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RESEARCH ARTICLE **Open Access**

THE IMPACT OF MONEY SUPPLY ON INFLATION IN IRAQ FOR THE PERIOD (2007-2022)

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Abstract
The importance of the research comes from the role of the money supply in the national economy, and it is one of the monetary policy tools that the central bank uses to finance economic activities, as it contributes to achieving economic growth, gaining full employment, and achieving stability. The research aims to identify the money supply and inflation as a theoretical concept. On the components and forms of inflation and analyzing the effect of the money supply on inflation according to economic theory. The research is based on the hypothesis that there is a direct relationship and influence between the money supply and inflation, which positively affects the national economy's growth rates. The research relied on the inductive approach and the general descriptive-analytical method. The money supply was an independent variable, and inflation was a dependent variable. The relationship between the money supply and inflation is a direct relationship according to monetary macroeconomic analysis, and every increase in the money supply leads to a rise in the general level of prices and the occurrence of inflation. If the central bank prints new currencies, this leads to an increase in the means of payment in circulation, increasing costs and creating inflationary pressures. The researcher recommends following the central bank's policy to absorb money from the public to reduce inflation.

Keywords a theoretical concept, money supply, independent variable, and inflation.

INTRODUCTION

The money supply is one of the components of the macroeconomy and is of great importance in economic activity, which affects income, production, interest, employment, and inflation. Every increase in the money supply leads to a rise in the general level of prices and the relationship between the money supply. Inflation is a direct relationship because, according to classical analysis Friedman's monetary analysis, Every increase in the quantity of money over the number of goods and services leads to a rise in the general level of prices and a decrease in the value of money. It is also the primary tool the central bank uses in directing its monetary policies towards the internal and external stability of the national economy, and the supply of money varies from one place to another due to the differences in Banking habits and economic and social development among countries.

The term money supply refers to the total balance of local means of payment owned by the public (individuals, companies), and the monetary authority (the central bank) use the money supply to achieve macroeconomic goals (growth, employment, balance, and price stability).

First: Problem of the Study

The research problem is to answer the following questions:

1) What is the relationship between money supply and inflation?

2) Is there a direct relationship and effect between money supply and inflation rates?

3) What are the effects of increasing the money supply on inflation?

Second: The importance of the Study

The importance of the research comes from the role of money supply in the national economy, and it is one of the monetary policy tools that the central bank uses to finance economic activities, as it contributes to achieving economic growth, gaining full employment, and achieving stability.

Third: Objectives of the Study

1) Definition of money supply and inflation as a theoretical concept.

2) Identify the components and forms of inflation.

3) Analyzing the effect of money supply on inflation according to economic theory.

Fourth: Hypothesis of the Study

The research is based on the hypothesis that there is a direct relationship and influence between money supply and inflation, which leaves positive effects on the growth rates of the economy.

Fifth: Methodology of the Study

The research relied on the inductive approach and used the general descriptive analytical method.

Sixth: Limits of the Study

1. Spatial boundaries: the Iraqi economy.

2. Time limits: (2007 - 2022).

The first topic

Theoretical framework

The first requirement: the concept and components of the money supply

First: The idea of money supply:

It is the sum of the means of payment circulating within the economy during a specific period (1). This type prevailed in the eighties of the last century and included currency in circulation + current deposits in commercial banks). Keynes defined it as the quantity of money, through which we can know it as money with Direct purchasing power, i.e., the ability to convert to all goods and services available for exchange immediately; in other words, it is the ability to discharge all debts (2).

Second: Components of the money supply:

1) Narrow money supply (M1):

It is the sum of the means of payment circulating within the economy during a certain period. This type prevailed in the eighties of the last century and included (currency in circulation + current deposits in commercial banks) (3):

$M1 = CC + CD$

Since:

CC represents currency in circulation, CD: current deposits:

Broad money supply (M2):

It is known as local liquidity, which began to be enjoyed in the 1970s. This type is represented by the narrow money supply, in addition to time deposits and savings deposits, which are called quasi-money that can be converted into liquid cash quickly and with the most minor loss. Thus, the money supply in the broad sense is equal to (1):

$$M2 = M1 + TD + SD$$

Since:

TD: time deposits, SD: savings deposits

1) Broader money supply (M3):

The money supply, in the broadest sense, refers to the liquidity of the economic community as a whole. The money supply is determined based on local liquidity. Still, it extends to broader dimensions that include other deposits, as it is determined by adding savings deposited with savings institutions such as savings associations and savings funds to the local liquidity (1).

