. Sin embargo, la inflación y la oferta monetaria han tenido una relación de largo plazo en Irak. Por lo tanto, esta investigación concluye que las restricciones del déficit presupuestario no traen cambios en la política monetaria en Irak.

**Palabras clave:** déficit presupuestario, suministro de dinero, Irak.

## 1. INTRODUCTION

Numerous financial experts contend that inflation is entirely a fiscal event which is associated with money supply and economic growth imbalance. When Central Banks increases money supply which surpasses the demand level of cash hence increased demand in the goods creates an inflationary trend. This inflationary trend increases the money supply as the public dispose of its excessive cash holdings. The Central Banks can wipe out the connection between budget deficit and inflation by declining to adapt the deficiency. It endeavors to meet the shortfalls that are caused subsequently, by expanding money supply.

Traditionally it is argued that budget deficit offer ascent to inflation. The relationship among budgetary deficit and monetary supply is still inconclusive showing that the connection from budget deficiencies to inflation may be less pivotal in deciding the course of inflation. Besides, declining or flawless seigniorage incomes, i.e., absence of adaptation even with growing spending shortfalls introduce

an extra contention on that point. The state necessity will expand the net credit requests in the economy, geared the rate of interest and affect the private borrowings. The subsequent decrease in the development rate of the economy will prompt abatement in the measure of products accessible for a given level of money adjusts and henceforth the inflation in the price level. The other channel through which shortfalls can prompt higher inflation level when Central Banks do not adapt the obligation is the private adaptation of deficiencies. This happens when the high loan costs trigger the monetary sector to raise new risk free financial product that can substitute the cash. Therefore, the burden of debt is shifted from the Central Bank to the private sector. Hence, the inflationary impacts of deficit are sustained in the economy (Al Kaabi & Jowmer, 2018).

Various examinations have been argued that the increase in the cash supply is the outcome of the existing inflationary trend. Thus, it is a main consideration in influencing the rate of inflation and provides the proof of two-way causation. The increase in the existence level of money expands, the demand in the goods market hence prices geared up. It also to mention that government mitigate the budget deficit by increasing money supply (printing money) which reflects the inflation at most. Some studies have stressed that changes in cash are the logical reason of inflation. Similarly Frenkel (1977) recommended two different ways causality between cash supply and inflation. However, some studies also found that impact of change in the money supply at times of hyperinflation is more significant for change in inflation (Sargent and Wallace, 1973; Jacobs, 1977). Prior studies have focused

on the direction of the relationship among deficit and money supply and inflation. However, some studies have found unidirectional relationship and some studies have reported two way causality relationship (Frenkel, 1977; Aghevli and Khan, 1977). The inconclusive evidence among previous evidence stimulates this idea to investigate the relationship among budget deficit and money supply. Therefore, this investigation is unique in nature by two ways. First, to study the long run relationship among the variables. On the other hand empirical evidence on the special context of emerging and underdeveloped economy of Iraq, which has been severely affected by inflation. Moreover, there is a dearth of economic literature in special Iraqi context.

## **2. LITERATURE REVIEW**

Empirical studies, which examined the relationship between budget deficit, money supply and inflation, have been conducted around the globe but did not provide any consensus. On the possible relation between budget deficits, the supply of money and inflation; it has been observed that different results were obtained based on the model, the economic situation of the country and observational term. Budget deficiencies have significantly affected the supply of the cash has been reported in US. Likewise proof of cash supply impacting the inflation level in the US amid the 1953-1984 periods provides positive results (Jones and Khilji, 1988). The connection between government spending shortfalls and cash development in the developing economies

has been examined by (Aslam and Ahmed, 1995). The outcome of the investigation gives ample evidence to the theory that budget deficiencies impact cash development. Chaudhary and Parai (1995) have also studied to discover the impact of the foreseen budget deficit on inflation rates and reasoned budgetary shortfall for expansion of money supply and inflation. However, there are some other studies reported the casual relationship among budget deficit and money supply which ultimately affects the inflation rate.

The connection between budget shortages and fiscal development has broken down by Vieira (2000) and did not give much help to the theory that the budget deficit prompted money related expansion. Moreover, the connection between monetary supply and inflation in the six European economies has studied by Vieira (2000) and explained that the contribution of the budget deficit in inflation changes scarcely been upheld. Accordingly, Durevall and Ndung'u (2001) found that the cash supply just influences costs for the short run. Although there is a solid positive connection between inflation, budget deficit and money supply have been reported by Catao and Terrones (2003), the significance is stronger in developing economies. In addition to this, a positive connection between money supply, budget deficiency and inflation in Pakistan has asserted by (Chaudhary and Ahmed, 1995). Furthermore, a study focusing on the long run relationship discovers that local financing of monetary deficiencies, especially from monetary institutions, is inflationary over the long run and more significant in hyperinflationary time periods.

