Money supply and its effect on unemployment An analytical study in the Iraqi economy for the period (2004-2019)

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Abstract:

The research paper indicates effect statement and analysis of the relationship between the money supply and unemployment to detect the effects that the money supply has on unemployment. The research assumed that there was an effect of the money supply on unemployment through what has been proven by standard tests. The dependent variable of unemployment and the results of the research revealed an inverse relationship between the variable of money supply and unemployment, and through this relationship, the monetary authority can influence these economic variables to achieve economic stability.

Key words: monetary policy, macroeconomic balance, stability, integration.

I. Introduction:

The money supply is an important indicator as the policies seek to provide coherence between the money supply and the overall economic variables represented by unemployment to reduce fluctuations in economic activity at the level of the year. A look at the multiplicity of monetary and financial crises affecting emerging markets in all countries of the world. Monetary policy is one of the most important tools of economic policy to Besides other policies such as fiscal policy, price policy and wage policy.

Research problem:

Economic variables, especially unemployment, were affected as a result of the changes that occur in the money supply during the research period.

Research aims:

The research aims to explain the effect of the money supply on unemployment, the level of its development in Iraq for the period (2004-2019), and to measure and analyze the relationship between money supply in the broad sense and unemployment.

Research importance:

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The importance lies in the effect of the money supply on unemployment in the Iraqi economy, to avoid the dangerous effects of this problem economically and socially.

Research hypothesis:

This research seeks to test the following hypothesis: "Money supply adversely affects unemployment in Iraq", during the study period.

Previous studies:

study (Oakley, 2018): the contribution of monetary policy to tackling unemployment - the case of Algeria, Our study aims to find out the extent of the contribution of monetary policy in unemployment in Algeria and processing for the purpose it was vital to discuss the monetary policy from various schools of the economic thought, exposing its concept, various tools, objectives and the relationship it has with the financial independence of the central bank and its effectiveness in implementing the policy, We've also discussed unemployment from the angle of the interpretation that hit according to some economists, its concept, various types and how to address them.

Study (Mohamed and Ali, 2014): The impact of monetary policy on the variables of economic stability in Algeria for the period (1970-2013), the research paper aimed to explain the effect of monetary policy represented by the monetary mass and represented in the gross domestic product, inflation rates, unemployment rates, to indicate the type The relationship between these proposed variables in the long run.

II. Theoretical framework

First: the concept of money supply

Money supply means the amount of money in the economy at a particular time, and this amount represents the means of payment from different coins and paper deposits that are present in a relevant plan in the hands of members of society. Thus, the money supply consists of (Wedad, 2000: 40):

1. Metal coins.

2. Paper currency.

3. Current deposits.

The types of money offer can be explained (Hussam and Salman, 2000: 267):

1. The narrow concept:

The deposits that are counted within this occasional concept are current deposits for the private sector only, and the money supply in the narrow sense is expressed by the following equation: (money supply = currency in circulation + current deposits), and current deposits mean what is deposited with the bank of funds for specific periods and deposits vary According to the depositor's right to withdraw from it immediately or after a specified period, it is divided into the following (demand deposits, current deposits, current accounts), and the customer has the right to deposit or withdraw from it at any time.

2. The broad concept:

This definition of cash presentation revolves around adding savings deposits for the sector to the money supply and it is expressed by the following equation (money supply = currency in circulation + current deposits + accounts and term deposits + savings accounts), and future deposits include placing money in savings accounts in a financial institution that pays an interest rate Fixed until the specified due date, and money, in general, cannot be withdrawn during the time frame covered in future deposits to pay a fine. As for the savings account, savings accounts are generally opened to preserve the money that you do not intend to use to cover daily or regular expenses, and savings accounts also differ. For current accounts that allow you to write checks and use electronic debit to access funds, just as savings accounts are unlike current accounts because they usually put a limit on the number of withdrawals or transactions that you can make each month. As for the money offer, Samelson knows it (M2) (Includes quasi money, which includes deposits of savings accounts in banks and investment fund accounts in the money

3. The broader concept:

This concept goes to broader dimensions to include other deposits, and the justification for adopting the broader concept has emerged after the government's interference in economic activity has expanded and public sector institutions have practised an activity that is not different from the private sector

4. Determinants of the money supply:

In most countries, there are certain regulations governing the behaviour of monetary authorities in issuing monetary quantities available for circulation, and the monetary policy used in determining the amount of money that is offered for circulation is subject to many considerations, including: (David and Salman, 2000: 267).