The second requirement: Factors affecting the money supply:

First: Asset components: Banking assets consist of the elements corresponding to the money supply, which consist of (net foreign assets and local credit) and include the following:

A) Convertible foreign currencies.

B) Monetary gold (which central banks hold as a cover for the currency or among their financial assets).

T) Deposits with foreign banks.

d) Special drawing rights.

C) Foreign investments.

Third: Requirements:

Liabilities represent obligations of the banking system towards the banking system. Liabilities are divided into two types (cash liabilities and non-cash liabilities), which consist of:

1) Of monetary liabilities, which include (the narrow money supply, which includes currency in circulation and current deposits with commercial banks).

2) Non-cash liabilities include (quasi-money, which consists of fixed time deposits, savings deposits, credits, and guarantees for the private sector.

3) Net items (budget paragraph), which include (paid-up capital accounts, retained reserves, fixed assets, instruments in the collection, closed accounts, and bills in the group), as well as other unclassified assets and liabilities. The budget paragraph is obtained by subtracting the net assets—others from the capital account and reserves.

Fourth: The Central Bank:

The size of the monetary base is determined by the currency in circulation, C, in addition to the total reserve in the banking system, MB= C+T.R

Fifth: Commercial banks:

Decide how much money, loans, and other assets to acquire and how much to keep as excess (extra) reserves (ER/D).

Sixth: Depositors and lenders:

They decide how to distribute their cash wealth between currency, time deposits, and savings deposits.

The second topic

The concept of inflation

The first requirement: the concept and causes of inflation and types of inflation:

First: The concept of inflation

It is a rise in the general level of prices during a specific period. There is a definition of inflation, and the phenomenon of inflation is defined through its association with income and spending. The rise in the general level of prices results from a gap between the supply of goods and services in the market and the amount of income available for spending (1). It is also known as the continuous rise in the general level of prices. Based on this, the situation in which prices rise very little or intermittently is not considered inflation. Ackley adds that this phenomenon expresses a state of equilibrium and must be analyzed according to dynamic criteria (2).

Second: Causes of inflation

1) Inflation resulting from increased demand:

It is inflation arising due to an increase in aggregate demand (consumer, investment, government) over the aggregate supply of goods and services, which leads to an increase in the general level of prices and the creation of inflationary pressures (inflationary gap), as the price of a commodity is determined when demand is equal to the supply of the commodity. If occurs Excessive demand for some reason, while supply remains the same or increases by a lower rate, the price of this commodity rises (3), as shown in the following equation (4):

$$Inf = C + I + G + (X- M) - Y$$

Since:

Inf: inflation gap.

C: consumer spending

I: investment spending

G: government spending

X: exports

M: imports (imports).

Y: total actual output of goods and services.

1) Inflation resulting from increased costs:

It is the inflation that occurs when money wages, for example (work wages), begin to rise, causing an increase in costs and pushing prices to rise. However, the increase in prices resulting from an increase in money wages leads to a decrease in the level of real wages, which pushes money wages to rise and increase to meet the decline in wages. The real wage, but at the same time it leads to a decrease in the real wage again, and thus the continuous rise in money wages leads to an increase in production expenses and thus an increase in the prices of produced goods and services and the emergence of inflation (1).

Third: Types of inflation:

1) Slow inflation:

It is inflation in which the general level of prices rises slowly (gradually). This type of inflation does not leave negative effects on the national economy, and its rates range from (2% - 3%) (2).

2) Hyperinflation:

It is inflation in which prices rise to a very high degree and which leaves negative effects on the national economy. The speed of money circulation increases and the function of money as a store of value ceases, which leads to a decline in the value of money and a weakening of individuals' confidence in the national currency, as happened in Germany for the period (1922 - 1924). In 1945, inflation rates exceeded 100% in Hungary (3).