Çetintaş (2005) assessed the connection between spending deficiencies and inflation utilizing bi-variate and multivariate models with the information for the period 1985 to 2003 in Turkey. He has reasoned that there is a bi-directional causality between the variables and the inflation in Turkey can be just dropped by diminishing budgetary shortages. In the same course of action Özgün (2000) looked into the long run relationship of budgetary shortages and rate of expansion of cash on inflation and found a positive association among factors and furthermore a bi-directional causality between inflation and budget deficit. Similarly, another study has asserted positive and significant relationship between expansion in cash supply and inflation in the short run and long run (Altıntaş et al., 2008). Keeping in view the above discussion this study hypothesize that in Iraq budget deficit has a significant relationship with money supply level and inflation. In the majority of the above investigations, observational work was completed utilizing yearly information to examine the connection among budget deficit, money supply and inflation. However, discoveries are as yet inconclusive and need to revisit the problem.

### **3. DATA AND ANALYTICAL RESULTS**

This study is aimed to investigate the relationship among budget deficit, money supply and inflation. Following equations are utilized to estimate the proposed framework.

$$If = \beta_0 + \beta M2 + \beta Bf + \epsilon \tag{1a}$$

$$M2 = \beta_0 + \beta Bf + \epsilon \tag{1b}$$

Where If represents inflation and is measured by the consumer price index (CPI) using base year value of 1975. Bf represents budget deficit and explained as a ratio of GDP. M2 is understood as money supply as a percentage of GDP. The observational data consists on the time period of 1975 to 2017. An annual time series of data has been utilized to measure the relationship. Data was obtained from World Bank open data center. Equation 1a is utilized to measure the impact of money supply and the budget deficit on inflation. Equation 1b is utilized to measure the role of budget deficits in money supply expansion.

It is necessary to test for integration of the factors to confirm that stationary of the variables at I (2). For this reason, we lead an Augmented Dickey-Fuller (ADF) test via doing a unit root test.

Table 1: ADF Unit Root Test Results

Variables	ADF test	
	I(0)	I(1)
LnIf	-4.491*	-4.220**
LnBf	-3.474**	-6.058*
LnM2	-2.372	-5.037*

\*, \*\* and \*\*\* indicate importance level at 1%, 5% and 10%, separately



To determine co-integration among variables this investigation utilized co-integration test of (Johansen and Juselius, 1990). Following equation is utilized to measure the co-integration:

$$\begin{aligned}
 Z_t &= K_1 Z_{t-1} + K_2 Z_{t-2} + \dots + K_{k-1} Z_{t-k} + \mu + V_t \tag{2}
 \end{aligned}$$

Where  $Z_t$  represents a vector of  $2 \times 1$  (Bf, M2).  $K$  is a  $2 \times 2$  matrix of parameters and  $\mu$  is constant vector and  $V_t$  represents independent error term. We further modify equation 2 and converted it into vector error correction model.

$$\begin{aligned}
 \Delta Z_t &= \Gamma_1 \Delta Z_{t-1} + \Gamma_2 \Delta Z_{t-2} + \dots + \Gamma_{k-1} \Delta Z_{t-k-1} + \Pi Z_{t-1} + \mu + V_t \tag{3}
 \end{aligned}$$

In equation (3) a  $2 \times 2$  matrix of coefficients used to determine the long run relationship. To decide the quantity of vectors which are con integrated, probability proportion tests named as Trace test and Eigen value test is utilized (Johansen and Juselius, 1990).

Equation 4 reports results on the basis of  $\lambda_{trace}$  and  $\lambda_{max}$  measurements, which demonstrate that there is co-integration vector among the variables. Hence, the no co-integration assumption is therefore rejected. Furthermore, all the results are tested at 1% significant level. Hence, we can conclude that there is a long run

relationship among inflation and money supply. Whereas, no co-integration is detected among budget deficit and money supply. Therefore, we can conclude that there is no long-run relationship among budget deficit and money supply. The co-integration equation can be written as below:

$$\text{LnIf} = 2.926 + 0.571\text{LnM2} + 0.00263\text{LnBf}$$

The assessed coefficient of the error-correction term in the equation has the positive sign and it is significant with coefficient value of 57% as shown in equation 4. To test the strength of the VECM, we apply various analytic tests. The test for serial correlation and heteroskedasticity is also measured. Table 2 presents the summary of results.

Table 2: Results of Vector Error Correction Model

Specifications	$\Delta\text{LnIf}$	$\Delta\text{LnM2}$	$\Delta\text{LnBf}$
Constant	0.062	0.045	0.521
ECT(-1)	-0.475	- 0.081	- 0.023
R <sup>2</sup>	0.482	0.621	0.152
Adjusted R <sup>2</sup>	0.39	0.61	0.17
F-Statistics	10.35	13.86	5.93
Breusch-Godfrey	0.96	0.82	1.72
White Heteroskedasticity	0.73	1.73	1.02

After checking co-integration among variables a granger causality test is applied as a standard rule. For the purpose, following econometric equation is utilized to test granger causality among variables.

$$\begin{aligned} \text{Ln}\Delta\text{If}_t = & C_0 + \sum_{i=1}^p C_i \text{Ln}\Delta\text{If}_{t-i} + \sum_{j=1}^q C_j \text{Ln}\Delta\text{M}2_{t-j} \\ & + \sum_{k=1}^r C_k \text{Ln}\Delta\text{Bf}_{t-k} + \omega\text{ECT}_{t-1} + \mu_{4t} \quad (5) \end{aligned}$$

Equation (5) includes an error correction term into a VAR to detect long run Granger causality where If is assigned as a dependent variable. Table 3 presents long run Granger causality results. The findings of the test provides ample evidence to support one-way causality from independent to dependent variable.

