The Impact of the Growth Rate of Money Supply on Inflation in Iraq for the period (1990-2017)

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Abstract

Money offer or money supply means the amount of payment methods available in the society, i.e., the sum of money of all kinds, which are present in the society within a certain period of time and consists of the currency of circulation and bank money. The Iraqi economy during the period of research (1990-2017) witnessed a large increase in the monetary issue, which crystallized in increasing the volume of money supply, and was reflected in the general price level and the decrease in purchasing power of the Iraqi dinar. This increase in money supply was due to the continuous acceleration in the practice of cheap monetary policy. Through the mechanism of linking the expansion of the width of the cluster on the one hand and the widening of the deficit in the budget on the other. The study dealt with five topics, the first topic is the methodology, the second is an overview of inflation through the definition of inflation and its types and the economic and social effects resulting from it, the third topic illustrates the relationship between inflation and the presentation of money through statistical indicators of inflation and the average annual presentation of money, the fourth topic is the standard aspect of the relationship between inflation and money supply and the last topic concludes the conclusions and recommendations which confirm that unjustified government spending and misguided economic policies have had a significant impact on increasing inflation rates. Therefore, the tools and methods used by the Central Bank of Iraq should be reconsidered to reduce inflation rates and develop banking awareness for the safety of the Iraqi economy.

Keywords: Inflation, money supply, GDP.

The First Topic: Research Methodology

Introduction:

During the period of research, Iraq underwent difficult economic, political and social conditions. Such as a comprehensive international economic blockade, isolating the country from the outside world for the period 1990 and early 2003. The Iraqi economy witnessed during this period a large increase in the monetary issuance, which crystallized in increasing the volume of money supply and the general price level, which lowered the purchasing power of the Iraqi dinar, and the money supply was linked directly to the financial position of the government and its financial policy until 2003. After the political change, the procedures for the presentation of cash and related decisions has become some of the Central Bank of Iraq powers.

Research Problem:

Inflation is one of the most important problems that represent a major challenge to economic policies in the absence of a clear economic strategy in Iraq and keeping the economy subject to the jurisprudence of decision makers. The large increase in the supply of money has been greatly doubled and the money supply is directly linked to the financial position of the government and its financial policies until 2003. After the political change, the procedures for the presentation of cash and related decisions has become some of the Central Bank of Iraq powers.

Research Hypothesis:

Curbing (reducing) the rate of growth of money supply can suppress inflation within a certain period of time.

Research Objective:

Diagnosing of the bottlenecks experienced by the Iraqi economy throughout the research period and evaluating the efficiency of traditional tools and modern tools used to reduce the phenomenon of inflation experienced by the country.

Previous Studies:

1 - Mahmoud M. Dagher Study, Monetary Policy in Iraq from Dependence to Ineffective Independence, University of Baghdad, Faculty of Management and Economics, 2014.

2 - Dr. Muzher M. Saleh Study, Monetary and Financial Policy and Control of Inflation and Exchange Rate Variables, Hamorabi Center for Research and Strategic Studies, Baghdad, 2011. the study dealt with the role of monetary policy and financial control of inflation.

3 - Abdul Hafez Abdul-Latif Hussain Thesis, Changes in Monetary Policy between the Two Stages of Monetary Freedom in Iraq, Mustansiriya University, Faculty of Management and Economics, 2008.

Research Structure:

The research dealt with the five topics, the first topic is the methodology of the research, the second is an overview of inflation (its concept, types, methods of measuring inflation, and the effects of inflation), the third topic dealt with the money supply and its relation to inflation, while the fourth topic included the standard aspect and analysis of the conclusions and the last has the conclusions and recommendations.

The Second Topic: An Inflation Overview

1. Inflation:

1.1 Inflation concept

Inflation is one of the main issues of macroeconomic instability in countries and its impact includes many economic indicators. Although this term is widespread and encompassed by most economies, and is currently covered by most economies, there is still no agreement among economists on a clear definition of inflation, some of them define it as the steady rise in the overall level of prices in a country's economy (Mishkin, 2003, p. 666).