• The effect of the monetary amount on the level of credit: This is through the level of credit granted to banks and its relationship with the money supply. The more the credit level has a high degree, this would increase the money supply in the economy.

• The size of employment in the state: The volume of employment in the state has an effect on the money supply through the inverse relationship between the money supply and the size of employment (unemployment). The more the money supply in the economy leads to a decrease in unemployment rates.

The amount of idle productive resources: This is through the volume of productive resources exploited in the economy. Whenever resources are abundant, it has a positive impact on the money supply because the abundance of resources provides investment opportunities and as a result, leads to an increase in the money supply.•

The succession of inflation and deflation periods: The economic cycles through which the economy passes a role in increasing the money supply or reducing the money supply. In inflation periods, monetary policy tries to reduce the money supply in the economy in order to control the general level of prices. In the event of deflation, the opposite becomes the right.

5. Factors affecting the determination of the money supply:

Central Bank: affects the money supply through (Yahya, 2000: 40

A- The cash multiplier: This is done through the ratio of a statutory reserve on time deposits (an inverse relationship to the money supply.(

B- The monetary base: It is the base upon which the Central Bank builds the ratio of its lending to banks or not through:

•Borrowing base: loans to monetary institutions and commercial banks are granted.

•The non-borrowed rule: based on which the central bank does not grant loans to banks and thus affects the money supply.

Commercial banks: affect the money supply through (Mounir and Amjad, 2010: 166:(

A-   Multiplier (m): The greater the amount of retention from the excess reserves, the more leakages in the multiplier, and consequently the money supply and vice versa decrease. The amount of retention in commercial banks is affected by several things (Al-Asar and Al-Halabi, 2009: 55):

B-   The risk associated with withdrawals: If the risk ratio is large, then commercial banks will not grant loans to the public, which affects the money supply.

• Their ability to borrow: the more commercial banks have the ability to lend, the greater the money supply.

• Interest rate: When interest rates are high, this reduces investment and thus reduces the money supply and vice versa in the case of low interest rates.

• The cost of borrowing from the central bank: The higher the cost of borrowing from the central bank, then the money supply will decrease and vice versa.

Fear of banking failure: That is, the more sophisticated the banking system, the greater the money supply through the means it takes.

B- The monetary base (MB): The desire of commercial banks to borrow from the central bank or the unwillingness (the borrowed base) affects the monetary base. Borrowing increases the total reserves (R) and thus the monetary base increases MB and increases with it the money supply and vice versa.

• Audience: The audience influences the cash multiplier by the amount of what it wishes to keep in the form of the trading process (r). The audience's behaviour is affected by several factors, namely (Yahya, 2000: 40):

• The wealth of the individual. The more wealth a student has, the less (r) and the greater the deposits.

Return on assets: That is, if individuals expect a return on their assets, they wish to keep the assets in the form of bonds.

• The desire to keep liquid assets: The inverse relationship is between the desire to keep and the money supply.

The amount of banking habits in the public and the relationship is progressive.

Banking work, as an increase in its assets reduces the money supply.

• Illegal operations such as money laundering because they go abroad and thus reduce the money supply at home.

Some monetary economists, led by Friedman and Schwartz, see the concept of narrow money supply does not refer to a full expression of the amount of money offered in the economy, and the concept of broad money supply is the one that shows the total size of the money supply, and their argument for that development in the structure of the economies of developed countries, which resulted According to him, the diversity of financial assets that can be converted into payment methods without the minimum loss and in the least possible time, which is the forward and savings deposits and loan accounts that generate continuous income in the form of benefits, and this is not available in payment methods such as the currency in circulation, and this includes the wide money supply (M2) direct payment methods Total, which are components of (M1) plus future (fixed and time) deposits and private savings deposits (private sector deposits) with commercial banks, and the term (quasi money) is called term time deposits, fixed future deposits, savings deposits or savings deposits with commercial banks that can Converting it into money within a short period of time without any significant losses, which means that it enjoys a high degree of liquidity.

