Estimating and Analyzing the Impact of Some Monetary Policy Tools on Unemployment in Iraq for the Period 2005-2021

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Abstract: The research aims to show the extent of the impact of some monetary policy tools on unemployment in the Iraqi economy during the period (2005-2021) in order to identify the defects and negative points that hinder the achievement of a high growth rate. It turns out that there is a positive and significant relationship between some monetary policy tools as independent variables and unemployment as a dependent variable in the Iraqi economy during the study period. An integrated economic policy through which it works to stimulate private investment of all kinds, whether local or foreign, by providing the requirements of an appropriate investment environment, which in turn works to raise the efficiency of the private sector and increase its contribution to the formation of the gross domestic product, especially in the productive sector of the Iraqi economy, thus eliminating unemployment.

Key words: Monetary policy, Unemployment, Economic growth.

Introduction:

Achieving a low level of unemployment is a requirement for economic decision makers, whether in the monetary or financial aspect, and in the current research, work will be done to investigate the effectiveness of some monetary policy tools to reach optimization in achieving a low rate of unemployment in the Iraqi economy by achieving stability in the level 56 of 2004, which contained reform measures in the monetary field. The research was divided into three sections. The first topic dealt with: the methodology of the study, and the second topic dealt with: the aspect. Theoretical, and dealt with the third topic: Measuring the impact of some monetary policy tools on unemployment in Iraq during the study period.

The topic: the first is the methodology of the study

First: Research problem

1. The effectiveness of some Unemployment in Iraq for the period (2002-2021.(

2. How to reach the Iraqi economy to stability and access nd thus increase the welfare of the individual and society.

Second: The importance of the research

The importance of the research lies in explaining the role of monetary policy in achieving a high level of full employment in the Iraqi economy.

Third: Research Hypothesis

The research stems from the hypothesis that some monetary policy tools have a positive role in full employment in the Iraqi economy during the period (2005-2021).

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Fourth: Research Methodology

For the purpose of answering the problem at hand, it is required to use the descriptive analytical approach and the quantitative analysis approach.

The limits of the study:

1. Spatial boundaries: Iraq

2. Temporal boundaries: (2005-2021)

Fifth: Research Structure

To prove the research hypothesis and reach the objectives, the research was divided into three sections. The first topic dealt with: the concept of monetary policy and gross domestic product, the second topic dealt with: trends in the development of monetary policy and unemployment , and the third topic dealt with: measuring the impact of some monetary policy tools on unemployment in the Iraqi economy

The second topic / the theoretical side

The concept of monetary policy and unemployment.

The first requirement: the concept of monetary policy.

Monetary policy is considered one of the most important macroeconomic policies, which has a prominent role in influencing the economic activity of the country in light of the use of its quantitative and qualitative tools in the financial market. Monetary policy is defined as the process of controlling and controlling the amount of money supplied and interest rates by the central bank for the purpose of achieving the objectives of the country's economic policy. Periods of inflation in order to maintain economic balance and stability (Al-Qatbari , 2012, 18). Monetary policy works through the central bank to control the volume of currency in circulation and its impact on the volume of credit and the interest rate, and thus on the volume of investment and economic activity of the country using its direct and indirect tools (Ezzeddine and Abdel Samad, 1001, 2021) . Monetary policy is one of the main economic stability tools in light of its impact on macroeconomic variables through its tools that allow it to control the size and direction of the monetary mass represented by the Central Bank for the purpose of achieving the objectives of economic policy in growth, reducing the level of poverty and equality, and improving the livelihood of members of society. (Dong, 2012, 2) It is also defined as a type of stability policy through which changes are made in the amount of money that is traded or in interest rates, or in both (Korgman and Wells, 527, 2022). Or it is a set of measures that the monetary authorities take in order to control the level of credit and cash through which the means of payment and the amount of money are affected according to the economic conditions of the country .). Also, monetary policy was defined as all the means and procedures used by the monetary authorities in managing the money supply for the purpose of achieving balance in the monetary market (Hafez, 2020, 18) . Monetary policy can also be defined as a set of decisions and procedures undertaken by the monetary authorities in order to influence monetary variables. In order to achieve economic goals (Abdul Rahim and Rashid, 2021, 153). And he knew it Patat It is that act that is used to monitor the money supply by the central bank as a tool to achieve the objectives of public policy, and George Bariont defined it as: "It is the set of measures taken by the monetary authorities, with the aim of having an impact on the economy, in order to ensure the stability of exchange rates" (Janawi 2021, 3). Monetary policy was defined as a mechanism for employing tools and policies in order to influence the money supply in general, and it is also the procedures adopted by the government or the monetary authority to manage the interest rate and the money supply (Nour El-Din, 2020, 131) . Changes in monetary policy carried out by the central bank in any country can have a significant impact on the markets and the economy in general by raising or lowering the standard rates of the economy, a process similar to the interest rate process. (Tang et al., 2013, 4436).

The second requirement: the concept of unemployment

Prepare Unemployment is one of the most prominent economic phenomena that most economies suffer from, and views on it have varied, but the concept of unemployment remains agreed upon, which is that there are individuals despite their endeavor to work and having all the necessary ingredients for that, but they are still unemployed (Tarf, 400, 2017) . Also, employment has a set of dimensions, including economic, organizational and structural.