3) Suppressed inflation:

It is inflation in which prices cannot rise due to direct government restrictions to control price increases, such as compulsory pricing and the ration card system.

4) Stagnant inflation:

It is the inflation that prevails in contemporary economies and is considered an economic phenomenon represented by the simultaneous manifestations of economic stagnation and manifestations of inflation, as stagnation in economic growth is stagnation in the use and employment of production elements, in addition to a rise in prices (decrease in aggregate demand) and increasing unemployment rates at the same time.

5) Imported inflation:

It is the inflation that comes through imports. This type of inflation usually occurs in countries that depend on importing most of their needs for goods and services from abroad.

The Second Requirement: The Economic and Social Effects of Inflation

Inflation Hurts The Economy, Including (1):

1- Weakening confidence in the national currency due to a deterioration in the value of money, which leads to a reduction in the incentive to save, which is an increase in prices.

2- It deepens the inequality in the distribution of income and wealth and creates a wave of social discontent that significantly threatens the political stability necessary to advance economic development.

3- It leads to money losing its function as a storehouse of value, which increases commodity preference at the expense of monetary choice. This decreases the marginal propensity to save and increases the marginal propensity to consume.

4- Inflation works to help debtors reduce their debt burdens as a result of the decrease in the actual value of money resulting from the rise in the general level of prices, which makes them pay off their debts with the same nominal value of the obligations, but with less purchasing power over it during the period in which they borrowed.

5- Inflation helps create the savings necessary for development through an increase in the marginal propensity to save among the wealthy classes at the expense of the poor types, in addition to the occurrence of compulsory saving resulting from the government financing the budget through the issuance of new money, which is accompanied by a rise in the price level and the inability of consumers to buy, with the latest prices, which forces a reduction in the level of consumption and an increase in saving to reduce the demand for purchasing high-priced goods.

6- Inflation encourages investment in production areas for commodities whose prices are rising, with the aim of additional profits resulting from the rise in those commodities.

The third requirement: The relationship between money supply, inflation, and treatment of inflation:

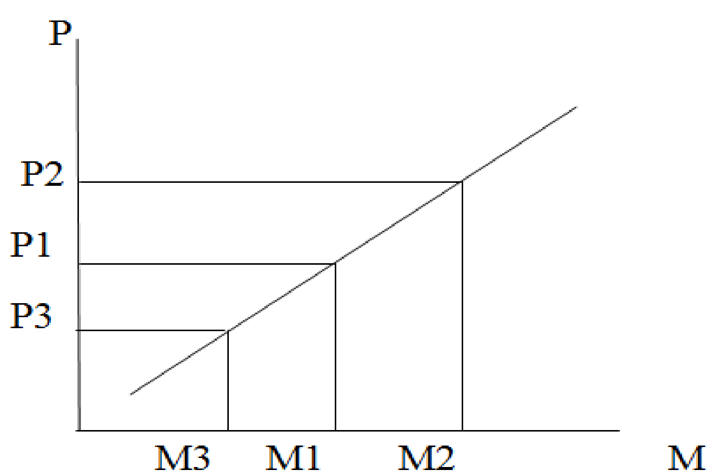
First: Analysis of the relationship between money supply and inflation:

Every increase in the amount of money over a small number of goods and services leads to a rise in the general level of prices, which leads to the creation of inflationary pressures in the economy.

The importance of monetary policy has been linked to the development of economic and financial theories. According to classical quantitative theory, interest in monetary policy is focused on its influence and ability to control the quantity of money supplied (as an independent variable), as it is possible to influence the general level of prices (as a dependent variable) affected. Therefore, the responsibility of monetary authority is limited to controlling the quantity of money offered at the general level of prices, and the following diagram can be done:

Figure (1)

The effect of a change in the money supply on the general level of prices



Source: Nazim Nouri Al-Shammari, Money and Banks, Dar Al-Kutub, Mosul 1988, p. 178

From the illustration, the change in the general level of prices (P) appears on the vertical axis as a dependent variable of the independent variable (M), the quantity of money on the horizontal axis. When the amount of money increases from (M) to (M1), it results in a rise in the same amount in the general level of prices from (P) to (P1) and the decrease of (M1) to (M2) has a similar and equal effect in the general level of prices from (P1) to (P2).