Others believe that inflation is caused by increased national spending without an increase in production. And some attribute inflation to higher production costs and others attribute inflation to the structural changes taking place in the economy, which must be accompanied by rising prices (Al-Wadi, 2014, 121). Inflation can be defined from a purely monetary point of view in that it is chasing a large amount of money for less quantity of goods and services. This definition confirms that inflation arises because of the unequal growth in monetary spending, i.e., the increase in cash incomes and the amount of means of payment on the one hand, and growth in the real supply of goods and services from the other hand. This imbalance between the two sides will lead to a continuous decline in the value of the currency or purchasing power because of rising prices (Al-Shammari, 1988, 265). It is noted that the continuous rise in prices reflects the imbalance between the monetary sector and the commodity sector.

1.2 Types of inflation

1.2.1 Demand-driven inflation

This is due to the increase in the amount of government and private expenditure on goods and services, which exceeds the amount of supply. This leads the sellers to raise the prices of goods and services, the expenditure continues to increase and the producers cannot increase the production due to the weakness of the production base, and if the drought includes the labor component, workers demand a raise to their wages due to the pressure of demand. This situation continues as long as the expenditure exceeds the available resources (Khinjar, 2010, 11).

Demand-driven inflation occurs as a result of a surplus in total demand for aggregate supply, whether in the commodities market or production elements (many money chasing a few commodities). When full employment is achieved, an increase in demand and an increase in total expenditure lead to higher prices for the production capacity of the society. This type of inflation is more pronounced and widespread in the economies of developing countries in their pursuit of economic and social development programs, leading to an increase in demand rather than increasing costs (Al-Wadi, 2002, 186).

1.2.2 Cost payment inflation

This type of inflation occurs as a result of payment of wages or as a result of the payment of profits. Therefore, the analysis of the payment of costs assumes that there is a monopolistic authority in the labor market or the commodity market. When there are trade unions, prices may rise as a result of higher wages, and when there is monopoly power in the commodity market, the monopolist is often tempted to raise the price in order to increase profits. According to the theory of paying costs, the increase in demand in one of the economic sectors is the first engine of inflation because it leads to high prices and wages in this sector and other sectors, this type of inflation was spread in the United States and most European industrial countries during the period from the Second World War to the early 1970s (Al-Dulaimi, 1992, 633).

1.2.3 Structural inflation

Structural inflation is a set of structural, economic, social and political imbalances that lead to an abnormal increase in the amount of money and a cause of poor monetary and financial management (Zaki, 1980, 84). The structural factors linked inflation to factors such as the food problem caused by the slowdown in agricultural production, the growing dependency of countries on food imports, the large differences between foreign exchange receipts from exports and insufficient capital inflow to cope with the rapid increase in demand for imports resulting from the increase in population growth rate, and resulted in a deficit in the balance of payments due to imbalance between exports and imports.

2. Inflation Measurement

Methods of measuring inflation

The process of measuring prices in any economy is based on two main axes. The first axis is the changes in price levels, which focuses on the degree of price increase, while the second focuses on determining the source of rising prices, i.e., the reasons that led to high prices in the national economy. The methods of measuring inflation are:
2.1 Price indices
The price indices are defined as relative and temporal comparative averages of prices, which are meant to be relative averages. They are the basis of comparison in terms of money and prices, and are based on the comparison, called the base year, where the developments in money and prices are compared to the base year. The selection of the base year depends on the relative stability of the price levels in that year, and the relative figures are time figures considered as reflecting changes in price levels during a certain period of time. The wholesale price index is used to measure purchasing power and standard of living, and the retail price index is also used because it is the most relevant to the purchasing power of individual consumers. However, the index of living expenses is used mostly during periods of inflation. Using two known methods that are (Abdullah, 1990, 178).
2.1.1 Total method or GNP method
It is called the General Price Index, which expresses the prices of all goods and services produced within a specified time period (one, five, ten years) in the country, which expresses the prices of the total output.
2.1.2 Sampling method
The selection of a certain group of goods and services of economic importance in the life of society as individuals or projects or sectors is done by it, and the study of the development of prices during the time period specified. The official figures published by the official bodies and used as a general path of the phenomenon of inflation in a country depends on the degree of its real expression of this phenomenon and on the extent and accuracy of the prices of the goods and services that make up these figures and the manner of their composition.
2.2 The method of the inflationary gap
It's a method based on the estimation of the differences between the volume of goods and services produced in the economy and the purchasing power available to consumers. These differences are addressed by aggregate demand ratios or expenditure by the difference between total monetary demand surplus (national expenditure estimated at current prices), and the size of the real national product (estimated at constant prices) (Abdullah, 1990, 183). The gap in inflation (surplus demand gap) is linked to price developments, and it is possible to determine the extent to which this gap affects the domestic price level. Clearly, the larger the gap, the greater the real supply of goods and services and thus the more severe monetary imbalance,
Economists use several criteria to measure the inflationary gap:
A. The method of surplus money supply:
It is the difference between the change in the money supply (liquidity) and the change in the demand for money (i.e., the size of what individuals want to keep from real income in the form of money) at fixed prices within a certain period of time. The inflationary gap in accordance with this criterion is limited by the increase in the amount of money offered in the community than the percentage of real income that individuals wish to keep in the form of liquid money over a certain period of time.
B. Standard excess demand:
This criterion is based on Keynes' theory of effective demand, where the inflationary gap represents the difference between aggregate demand for goods and services and aggregate supply, and this demand surplus drives the overall level of prices upward and introduces the economy into pure inflation (Bukhari, 2010, 149). In other words, the inflationary gap reflects the imbalance between the growth of money supply and the growth of the real output of goods and services in the economy in the form of surplus demand.
C. Standard cash stability factor:
This criterion is based on the measurement of the inflationary gap on the ideas of modern quantitative theory. The economist Friedman linked inflation to the imbalance between the increase in the amount of money and the increase in real national product. Friedman sees that the increase in the quantity of money is greater than the increase in real national product, which drives prices up.
3. The Effects of Inflation