We will summarize some of the main dimensions of employment:

1. The social dimension: T his dimension is concerned with eliminatin social ills resulting from the phenomenon of unemployment, especially the youth segment, and providing conditions for their integration into society.

2. The economic dimension: This aspect focuses on investing human capital (the productive capacities of individuals) acquired or inherited, especially qualified capacities, by employing them in all productive sectors and in the public and private sectors for the purpose of creating economic wealth through which sustainable development can be achieved in the economic and social aspects.

3. The organizational and structural dimension: It means that all relevant authorities participate in decision-making, development and implementation of employment policies on the ground, and sustainable development planning at the levels of population centers, whether cities or villages (Abdul Latif, 11, 2021). For the purpose of clarifying the concept of full use The concept of unemployment must be clarified , as it is an economic phenomenon that appeared clearly after the industrial revolution and the boom of industry. In rural communities, it has no meaning, according to the International Labor Organization. The unemployed is the person who has the ability and desire to work, but without obtaining it, and it is defined as a condition in which a person is described as unable to obtain a job despite his continuous attempts to obtain it (Zaidan and Abd al-Hussein, 7, 2022). It is also defined as the lack of job opportunities offered or their incompatibility with the increase in demand for them, or the failure of the individual to practice any muscular or mental work for reasons beyond his control, or the availability of work that is not commensurate with his desires or capabilities, and the comprehensive definition of it is the case of people who are qualified and able to work and qualified He has and they have the desire to do so, and they are satisfied with the prevailing wage, but they do not obtain it in a specific society and during a certain period of time because of the capacity and energy of the economy of that society, (Allawi, 43, 2019).

Unemployment is divided into several types, of which we mention three main types, as follows:

1. Cyclical unemployment: This type of unemployment is linked to economic cycles, and its rates increase in stagnation, deflation, and recession due to a decrease in aggregate demand, which leads to a lack of employment. Monetary and financial expansion.

2. Frictional unemployment: This type occurs as a result of changes in the labor market and the shift of workers from one job to another and from one region to another in order to improve their living conditions in order to obtain a better job through which they can improve their living conditions and which is more consistent and appropriate with their academic or professional qualifications, and the same is the case in Some sectors, such as the agricultural sector, as a result of natural factors such as floods and snow, which lead to the cessation of work for a specific period.

3. Structural unemployment: It occurs when part of the labor force stops due to the technological developments that occur in the economy, and leads to a difference in the requirements of the economic structure of the labor force as a result of the incompatibility of modern work requirements with the existing qualifications and skills (Zaidan and Abdul Hussein, 8, 2022) . The International Labor Organization has defined the unemployed as that person who has the ability and desire to work and is within the working age and is satisfied with working according to the prevailing wage but cannot obtain it. healthy economy with unemployment rate. The main types of unemployment are three types: cyclical unemployment, structural unemployment, and frictional unemployment (Sabti, 2019, 203).

The second topic, the applied side of the study: trends in the development of monetary policy And unemployment in Iraq for the period (2005-2021).

The first requirement: the development of monetary policy indicators.

Monetary policy indicators are independent variables that have a direct and indirect impact on the gross domestic product . It includes the narrow money supply M1 in addition to savings deposits in banks and post offices, and open market operations that are represented by the currency sale window, the interest rate, and the legal reserve, and the following table represents the quantities in millions of dinars and the percentages that represent them during the study period.

Table (1): The evolution of the trends of some monetary policy tools in Iraq for the period (2005-2021) (million dinars).

Annual rate of change %	The evolution of the legal erveres	interest rate evolution %	Annual rate of change %	The evolution of open market operations	Annual rate of change %	The evolution of criticism in the broad sense(M2)	the years
-	4,501,297	7.0	___	28923000	_	14,684,000	2005
37.56	6,192,141	16.0	0.04	30227000	43.8	21,080,000	2006
95.16	12,084,441	20.0	-0.33	20054000	28	26,956,076	2007
65.45	19,993,802	16.0	0.53	30861000	29.7	34,920,675	2008
*(52.90)	9,416,761	8.8	0.28	39,770,000	30	45,438,918	2009
(24.02)	7,155,093	6.25	0.064	42,320,000	32.8	60,386,086	2010
9.22	7,814,853	6.0	0.104	46,563,000	19.5	72,177,951	2011
10.35	8,624,023	6.0	0.21	56,724,000	6.9	77,187,497	2012
11.63	9,626,882	6.0	0.09	62067000	16	89,512,076	2013
9.86	10,566,103	6.0	-0.009	61452000	3.8	92,988,876	2014
(11.21)	9,390,493	4.3	-0.14	52,721,000	(9)	84,527,272	2015
(7.27)	8,707,551	4.0	-0.24	39,893,000	6.8	90,359,096	2016
(25.29)	6,505,171	4.0	0.25	50,219,000	2.7	92,857,047	2017
60.02	10,409,660	4.0	0.11	56,088,000	2.7	95,390,725	2018
(7.97)	9,580,388	4.0	0.065	59,764,000	8.4	103,441,131	2019
(3.2)	9,264,573	4.0	0.05	62,754,000	16	119,906,260	2020
1.3	9,387,873	4.0	0.01	63,738,000	0.8	120,876,983	2021

Note // The numbers in brackets are negative.