Second: Unemployment

Unemployment can be defined as many workers chasing a few jobs, and unemployment is also defined as the phenomenon or situation in which individuals are unable to perform activities during a certain period of time, due to the presence of factors outside their control even though these individuals are of working age and are willing and able to do it And looking for him and in this case is called full unemployment. It can also be defined as expressing a quantity of work time and work capacity, or both that have not been utilized in the production process of goods and services optimally (Zaki, 2007: 23), As for the International Labor Organization, the unemployed is defined as everyone who can work and willing In it, he searches for him and accepts him at the prevailing wage level, but to no avail. This definition applies to the unemployed who enter the labour market for the first time, and to those who have work and have been forced to leave it for some reason. That unemployment is an increase in the supply of work (hours of work, or workers) over its actual need (demand) for that amount of work supplied in a specific period, and when the quantity supplied is greater than the quantity required of workers leads to the occurrence of economic, social and political effects represented at a cost to be borne by Economy, which is a waste of economic resources, the most important of which is work. The types of unemployment can be explained to the following (Wadih Al-Sayegh, 2009: 117):

1. Periodic unemployment: It appears due to economic cycles, and most countries try to avoid or reduce its duration, which usually disappears or decreases during the period of boom and recovery, and therefore it is a good expression of the economic situation of the country, and if it continues for a long period it can turn into structural unemployment, and that To change the economic structure during the period of economic fluctuations, and naturally, most of the state's fiscal and monetary policies increase the economy's growth to tackle this type of unemployment.

2. Structural unemployment: It is caused by shifts in the demand structure or changes in technology, so that the available workforce is its expertise and qualifications are not consistent with the demand in the labor market and the economy and requires state intervention to address it, and is usually addressed through training, re-education or transfer programs Geography of workers to places where the demand for workers is high.

3. Frictional unemployment: This type is due to the movement of workers and their transition from one job to another, which is considered a health phenomenon indicating the dynamics of the labor market, and is usually addressed by shortening the period of time during which the worker remains searching for a job opportunity, through labor offices And job application advertisements (Ibrahim, 2008: 200).

4. Persuasive unemployment: which arises when the marginal product of the work element is zero or negative, and that the agricultural developing countries are among the most famous examples of this type of unemployment, and the existence of this type of unemployment prevails in the governmental sectors of the developing countries, because of the state's commitment to ensure the appointment of graduates And its treatment lies by transferring workers from the sectors that they accumulate into other sectors, or creating new job opportunities for them, especially in the private sector.

5. Seasonal unemployment: It appears due to the varied seasons and the nature of work, that is, there are some jobs that can only be performed in a specific season of the year, and then the workers who perform them remain in an unemployment situation for the rest of the year, and they are dealt with by finding jobs that complement the seasonal works or are occupied The times when the seasonal workers do not work.

6. Unemployed unemployment: It is a state of disruption of the labor force, and it can be frictional, structural, or periodic, with long or short periods of time.

7. Natural unemployment: It is the economic situation associated with the general level of unemployment in countries, and this unemployment constitutes an economic indicator that indicates that the country's economy is healthy, and the natural rate of unemployment is usually estimated at about 4%.

8. Imported unemployment: It is unemployment resulting from the acquisition of (non-local employment) certain jobs, which reduces the job opportunities available to local employment.

Third: Analyzing the relationship between money supply and unemployment

In the case of periodic unemployment, the number of those who do not occupy any job increases when the economy runs weakly, and that number falls when it is going well. This is called the OKN Law, after economist Arthur Okon wrote in the early 1960s about the relationship between economic growth and the unemployment rate in the states United, Okon explained that the 3% rise in an economic activity must be accompanied by a 1% drop in the unemployment rate, and vice versa. In practical terms, the way the unemployment moves can differ when the economy becomes strong or when it becomes weak, there are differences between countries In the way unemployment responds to economic activity, for example, countries such as America and Spain have been experiencing massive increases in unemployment rates that are linked to economic contraction during the recent recession. On the other hand, Germany and Japan witnessed slight increases in unemployment rates, perhaps these differences are due to several factors including It has what is called strict conditions of the labour market, (with the support of wages and hours of work, the trade unions of

companies may be forced to reduce the size of their workforce to save money during the recession), and it is natural for you to say certain sectors are more expanding in the labour market than other sectors. Consider, for example, the size of the bank sector in Spain that the most vulnerable housing market outperforms.