Inflation will have adverse economic and social effects, as it will weaken the confidence of individuals in the currency and weaken the incentive to save. If the value of money tends to deteriorate, money will begin to lose its function as a repository of value, and commodity preference over cash increases.
Inflation has a negative impact on the balance of payments as the country, which suffers from high prices, finds its products in a weak competitive position from the products of other less-priced countries, thus increasing their imports and reducing their exports, which leads to the deficit of trade balance from the balance of payments (Al-Wadi, 2002, 188). There are economic and social problems because of inflation, which result in the redistribution of real income. Different types of income are affected in different ways. Some of them make profits and others suffer losses. Inflation has negative effects on some groups of society and positive effects on other groups at the same time. Another source of inflation is the reduction of prosperity and economic growth. The continued rise in prices can lead to reduced savings and increased consumer spending, thereby reducing the incentive for investment and thus reducing the rate of economic growth and declining national production (Al-Amin, 1977, 218).

The Third Topic: Money Supply and Its Relation to Inflation

Money supply means the amount of payment methods available in the society, which is the sum of money of all kinds that exist in the community within a certain period of time. These means consist of two main components: Currency in circulation, and money deposits or bank money. Therefore, the amount of money supply includes net cash in circulation (outside the central bank and banks) and on current deposits with commercial banks, and it is noticeable that the money supply affects the prices and the level of economic activity negatively, especially if the size of the money supply is not consistent with the level of real economic activity. The excessive increase in the supply of money leads to the deterioration of the value of the national currency and the lack of more than it should lead to contraction in economic activity and a lack of cash payments.

1. Cash supply concepts (cash supply components)

1.1 Money supply in the narrow sense (M1)

It is the sum of the means of payment traded in a country over a certain period of time and includes the amount of means of payment actually used that are held by individuals, projects and public administrations in the form of cash balances, namely paper money and auxiliary money plus the current deposits of the private sector with commercial banks. It represents the total amount of money used as a swap medium and is issued by the financial authorities that have the cash capacity such as - the central bank which issues the legal money, the commercial banks that create the cash, i.e. any element that has the full liquidity to spend on goods and services is within the narrow meaning to narrow money supply (M1).
According to the equation:

$$M1 = c + DD$$

(M1) is the narrow money supply, (c) is currency in circulation, and (DD) is commercial deposits.

1.2 Money supply in the broad sense (M2)

Since the 1970s, the federal reserve has been paying close attention to broad money supply’s long-term behavior, and it includes M2 at M1 plus time and savings deposits with commercial banks.
According to the equation: (Ajami, and Yasin, 2990, 64).

$$M2 = M1 + Td + Sd$$

(M2) is the broad money supply, (Td) is time deposits, and (Sd) is savings deposits.
These deposits are close to money because they can be converted to liquid money quickly and with minimal loss. As Samuelson says, M2 is an important indicator for determining the growth trend of money supply and the level of economic activity (Samuelson and others, 1995, p. 481).