Source: Central Bank of Iraq, annual bulletins for the period (2005-2021).

Of the monetary policy tools during the period of the study between rise and fall). million dinars in the year (2014) due to the expansionary monetary policy pursued by the Central Bank of Iraq as a result of the rise in oil revenues from the dollar, as the monetary policy aimed to expand economic activity in Iraq in both its investment and consumer parts, but in the year (2015) the supply of The broad money supply (M2), as the rate of change in it was negative and amounted to (9), as a result of the negative events due to the security conditions that occurred in the Iraqi economy, and then the broad money supply (M2) rose again, and continued until the year (2021), and this is considered a challenge In front of the monetary policy makers in Iraq, as it expresses their ability to control those high rates of the broad money supply (M2), (Kazem et al., 2019, 122). We conclude from the aforementioned that the increase in the money supply in the broad sense is not matched by any increase in production due to the weakness in the Iraqi productive apparatus vond its inability to absorb excess demand by economic units and individuals, and that this increase It will be negatively reflected in the rise in inflation rates, which prompts the central bank to increase its sales of hard currency (dollars) through the currency sale window for the purpose of importing goods and services from abroad to cover the rise . in demand and caused As for the increase in the money supply , the interest rate was in the year (2005) (7.0%) and continued to rise until it reached its highest rate during the study period, which is (20%) in the year (2007), and the for this increase is due to the

austerity policy followed by the Central Bank to meet the inflation situation during the years (2008 and 2009), respectively, after which the Central Bank of Iraq reduced the interest rate to (6.0%) during the period (2011-2015) in order to encourage domestic and foreign investment and make the investment environment attractive for investment, then After that, the Central Bank of Iraq reduced the interest rate to (4.0%) during the period (2017-2021), and the aim of this reduction was to give banks a greater role in participating in improving economic growth rates and encouraging the private sector by granting credit, and it is clear from the above that The monetary policy in Iraq, through its reduction of the interest rate, created a positive indicator of the investment environment in the Iraqi economy, especially in the years of the last period of the study . Negative, the exchange operations in the open market in (2005) amounted to (28,923,000) million dinars, and the growth rate for the year (2006) was (0.04%), while the growth rate in the year (2007) was (-0.33%), meaning that there is a decline in the growth rate for market operations And this is due to the internal events that the country went through, while in the year (2008) the growth rate increased to (0.53%) as a result of the Iraqi economy's tendency towards openness to the outside world and the validity of the decision to lift the economic blockade that was imposed on Iraq before the year (2003) and its exit from the item Seventh, the increase in internal and external transactions, in addition to the improvement in oil prices in global markets, since the Iraqi economy depends largely on oil revenues, and this increase in revenues leads to an increase in demand for foreign currencies, especially the dollar, which is done through the auction of currency sale managed by the Central Bank of Iraq. The growth rate continued in open market operations, but at a decreasing rate, reaching (2013) to (0.09%) as the lowest positive growth rate since the year (2005), the date of the beginning of the study, so that the volume of exchange reached (62,067,000) million dinars, then the growth rate began to decline to the level The negative growth rate in (2014) is (-0.009) as a result of the decline in oil revenues due to the departure of a large number of oil extraction sources from the control of the central government, as well as the departure of the Iraqi oil carrier line to the Turkish port of Ceyhan from the control of the central government, so that the volume of exchange for the years is (2014, 2015, 2016) respectively (61,452,000, 52,721,000, 39,893,000) million dinars, with a growth rate of (-0.009%) (-0.14) (-0.24), respectively, to return to the rise in (2017) to reach a growth rate of (0.25%), with an exchange rate of (50,219,000) million dinars as a result of the government's return to control over the Iraqi oil wells and the international line that carries Iraqi oil to Turkey, which increased oil revenues and thus a recovery in the Iraqi economy and an improvement in the Iraqi balance of payments as a result of the improvement in the security situation and reconstruction, and then growth rates began in Open market operations decreased, but above the correct one (growth at a decreasing rate) for the years (2018, 2019, 2020, 2021), as the annual growth rate, respectively, was (0.25%), (0.11%), (0.065%), (0.05%). (0.01%), respectively, with exchange rates of (56,088,000, 59,764). 000, 62,754,000, 6,373,800) million dinars, respectively, and the reason for that was the health crisis (Corona crisis) in 2020, due to which most global production projects were stopped, supply chains stopped, and the sharp drop in global oil prices as a result of the lack of demand for it and thus Impact on the Iraqi economy being part of the global economy. As for the ratio of the legal cash reserve during the study period, the legal reserve ranged between (4501297) million dinars in the year (2005) and (9387873) million dinars in the year (2021), and it began to rise until it reached (12,084,441) million dinars at an average Growth (95.16) in the year 2007, which is the highest growth rate in the legal reserves of the Central Bank of Iraq during the study period. %), (9.22%), (10.35%), (11.63%), (9.86%), and (11.21%), respectively. Growth rates range from high to low as a result of the monetary policy adopted by the monetary authority. In the case of expansion, the cash reserve decreases the opposite is true in the case of a deflationary policy in order to eliminate inflation and increase monetary and economic stability in the Iraqi economy. As for the period (2016-2021), the annual growth rates were negative, with the exception of the year 2018, in which the annual growth rate reached (60.02%) as a result of the improvement in the security conditions that contributed to increasing confidence among the public and their return to investment in banks through deposit (Sultan, 2022 , 67). Table No. (1) shows the legal reserve trends in the Iraqi economy during the study period.