This direct and proportional relationship between changes in the quantity of money supplied, on the one hand, and the general level of prices, on the other hand, confirms the inverse relationship between the value of money and the general level of prices. Therefore, the general level of prices is characterized by negativity as it is a dependent variable that responds directly to the changes occurring in the quantity of money supplied. Whether these changes are increased or decreased, this is due, according to the classical analysis, to the classical failure to assume other factors that could affect prices, such as factors related to natural and authentic economic activity, or to the reason for the rise in wages as a cost of production from the point of view of the producers, which they absorb by increasing the prices of their products or increasing—fees due to war and other factors (2).

In periods of recession and economic depression, expansionary monetary policy is resorted to by increasing the money supply, and thus, there is an improvement in price levels. However, in periods of inflation, resorts are made to reduce the money supply, leading to a decline in prices. Accordingly, the role of monetary policy is to regulate the supply of money. Cash to achieve the goal of price stability, which is the goal of monetary policy under full use.

Second: Addressing inflation through monetary and financial policy:

The central bank adopts a contractionary monetary policy to address inflation (1):

1- Increasing the legal reserve ratio on bank deposits.

2- Increasing the discount rate compared to interest rates in commercial banks.

3- The entry of the central bank as a seller in the stock market affects the reserves of commercial banks. It thus will lead to a reduction in the amount of liquidity available to the economy and a decline in the general level of prices.

4- Reducing the money supply by following a contractionary monetary policy.

As for financial policy, through its tools:

1- Reducing government spending.

2- Increase taxes

3- Both (balanced budget policy).

The Third Topic

The development of money supply and inflation in Iraq for the period (2007 - 2022)

1- The development of the money supply in Iraq for the period (2007 - 2022)

It is the total money circulating within the Iraqi economy during the year, and the Central Bank of Iraq is responsible for controlling the money supply. It is noted from Table (1) that the money supply witnessed a continuous increase during the following years, as it increased from (21,721,167) million dinars in the year (2007) to (28,189,934) million dinars in the year (2008) and annual rate of change (growth) of (29.8%) due to the increase in current deposits in commercial banks and the increase in the volume of currency in circulation outside the banking system, then it increased to (37,300,030) million dinars in the year (2009) At an annual rate of change of (32.3%), then it continued to grow to reach (73,830,964) million dinars in the year (2013), but it decreased to (72,692,448) million dinars in the year (2014) and at an annual rate of change of (-1.5%) due to the deterioration of the economic and social situation. Security results from the decline in crude oil prices in the global market, which is reflected in the worsening economic activities. It also decreased to (69,613,150) million dinars in the year (2015) and at an annual rate of change (4.2%) due to the continued decline in crude oil prices in the global market and the continuous withdrawal of deposits. Current deposits with commercial banks were reflected in a decrease in the money supply but increased to (75,523,952) million dinars in the year (2016) at an annual rate of change of (8.5%)

due to the Central Bank of Iraq increasing the money supply as well as an increase in the volume of current deposits with commercial banks. The currency increased in circulation outside the banking system and also witnessed a continuous growth during the years (2017, 2018, and 2019) to reach (76,986,584 and 86,771,000) million dinars, respectively, at annual rates of change (1.9%, 1.1%, 11.48%) due to the improvement of the economic and security situation and the rise in Oil prices, which was reflected in a continuous increase in the money supply, as well as an increase in the volume of current deposits with commercial banks. As for the years (2020 - 2022), it witnessed a rise to reach (103,353,556 - 119,944,017 - 146,398,923) million dinars, respectively, due to the increase in deposits with commercial banks.