1.3 Money supply in the broadest sense (M3)

The interest in money supply in the broader sense is due to the practical contributions published by a number of economists in England and America. They emphasized the bonds and government bonds as alternative sources of liquidity, as they pointed out to the intermediary financial institutions that provided new alternatives to cash that are high liquidity and can be converted to means of payment easily in a short time and with the least loss. Thus, commercial banks are no longer able to create liquidity on their own. Many other non-banking financial institutions have introduced to the public new types of assets that serve as a temporary refuge for values. It is no wonder that these institutions and financial assets are of interest to some economists interested in financial and monetary affairs in countries that are economically advanced.

This is because they are a form of financial employment and has a high liquidity that affects demand for money.
Broadest money supply can be calculated through the following equation:
$$M3 = M2 + Bs + Sc + Df = c + DD + Td + Sd + Bs + Sc + Df$$
Where (M3) is the broadest money supply, and it includes the broad money supply, in addition to (Bs) bonds, (Sc) Government Securities, and (Df) deposits with non-banking financial institutions.

1.4 Specifying factors for cash supply

The knowledge of the three components of the money supply can be addressed by the factors specific to the presentation of cash: (Jassam, 2009, 36)

1 - The level of economic activity: The increase in economic activity and increased rate of growth in national production whenever there is a greater need to issue cash.

2 - The prevalence of banking awareness and banking habits: The prevalence of banking awareness among members of society is represented in the use of checks or credit cards issued by commercial banks whenever the need for money issued.

3 - The volume of credit or bank money: Because commercial bank deposits constitute an important part of the money supply.

It is noted in Iraq that the rates of increase in money supply have been greatly doubled due to the continuous acceleration in the practice of cheap monetary policy through the mechanism of expansion in the supply of the cash mass on the one hand and the widening deficit in the budget on the other. The money supply in 1990 was about (15359.3) million IQD, it increased to (238901) million IQD in 1994, while it became (5774000) and (11399000) million IQD during the years 2005 and 2003 respectively, then became (73830964) million IQD (as shown in Table 1)

Table (1) Growth Rate of Money Supply and Gross Domestic Product in Iraq for (1990-2017)

Years	supply growth rate M	domestic product grow GDP% (2)	lation rate % based o
1990	---	---	---
1991	60.60	-64.00	180.80
1992	78.00	32.50	83.60
1993	96.80	30.20	198.50
1994	176.40	3.80	475.00
1995	195.10	2.10	378.30
1996	36.20	11.00	-15.50
1997	8.10	21.20	22.60
1998	30.20	34.80	14.90
1999	9.80	17.50	12.20
2000	16.50	1.40	5.40
2001	24.90	2.30	16.10
2002	39.60	-6.90	19.40
2003	91.60	-33.10	33.50
2004	75.80	54.10	26.80
2005	12.30	4.40	37.10
2006	35.60	10.10	53.10
2007	40.40	1.37	30.90
2008	29.70	6.60	12.70
2009	32.30	-11.50	8.30
2010	38.70	26.30	2.50
2011	20.70	10.20	5.60
2012	2.00	12.60	6.10
2013	15.80	7.30	1.90
2014	-1.50	0.19	2.20
2015	-10.00	3.80	1.40
2016	8.10	9.40	0.10
2017	0.60	1.02	0.20