The second requirement: unemployment trends in Iraq during the study period:

is one of the most important economic problems that global economies in general and the Iraqi economy in particular suffer from, and this problem consists of a group of overlapping causes at different levels, including economic, social and Negative effects and repercussions on the various social, economic and security levels, and that the increase in the breadth of this problem and increasingly in the Iraqi economy is due to the increase in the workforce as well as the desire to work in exchange for the obvious weakness in the productive sectors at the public and private levels and its inability to absorb these increasing numbers of hands The female worker who has the desire to work with the prevailing wage, and this shows the extent of the imbalance in the structure of the Iraqi economy. Among the most important of those reasons that led to the increase in the number of the unemployed are: - (Hassan, 2021: 175).

1. The dependence of the Iraqi economy on oil revenues through the export of crude oil, which gave the Iraqi economy the characteristic of a rentier economy, and because the oil industries do not need to employ large numbers of manpower, in addition to the lack of a role in which the rest of the economic sectors aspire to contribute to the formation of the gross domestic product Which leads to an increase in the unemployment rate.

2. The increase in the population growth rate in Iraq has led to an increasing increase in the labor supply and thus an increase in the unemployment rate.

3. The change in the regime in Iraq after the year (2003) contributed to the increase in the number of the unemployed as a result of the dissolution of the Iraqi army and workers in the security services, as well as the cessation of most of the productive projects after 2003.

4. The absence of a plan to absorb the increasing number of graduates of Iraqi institutes and universities in the labor market.

5. The modest contribution of the private sector to the gross domestic product also had a role in not absorbing additional numbers of the labor force.

For the purpose of identifying unemployment rates in the Iraqi economy and their ratios to the total population, we refer to the table and figure No. (2).
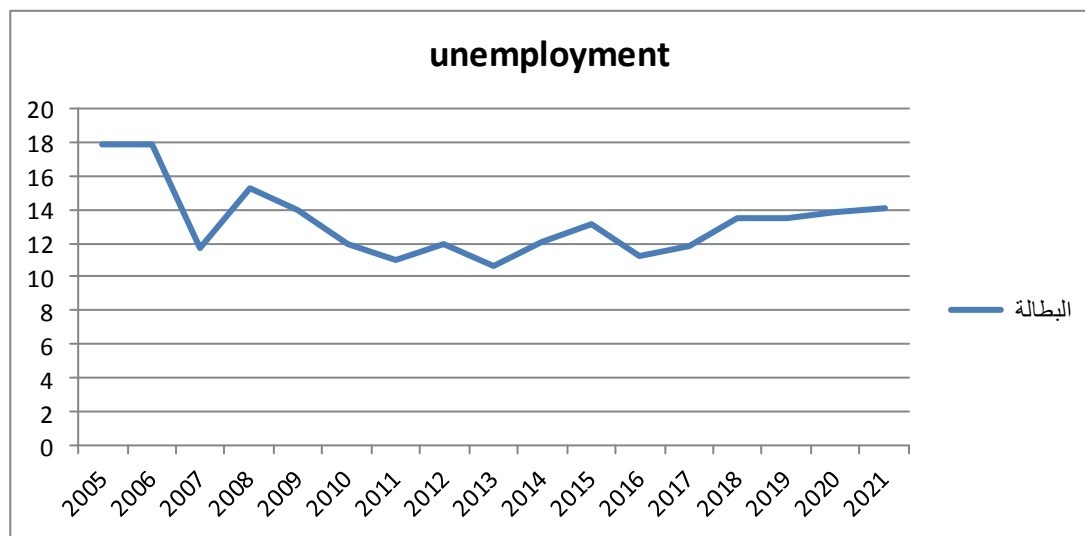
Table (2): Unemployment rates in the Iraqi economy for the period (2005-2021).

Unemployment % rate (5)	The ratio of the mployed to the une economically active (4)	The number of unemployed one million) (population (3)	Economically active population (million (people (2)	Total population million) (people (1)	the years
17.9	33.3	5,033	15,100	27,963	2005
17.9	33.3	5,186	15,557	28,810	2006
11.7	22.2	3,562	16,028	29,682	2007
15.3	27.7	4,587	16,512	30,577	2008
14.0	24.9	4,433	17,772	31,664	2009
12.0	21.0	3,898	18,514	32,481	2010
11.0	19.2	3,666	18,998	33,330	2011
11.9	20.9	4,105	19,579	34,208	2012
10.6	19.1	3,860	20,200	35,095	2013
12.1	21.0	4,328	20,556	36,063	2014
13.1	22.9	4,801	20,913	36,933	2015
11.2	18.9	4,167	21,972	37,883	2016
11.8	20.6	4,626	22,361	38,554	2017
13.5	24.1	5,495	22,767	39,253	2018
13.5	24.9	5,503	22,091	39,309	2019
13.9	24.5	5,631	22,927	40,222	2020
14.1	25.5	5,742	21,876	41,014	2021

Source: Ministry of Planning, Central Bureau of Statistics, Directorate of Population and Manpower, statistical releases for separate years for the period (2005-2021).