Table 3: Long Run Granger Causality Test Results

Dependent	
LnIf	-0.783*
	(-8.73)

\* denotes significance at 1% level. T-values are in parenthesis.

We do not find any evidence of causality relationship between budget deficit and inflation and budget deficit and money supply. The

granger causality test presents that there is a casual relationship among inflation and budget deficit.

#### **4. CONCLUSION**

Budgetary deficiencies have a dreadful repute that it will turn to cash creation, and subsequently, to inflation. That is the reason budget deficit is often associated with inflation and money supply. In Iraq the inflation is indicative as a reaction of money supply and the money supply is associated with budget deficit. Therefore, this investigation is carried out to explain the role of budget deficit in change of money supply to find out the empirical reasoning. A long term relationship between inflation money supply and budget deficit is therefore investigated. The result of the study found that there is no long term correlation among money supply and inflation and money supply and budget deficit. However, a long run relationship among inflation and money supply is detected. Therefore, we concluded that this study does not find any evidence to support the argument that expansion money supply is associated with budget deficit.

#### **REFERENCE**

- AGHEVLI, B., and KHAN, M. 1977. **Inflationary Finance and Dynamic of Inflation**, the American Economic Review, Vol. 67, N<sup>o</sup> 3: 390-403. USA.
- ALTINTAŞ, H., ÇETINTAS, H. & TABAN S. 2008. **Budget Deficit in Turkey, the Econometric Analysis of the Relationship between**

- Monetary Growth and Inflation: 1992-2006**, Anadolu University Journal of Social Sciences, Vol. 8, N° 2: 185-208. Turkey.
- ASLAM, M., and AHMAD, N. 1995. **Money Supply, Deficit, and Inflation in Pakistan**. The Pakistan Development Review. Vol. 34, N° 4: 945-956. Pakistan.
- CATAO, L., and MARCO, T. 2003. **Fiscal Deficits and Inflation: A New Look at the Emerging Market Evidence**. IMF Working Paper, International Monetary Fund. N° 65. Washington, DC: USA.
- ÇETINTAŞ, H. 2005. **Why Midi Budget Deficit Inflation in Turkey?** Journal of Economics, Business and Finance, Vol. 20/29, pp. 115-127. Germany.
- CHAUDHARY, M., and NAVED A. 1995. **Money Supply, Deficit and Inflation in Pakistan**. The Pakistan Development Review, Vol. 34, N° 4: 945-956. Pakistan.
- DUREVALL, D., and NJUGUNA, S. 2001. **A Dynamic Inflation Model for Kenya**. Journal of African Economics, Vol. 10, N° 1: 92- 125. South Africa.
- FRENKEL, J. 1977. **The Forward Exchange Rate, Expectations, and the Demand for Money: The German Hyperinflation**. The American Economic Review. Pp. 653-670. USA.
- JACOBS, R. 1975. **A Difficulty with Monetarist Models of Hyperinflation**. Econ. Inq., Scept, Vol. 13, pp. 337-60. Netherlands.
- JOHANSEN, S., and KATARINA J. 1990. **The Maximum Likelihood Estimation and Inference on Cointegration - with Application to Demand for Money**, Oxford Bulletin of Economics and Statistics, Vol. 52, N° 2: 169- 210. UK.
- JONES, D., and KHILJI, M. 1988. **Money Growth, inflation and causality**. The Pakistan Development Review, Vol. 27 N° 1. Pakistan.
- ÖZGÜN, D. 2000. **An Empirical Approach to Fiscal Deficits and Inflation: Evidence from Turkey**. Under secretariat of Treasury, General Directorate of Economic Research, Ankara. Turkey.
- SARGENT, T., and WALLACE, N. 1973. **Rational Expectations and the Dynamics of Hyperinflation**. International Economic Review. Vol. 14, N° 2: 329-350. USA.

- VIEIRA, C. 2000. **Are Fiscal Deficit Inflationary? Evidence for the EU**, Economics Research Paper, Loughborough University. N° 7. Loughborough: UK.
- Al Kaabi, B. R., & Jowmer, B. (2018). **The Use of Sustainable Balanced Scorecard as a Tool for Strategic Planning and Resource Efficiency Improvement: An Empirical Study in the Mustansiriya University**. *The Journal of Social Sciences Research*, 4, 213-221.



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