Table (1)

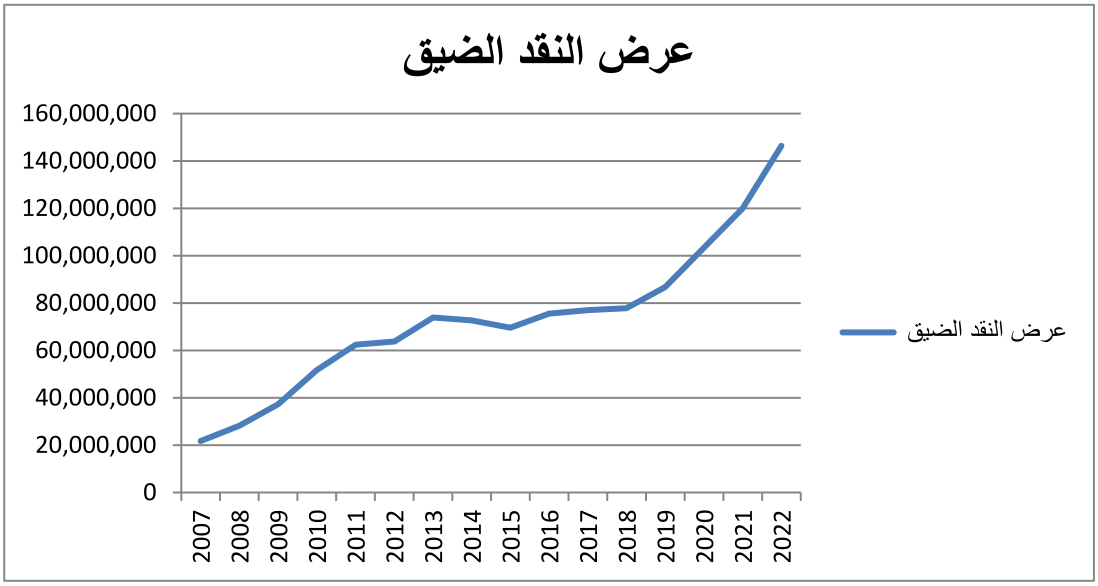
Money supply in Iraq for the period (2007 - 2022) (million dinars)

Annual Rate Of Change	Narrow Money Supply M1	Years
-	21,721,167	2007
29.8	28,189,934	2008
32.3	37,300,030	2009
38.7	51,743,489	2010
20.7	62,473,929	2011
2.0	63,735,871	2012
15.8	73,830,964	2013
-1.5	72,692,448	2014
-4.2	69,613,150	2015
8.5	75,523,952	2016
1.9	76,986,584	2017
1.1	77,828,984	2018
11.48	86,771,000	2019
19.11	103,353,556	2020
16.05	119,944,017	2021
22.05	146,398,923	2022

Source: Central Bank of Iraq, annual reports, Directorate of Statistics and Research, for the years (2007-2022)

Figure (2)

The development of money supply in Iraq for the period (2007 - 2022)



1- Development of the consumer price index in Iraq for the period (2007 - 2022)

Inflation is the increase in the amount of money over the amount of goods and services, leading to an increase in the general price level and creating inflationary pressures. It is clear from Table (2) that the consumer price index rose from (14,356) points in (2007) to (16,009) points in (2007). 2008) with an annual change rate of (12%) due to the increase in government spending, especially after the increase in employees' salaries in the government sector, then it rose to (18091) points in the year (2009) and with an annual change rate of (11%), then it rose to (18777) points. In the year (2010) due to the continued increase in consumer expenses, the payment of compensation and differences to employees, and the increase in social care expenses, then it continued to rise to (14591) points in the year (2014). Still, it decreased to (103.7) points in the year (2015) at an annual rate of change of (28% due to the government imposing a contractionary and austerity financial policy represented by reducing government spending, reducing and deducting employee salaries, and increasing taxes to finance the budget deficit. Then, it continued to decline until the year (2019) to reach (104.5) points due to the government's ability to curb and reduce inflation rates. As well as the success of the Central Bank of Iraq in controlling inflation rates and achieving economic and monetary stability in the Iraqi economy. In the years (2020 - 2022), it witnessed an increase to reach (106.2 - 113.1 - 117) points due to the Central Bank of Iraq changing the foreign exchange rate, which led to an increase in the general level of prices.