After reviewing (2) and Figure , it becomes clear that unemployment rates in the Iraqi economy have increased, especially in the years (2005) and (2006), so the unemployment rate was (17.9%) and (17.9%), respectively, as the number of unemployed Employment (5.033 and 5.186) million people, and the ratio of the unemployed to the ratio of the economically active was (33.3%) and (33.3%), respectively. In 2007, the ratio of the unemployed to the ratio of the economically active decreased to (22.2), The reason for this decline is attributed to the Iraqi government increasing the employment rate in most state ministries, especially the ministries of defense and interior, to fill the shortage in them after restructuring the army and police after the year (2003), and this was reflected in the decrease in the unemployment rate until it reached (11.7%), for the same year and then This rate fluctuated up and down until it reached its lowest level in the year (2013) at a rate of (10.6%), which is the lowest level of unemployment rates during the study period, as the number of unemployed people reached (3.860) million people, and the rate of (19.1%) of the active population Economically for the same year, this significant decrease in unemployment rates is attributed to the increase in oil revenues due to the rise in oil prices The rise of oil in global markets on the one hand and the increase in oil production in Iraq on the other hand, the fact that oil revenue represents the largest proportion of the gross domestic product, which was reflected in the increase in employment in the public sector of the state, after which the unemployment rate began to rise gradually until it reached the year (2015). Its rate was (13.1%), and the number of unemployed people reached (4.801) million people, at a rate of (22.9%) of the economically active population. Manpower, in addition to the decrease in the flow of investments into Iraq due to the unstable security situation, especially in the governorates where there are military operations, as well as the cessation of many public sector projects, the entry of workers in them into disguised unemployment, the increase in military spending, as well as the deterioration of oil prices in global markets, which was reflected This negatively affected the decrease in the revenues of the federal public budget, and led to an increase in unemployment rates. However, during the subsequent years (2016 and 2017), the unemployment rates gradually decreased and reached (11.2%) and (11.8%), respectively, due to Relative stability in the rate of oil prices in global markets, which was reflected in a slight improvement in the performance of the federal budget, as well as the achievement of security stability after the liberation of all provinces occupied by terrorism in 2014, as economic activity began to improve significantly, which led to an increase in the number of workers in the sectors productivity, but not at the required level. In subsequent years, the unemployment rate gradually increased until it reached (2021) the rate of (14.1%, while the number of the unemployed reached (5.742) million people, and the reason for this increase is due to the Corona virus (COVID 19) crisis.

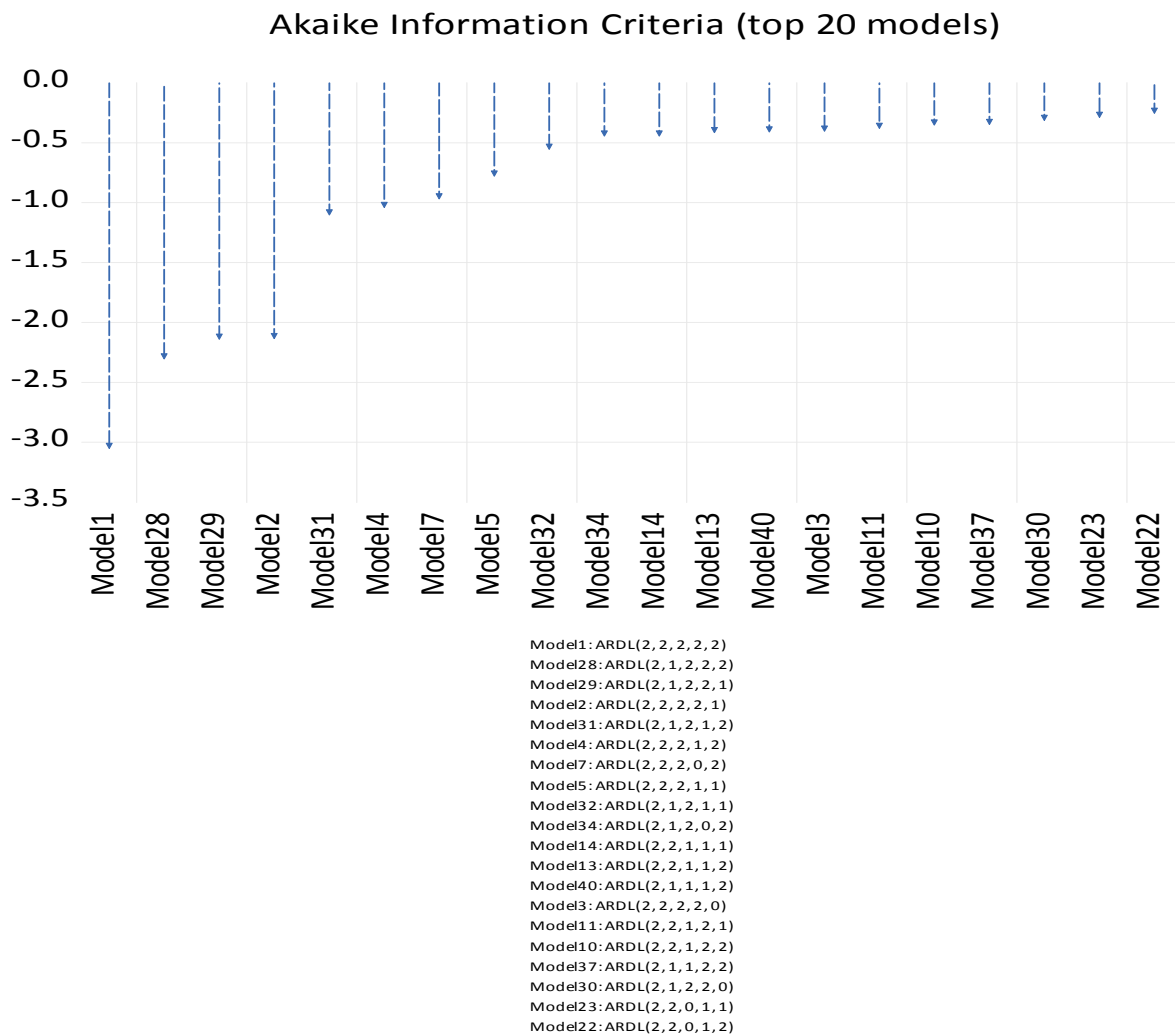**Figure (1)**: It shows trends in unemployment in the Iraqi economy during the study period.