And Harry Truman said that economic stagnation occurs when your neighbor loses his job and becomes a recession when you lose your job, in addition to that the government continued the process of employment or contracting during the period of economic contraction to compensate for something from the decline associated with the period of decline in private sector jobs, and perhaps also changes The economic policy that has occurred (such as interest rates that have reached their lowest level) has helped companies to overcome the recession better, as stated by OKN, that governments can deal with periodic unemployment by stimulating activity in the economy, which is called demand management policies, on the one hand Others, the policies that aim to try to reduce the natural rate of unemployment by solving the problems inherent in the structure of the labor market are called preparation policies because they deal with the land of employment (reducing the capacity of the union or union, providing better training, and rethinking unemployment benefits), all kinds of preparation policies that It can help to reduce the normal rate of unemployment, and the table shows the relationship between money supply and unemployment in Iraq during the research period.

Table (1): The wide money supply (M2) and unemployment in Iraq for the period (2004 - 2019) (billion dinars)

Years	Money supply M2	Total unemployment from the workforce%
2004	14355914441771	9.0547
2005	14888028438072	8.9736
2006	19920263000000	8.7926
2007	27311731000000	8.6447
2008	36929576000000	8.3936
2009	46791247000000	8.5073
2010	61393052000000	8.3671
2011	74098034000000	8.1562
2012	77187496910532	7.9674
2013	89512076030109.4	9.2757
2014	92988875989307.2	10.5937
2015	84527272309549.8	10.7136

2016	90466369605104.2	10.8143
2017	92857046559138.8	13.0278
2018	95390725026388.8	12.8648
2019	93371514113467.6	12.1537

source: The researcher's work relying on the data of the International Monetary Fund for the period (2004-2019).

The practical side

Measuring the effect of the money supply on unemployment:

In order to test the hypotheses of the study and achieve its goals, the independent variable (wide money width m2) and the dependent variable were identified as apparent unemployment, and based on the theoretical aspect of the study, the following functional relationship test is assumed: $Y = a + \beta x$

Thus, Y = apparent unemployment, and X = M2 money supply.

1- Time Series Stability Test: The E-views9 program provides several criteria for a time series test, the most important of which are: ADF and the Phillips-Byron test (PP), Time series stability is tested in three regression models: the first is a constant constant and the second is a regression The constant with a constant & trend, and the third without a constant and a general direction None, and for the importance of the constant and direction will depend on the second model, whether in the Extended Dicle Fuller test or the Phelps-Byron test. Table (2) shows the results of the time series stability test.

Table (2): Time Series Stability Test

		UNIT ROOT TEST TABLE (PP) At Level	
		Money supply	The unemployment
With Constant	t-Statistic	-1.610	-1.874
	Prob.	0.577	0.481
With Constant & Trend	t-Statistic	-3.546	-2.659
	Prob.	0.248	0.318
Without Constant & Trend	t-Statistic	-0.221	-1.578
	Prob.	0.716	0.243

Source: Researcher preparation based on EV.10 program output.

We note from Table (2) that the study data is not stable at the original level according to the extended Decky Fuller test.

Table (3): Extended Team Dicky Fuller Test II

		UNIT ROOT TEST TABLE (PP) At Level	
		Money supply	The unemployment
With Constant	t-Statistic	-7.510	-7.795
	Prob.	0.000***	0.000***
With Constant &Trend	t-Statistic	-8.746	-7.919
	Prob.	0.000***	0.000***
Without Constant &Trend	t-Statistic	-0.821	-7.78
	Prob.	0.000***	0.000***

Source: Researcher preparation based on EV.10 program output.

We notice from Table (3) that the study variables are stable at the second difference, so it is necessary to go to conduct a joint integration test for Johansen.

2- The results of the joint integration test:

Table (4): Joint Integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob**
None	0.192641	26.92361	29.79707	0.1035
At most 1	0.146307	15.15435	15.49471	0.0562
At most 2*	0.110726	6.454267	3.841466	0.0111

Source: Researcher preparation based on EV.10 program output.

Through the Johansson co-integration test in Table (4), we note that there is only one co-integration relationship between the study variables, and on this basis we will use the VECM model and the reason for the existence of a co-integration between the study variables.