Source: Ministry of Planning, Central Bureau of Statistics, 2017
The continued growth in money supply at these high rates reflects the fact that monetary policy is losing its basic function of controlling liquidity levels to suit the requirements of economic activity. Thus, money supply became a growing factor as the budget deficit increased. The reasons for this policy are the economic siege and the international sanctions resulting from the second Gulf War, which caused the decline in oil revenues and the continuation of the policy of irrational spending.
It is noticed that the doubling of prices during short periods of time due to the increase in money supply and low demand due to the decline and the great deterioration in the value of the currency led to individuals replacing local money with real assets (such as real estate, durable goods, gold or foreign currency) to compensate for the deterioration in the value of the Iraqi dinar, which lost its function as an intermediary of exchange and a storehouse of value in a way that contributed to the emergence of the phenomenon of dollarization that appears after the loss of confidence in local currency (Al-Khazraji, 2007, 14).
The phenomenon of dollarization means that the Iraqi citizen avoids keeping the dinar and switching to the use of the dollar because it is more stable and confident where the dollar prevailed in monetary transactions, whether a store of value or a tool for accounting or a tool for the payment of term and the conclusion of commercial transactions reflected this phenomenon to negatively affect local prices and a decrease in the purchasing power of the dinar. As a result of this increase in the money supply, there was inflation during the period of research. Table (2) shows that the inflation rate for the period (1990 - 2004) was 96.7%, while the average annual rate of supply was about 63.4% and the inflation rates were chronic except in (1998), and the reason for that was the relative increase achieved by the Iraqi dinar after the sharp drop in prices in (1996) with the increase in the purchasing power of the dinar, but all this did not limit the control of the dollar in business transactions and the daily Iraqi economy. As for the period (2005 - 2017), the annual inflation rate was about 12.4% while the average money supply was 17.4%. The monetary base in Iraq is characterized by instability and weak relation to the wider monetary aggregates. Also, the unstable trading speed leads to a lack of clarity between the money supply and the general price level (Abreihi, 2012, 37-39).
Table (2) Average annual cash supply, GDP and inflation rate for the period (1990-2017)

erage	Money Supply	GDP	lation Rate
1990 - 2004 Average	63.4	7.1	96.7
2004 - 2017 Average	17.4	10.4	12.4

Source: 1 - Money supply from Table (1), 2 - Gross Domestic Product from the Central Bank of Iraq Statistical Group for various years.
Annual average of money supply or GDP = Total years of money supply or GDP / Number of years required.

The Fourth Topic: Measuring Aspect of Research and Analysis of Results

The linear function was chosen as the best model for achieving the results. Table (3) shows that there is a significant positive effect of the money supply variable (x) on the dependent inflation rate variable (y) by (2.107) because the value of (p = 0) which is less than (0.05), i.e., a change of (1) in the money supply (x) will result in a change in inflation rate (y) by (2.107).
Table (3) Demonstrates the values and the significance of the parameters

lependent variabl	X	B	T	p-Value
Fixed limit	-	-31.111	-2.221	0.036
Money supply	X1	2.107	9.803	0.000

Source: Researcher's effort
From table (4) we note that the correlation coefficient (R = 0.891) shows a strong correlation between the independent money supply variable (x) and the dependent inflation rate variable (y) and the corrected parameter of the coefficient (Rais = 0.794). This means that (79.4%) of changes in the dependent variable result from the change in the independent money supply variable (x) where the value of (p = 0) is less than (0.05 and 0.01), i.e., there is a significant effect of the independent money supply variable (x) on the dependent variable (y). Thus, the simple linear regression model is as follows:

$$EYt = -31.111 + 2.107X$$

Table (4) Demonstrates the coefficient of multiple correlation and the correction parameter coefficient

orrelation coeffici	on parameter coe (Rais)	alculated (F) valu	p-Value	Decision
	0.794	96.093	0.000	model is signific

Source: Researcher's effort

The Fifth Topic: Conclusions and Recommendations

1. Conclusions

1 - Unjustified government spending and misguided economic policies have had the greatest impact on increasing inflation rates. The reasons for inflation in Iraq have varied within the period (1990-2017). The inflation during the period (1990-2003) was due to the expansion of the monetary issue, and the second period reasons was due to excessive cash, because imported inflation has played a role in rising prices and high inflation rates.

2 - According to Table (2), there is a decrease in inflation where the average annual period (1990-2004) was about (96.7%) and decreased to (12.4%) during the period (2005-2017).

3 - There is a significant positive effect of the independent variable (money supply) (x) on the dependent variable (inflation rate) (y) by (2.107) and the adjusted coefficient of correction parameter (0.794), i.e., (79.4%) of changes in the dependent variable result from the change in the independent variable (x), that is, there is a significant effect of the independent variable on the dependent variable.

2. Recommendations

1 - The necessity of consolidating the efforts of the monetary and financial authorities to deal with the high inflation rates through the use of available means.

2 - Monetary authorities should manage the growth of money supply in line with the growth in GDP according to the fixed monetary policy.

3 - Review the tools and methods used by the Central Bank of Iraq (quantitative tools) to reduce inflation rates and develop the banking awareness of the safety of the national economy.

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