Source: prepared by the researcher based on the data of Table No. (2) using the Excel program

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The second requirement estimating and analyzing the impact of some monetary policy variables on the unemployment index.

In light of the foregoing and given the stability of the time series of the study variables within the limits of the first difference and not exceeding the barrier of the second difference, they fulfill the conditions of joint integration between the variables of the study using the methodology of self-regression of time gaps ARDL With these conditions met, we were able to apply the ARDL model test , using the Akaike Information Criteria (top 20 models) as it specifies 20 slowing periods for ARDL models. To determine the number of lag periods and choose the optimal duration to detect the relationship between the independent variables (X4 , X3, X2, X1) and the dependent variable (Y2).

1-Test the number of time lags according to Akaki's criterion.

Figure (2) : Test the number of time lags according to Akaki's criterion.

Akaike Information Criteria (top 20 models)

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Model1 : ARDL(2,2,2,2,2)
Model28 : ARDL(2,1,2,2,2)
Model29 : ARDL(2,1,2,2,1)
Model2 : ARDL(2,2,2,2,1)
Model31 : ARDL(2,1,2,1,2)
Model4 : ARDL(2,2,2,1,2)
Model7 : ARDL(2,2,2,0,2)
Model5 : ARDL(2,2,2,1,1)
Model32 : ARDL(2,1,2,1,1)
Model34 : ARDL(2,1,2,0,2)
Model14 : ARDL(2,2,1,1,1)
Model13 : ARDL(2,2,1,1,2)
Model40 : ARDL(2,1,1,1,2)
Model3 : ARDL(2,2,2,2,0)
Model11 : ARDL(2,2,1,2,1)
Model10 : ARDL(2,2,1,2,2)
Model37 : ARDL(2,1,1,2,2)
Model30 : ARDL(2,1,2,2,0)
Model23 : ARDL(2,2,0,1,1)
Model22 : ARDL(2,2,0,1,2)
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Source: Figure prepared by the researcher using (12 Eviews) program.

Table (3) : Test the number of time lags according to Akaki's criterion.

Model Selection Criteria Table					
Dependent Variable: Y1					
Model	LogL	AIC*	BIC	HQ	Adj. R- sq	
1	61.90771	-3.0263	-2.332440	-2.80012	0.999578	ARDL(2, 2, 2, 2, 2)

The results of Table (3) and Figure (2) indicate each of the following:

➢ The best model for studying the long-term relationship between some monetary policy variables and unemployment is the model: ARDL) (2, 2, 2, 2, 2)

This is based on the results of the Akaike Information Criteria , as the optimal odel had the lowest value for this criterion, which amounted to (-3.0263), and it is the model that takes slowdowns by 2 , 2, 2, 2, 2) for the dependent variable and the explanatory variables.

➢ Through the value of the corrected determination coefficient, it is clear to us that 0.999578 % of the changes that occurred in the dependent variable are caused by the explained variables with their slowing down. The initial model was estimated, and its results were included in Table 4

2. The first estimate of the unemployment model. ARDL.

Table (4) : The results of the first estimate of the ARDL model.

Dependent Variable: Y2			
Method: ARDL			
R-squared	0.999775	Mean dependent var	10.40890
Adjusted R-squared	0.999578	SD dependent var	2.225900
SE of regression	0.045718	Akaike info criterion	-3.026304
Some squared residence	0.033442	Schwarz Criterion	-2.332440
Log likelihood	61.90772	Hannan -Quinn criter .	-2.800122
F-statistic	5,078,458	Durbin-Watson stat	2.698495
Prob (F-statistic)	0.000000		
*Note: p-values and any subsequent tests do not account for model selection.			

Source: The table was prepared by the researcher using the program (12 Eviews).

The data in the above table refer to the results of the initial estimate of the ARDL model for the relationship between (statutory reserve, money supply, interest rate, and open market operations) as independent variables and unemployment as a dependent variable.