3- Cranger test for causation:

Through the Cranger test in Table (5), we note that there is a relationship that will be caused by a significant bilateral trend that goes from money supply to public spending and from public spending to money supply.

Table (5): Cranger test between money supply and unemployment

Null Hypothesis:	Obs	F-Statistic	Prob
M does not Granger Cause B	65	1.73363	0.1936
B does not Granger Cause M		1.54929	0.2187

Source: Researcher preparation based on EV.10 program output.

Through the Cranger test in Table (5), we notice that there is no causal relationship between money supply and unemployment.

4- Test results for slowdowns:

Table (5): Slowdown test

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-3448.791	NA	5.82	58.62966	58.70167	58.65889
1	-2731.140	1560.555	4.71	44.60069	43.88872	43.71759
2	-2371.241	1.328066	5.65	40.35511	42.07516	40.64734
3	-2462.969	486.704*	5.8*	40.4799*	40.7402*	40.4145*
4	-2489.417	1.462450	7.70	40.49853	45.43460	40.87842

Source: Researcher preparation based on EV.10 program output.

We notice from Table (5) that the slowdowns are the third period by which the VECM model can be estimated.

5- Estimating the VECM Form for Cash and Unemployment Supply:

We note through Table (6) that the VECM estimation model shows that there is a balanced relationship between the money supply and unemployment in the long run and the reason is that the error correction factor is negative, and through the value of (R2) was weak, that is, the stable variable explained the dependent variable by 67%.

Table (6): Estimating the VECM Model for Cash and Unemployment Supply

Cointegrating Eq	CointEq1	
B(-1)	1.000000	
M(-1)	6.06	
	(4.4)	
	[1.37930]	
C	-17.14846	
Error Correction	D(UM)	D(M)
CointEq1(Error sd)	-0.073739	-9371.694
	(0.02962)	(17519.8)
	[-2.48984]	[-0.53492]
Short-run coefficient		
D(UM(-1))	0.803252	-5352.507
	(0.14006)	(82855.9)
	[5.73497]	[-0.06460]
D(UM(-2))	-0.119423	-5881.936
	(0.14645)	(86632.4)
	[-0.81548]	[-0.06790]
D(M(-1))	-4.67	0.860311
	(2.5)	(0.14645)
	[-0.18879]	[5.87451]
D(M(-2))	1.58E-09	-0.141282
	(2.5)	(0.14748)

	[0.00633]	[-0.95795]
C	-0.116887	-6500.669
	(0.10035)	(59362.0)
	[-1.16482]	[-0.10951]
R-squared	0.670504	0.589762
Adj. R-squared	0.547848	0.547029

Source: Researcher preparation based on EV.10 program output.

6- Link Matrix:

Table (7): The correlation matrix between money supply and unemployment

	B	**M**
B	**1**	**-0.668**
M	**-0.668**	**1**

Source: Researcher preparation based on EV.10 program output.

We observe, through Table (7), the correlation matrix between the money supply and unemployment, which shows the inverse relationship between money supply and unemployment, that is, the increase in the money supply leads to a decrease in unemployment.

From the economic point of view, the extent of the dependent variable's unemployment response to the changes in the independent variable, the money supply, as the parameters of the model indicate the elasticity of the unemployment rate toward the money supply, that is, the change in the money supply leads to a change in the apparent unemployment rate, and the relationship is inverse between the supply Cash and unemployment, because the signal is negative according to statistical tests, that is, an increase in the money supply will lead to a decrease in the interest rate, which encourages the demand for investment and providing job opportunities for the unemployed, which in turn reduces unemployment rates, which is in line with the logic of economic theory.

III. Conclusions

1- Through the Granger test, it is clear that there was no causal relationship between money supply and unemployment during the study period.

2. We note through the VECM estimation model that there is a balanced relationship between the money supply and unemployment in the long run and the reason is that the error correction factor is negative, and through the value of (R^2) was medium, that is, the stable variable explained the dependent variable by 67%.

IV. Recommendations

1. Involving the state alongside market mechanisms, this would create a kind of balance within the economy because the Iraqi economy will not be able to rely on one mechanism at present

2. The Iraqi government should limit the flow of foreign workers into the country to provide employment opportunities for Iraqi workers and bridge the growing unemployment gap in Iraq.

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