Table (2)

Development of the consumer price index (inflation) in Iraq for the period (2007-2022)

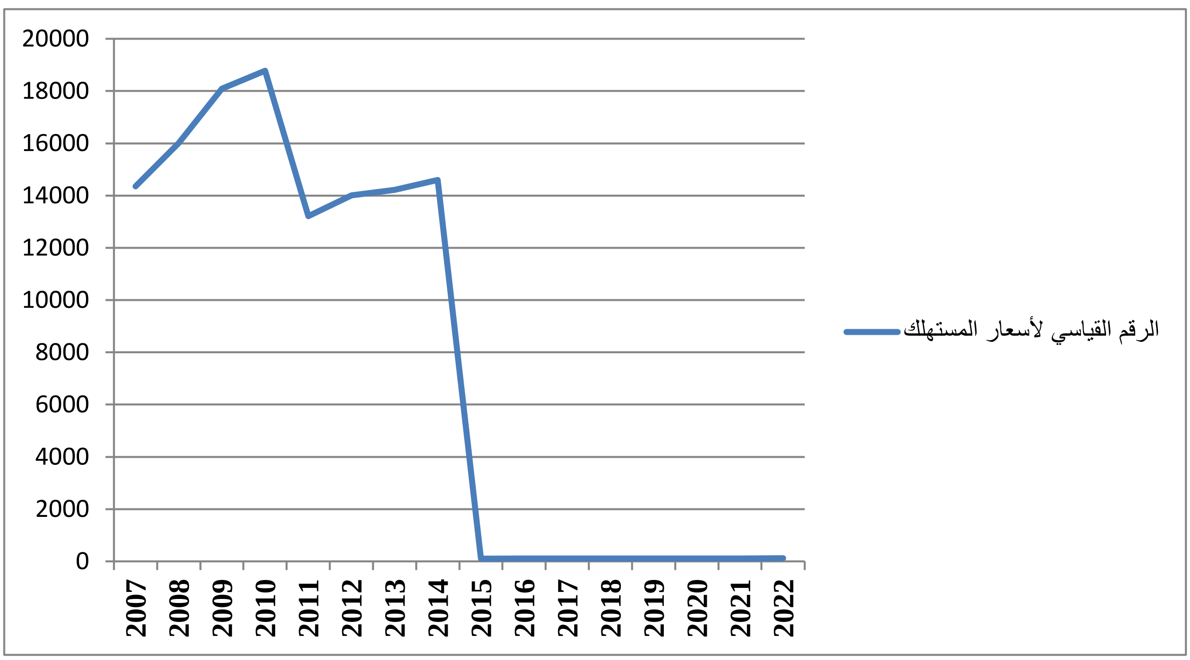
Annual Rate Of Change	Consumer Price Index	Years
---	14356	2007

12	16009	2008
11	18091	2009
3	18777	2010
- 3	13211	2011
7	14012	2012
1.4	14211	2013
2	14591	2014
- 28	103.7	2015
0.97	104.1	2016
-0.09	104	2017
0.86	104.9	2018
0.28	105.2	2019
0.95	106.2	2020
6.49	113.1	2021
3.44	117.0	2022

Source: Central Bank of Iraq, annual reports, Directorate of Statistics and Research, for the years (2007-2022)

Figure (3)

Development of the consumer price index



CONCLUSIONS AND RECOMMENDATIONS

First: Conclusions

1) The monetary authority (the central bank) uses the money supply to achieve macroeconomic goals (growth, employment, balance, and price stability), stimulate and grow productive sectors, and support the productive capacity of the national economy.

2) The relationship between money supply and

inflation is a direct relationship according to monetary macroeconomic analysis.

3) Every increase in the money supply leads to a rise in the general level of prices and inflation.

4) Inflation has continuously risen in recent years due to the Central Bank changing the foreign exchange rate, which increased prices.

Second: Recommendations:

1) Reconsidering private financial legislation and seriously following up on their implementation.

2) Promoting the banking sector and activating an essential economic growth and development role.

3) Following the central bank's policy of absorbing public money to reduce inflation.

4) Reducing the size of deposits in commercial banks to reduce inflation.

5) Working to balance the monetary and commodity sectors of the economy.

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