Where the value of ($R2 = 0.999775$) , which represents the explanatory ability of the model, and the value of DW ( ) (2.698495), meaning that the model is devoid of correlation. The value of F-statistic also reflected the significance of the model as a whole, which is less than (5%), which requires moving to the subsequent steps to verify the existence of the long-term equilibrium relationship between the variables of the study according to the ARDL model through the Bound Test.

3. Bound Test.

Table (5): Boundary test results Bound Test

F-Bound Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Signif .	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	56.13399	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: The table was prepared by the researcher using the program (10 Eviews).

The table above shows the results of the Bound Test of co-integration between the variables of the study if the calculated (F-statistic) value reached (56.13399) , which is greater than the maximum and minimum tabular value, as they reached (3.49), (2.56) at a significant level (5%), which It means that we reject the null hypothesis and accept the alternative hypothesis, and this means that there is a cointegration relationship between some variables, that is, the existence of a long-term equilibrium relationship. In tables (6), (7).

4- Short-term regression between monetary policy tools and unemployment.

Table (6) : Short-term estimations and error correction for the variables of monetary policy and unemployment.

ARDL Long Run Form and Bounds Test				
Dependent Variable: D(Y2)				
Selected Model: ARDL(2, 2, 2, 2, 2)				
Case 2: Restricted Constant and No Trend				
Date: 01/08/23 Time: 14:22				
Sample: 2005S1 2021S2				
Included notes: 31				
Conditional Error Correction Regression				
Variable	Coefficient	std. Error	t-statistic	Prob.
C	-1.526197	0.205133	-7.440038	0.0000
CointEq (-1)*	-0.154415	0.023121	-6.678524	0.0000
D(X1)	-1.36E-07	2.67E-08	-5.083592	0.0001
D(X2)	1.48E-07	6.68E-09	22.16433	0.0000
D(X3)	0.927660	0.075612	12.26861	0.0000
D(X4)	5.52E-08	1.27E-08	4.355795	0.0005
* p-value compatible with the t-body distribution.				

Source: The table was prepared by the researcher using the program (12 Eviews) .

The above table shows the short-term estimation results, as the monetary policy indicators and the unemployment index are as follows:

1- The results of the study showed that there is an inverse relationship between the legal reserve index (X1) and the unemployment index (Y , That is, when increasing the legal reserve index (X1) by one unit, it leads to a decrease in the unemployment index (Y) by (-1.36 units), and I have a probability level (0.0001).

2- The results of the study showed that there is a direct relationship between the money supply (X2) and the unemployment index (Y2), that is, when increasing the money supply (X2) by one unit leads to an increase in the unemployment index (Y2) by (1.48) units, and I have a probability level (0.0000).

3- The results of the study showed that there is a direct relationship between the interest rate index (X3) and the unemployment index (Y), that is, when an increase in the interest rate (X3) by one unit leads to an increase in the unemployment index (Y) by (0.927) units, and I have a probability level (0.0000).

4- The results of the study showed that there is a direct relationship between open market operations (X4) and the unemployment index (Y), that is, when an increase in open market operations (X4) by one unit leads to an increase in the unemployment index (Y) by (5.52) units, and I have a probability level (0.0000).

5- As for the error correction coefficient, it has a negative sign, as it amounted to (-0.154415), and this value is significant based on the probability value, which amounted to (0.0000), which is less than (0.05), meaning that the first condition has been fulfilled, noting that this value indicates that it is 15%. Errors in the short term can be corrected in the unit of time represented here in the year in order to return to the equilibrium situation in the long term.

6- The long-term regression between monetary policy tools and unemployment.

Schedule (7): Long-term estimates of the variables of some monetary policy tools and unemployment

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	std. Error	t-statistic	Prob.
x1	1.85E-07	1.81E-07	1.019332	0.3232

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x2	2.15E-07	1.24E-08	17.38177	0.0000
x3	1.052194	0.217151	4.845444	0.0002
X4	-1.07E-07	4.15E-08	-2.580662	0.0201
C	-9.883750	2.460709	-4.016627	0.0010
EC = Y2 - (0.0000*X1 + 0.0000*X2 + 1.0522*X3 -0.0000*X4 - 9.8838)				

Source: The table was prepared by the researcher using the program (13 Eviews) .

The above table shows the long-term estimation results, if the monetary policy indicators and the unemployment index are as follows:

1- The results of the study showed that in the long term, the relationship between the legal reserve index (X1) and the unemployment index (Y) failed, because the probability exceeded the barrier of 0.05.

2- of the study showed in the long term that there is a direct relationship between the money supply (X2) and the unemployment index (Y) (0.0000).

3- The long-term results of the study showed that there is a direct relationship between the interest rate index (X3) and the unemployment index (Y), that is, when the interest rate (X3) increases by one unit, it leads to an increase in the unemployment index Y) by (1.05) units, and I have a probability level (0.0002).

4- The results of the study showed in the long term that there is an inverse relationship between open market operations X4 and the unemployment index Y), that is, when an increase in open market operations (X4 by one unit leads to a decrease in the unemployment index Y) by (-1.07 units, and I have Likelihood level (0.0000).

6- Diagnostic tests for the variable Y:

In order to ensure the validity and accuracy of the results obtained in the previous tests, we will perform some important diagnostic tests to prove this, as follows:

1- The problem of self-correlation: The results according to the LM test and the F- test) statistic showed that they are not significant, and therefore we reject the hypothesis of the existence of an autocorrelation problem, see Table (8) below.

2- Heterogeneity of variance test The results were shown according to the ARCH test . According to the F- test statistic, it is not significant, and therefore we reject the hypothesis that there is a problem of homogeneity of error variance.

Schedule (8) : Results of diagnostic tests for the Y variant.

Breusch - Godfrey Serial Correlation LM Test:			
F-statistic	**7.076378**	**Prob. F(2,14)**	**0.0 654**
Heteroskedasticity Test: ARCH			
F-statistic	**0.086739**	**Prob. F(1,28 (**	**0.7705**

Table: Prepared by the researcher based on the statistical program (12. Eviews).

3-The problem of normal distribution: The results showed that the estimated model is free from the problem of normal distribution of the residuals, as follows:

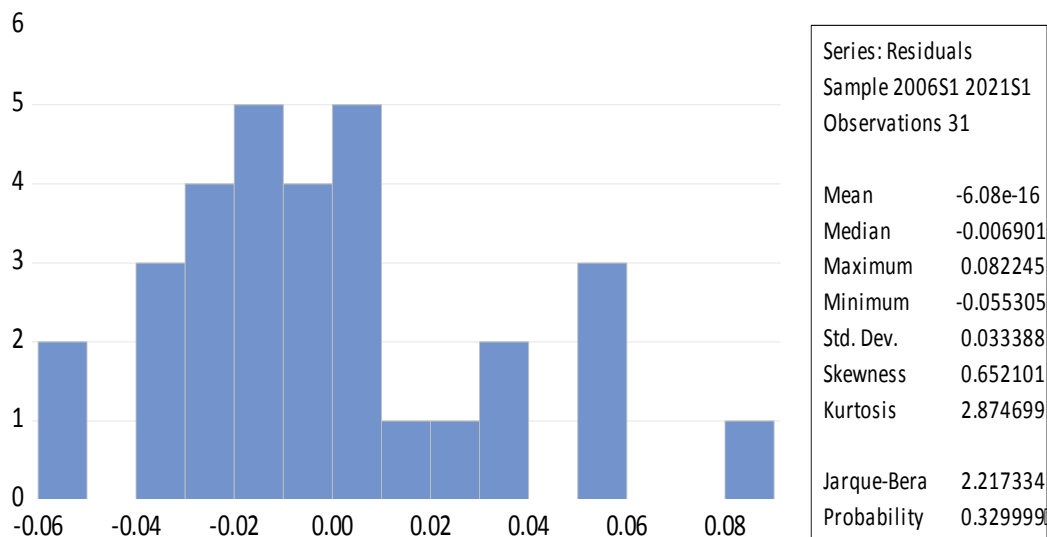**Figure (3) :** Normal distribution for the remainder

Figure: Prepared by the researcher based on the statistical program (12. Eviews).

Conclusions:

1- It was found through the analysis of the data that there is a positive role for some monetary policy tools in influencing the level of unemployment in the Iraqi economy and making it range at economically acceptable levels.

2- The results of the unit root through the expanded Dickey-Fuller test and Phillips-Berron showed that the variables of the study were stable at the level and others were stabilized at the first difference with a co-integration relationship between the monetary policy indicators and the unemployment index.

3- The results of the limits test (co-integration) showed that there is a co-integration relationship between the monetary policy indicators and the unemployment index.

4- The results of the short-term estimation of the relationship between some monetary policy indicators and unemployment showed that there is an inverse relationship between the indicators (open market operations) and the unemployment indicator. And a direct relationship between (the money supply, the interest rate) with the unemployment index, and the failure of the relationship between the legal reserve index and the unemployment index. As for the long term, the failure of the relationship between the legal reserve index and the unemployment index, a direct relationship between the money supply, the interest rate, and the unemployment index, and an inverse relationship between open market operations and the unemployment index.

Suggestions:

1- Encouraging the private sector by providing the necessary bank credit to it and reducing the interest rate to facilitate its access to soft bank loans, provided that they are used in productive sectors that increase the rate of economic growth and provide job opportunities for the labor force to contribute to achieving full employment and reducing unemployment rates in the Iraqi economy.

2- Supporting foreign investment by providing banking facilities for the entry of funds from abroad into the country and vice versa, easily and easily, and directing them towards projects with strategic production in order to increase internal production and thus increase the gross domestic product and increase the rate of economic growth (achieving a high growth rate) and eliminating unemployment.

3- Giving monetary policy a greater role to contribute to the Iraqi economic decision through its contribution to enacting laws that affect the money supply, especially the operating budget, preventing its increase from economically acceptable limits, and directing the rest of the available revenues to the investment side, especially infrastructure and projects of a productive nature in order

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to achieve economic stability and increase The rate of growth in the Iraqi economy and thus provide job opportunities and eliminate unemployment.

4- Pursuing an integrated economic policy through which it works to stimulate private investment of all kinds, whether local or foreign, by providing the requirements of an appropriate investment environment, which in turn works to raise the efficiency of the private sector and increase its contribution to the formation of the gross domestic product, especially in the productive sector in the Iraqi economy and thus The elimination of unemployment

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