“Money supply. Endogenous or exogenous variable? With reference to Iraq”

AUTHORS	Falah Hasan Thwaini https://orcid.org/0000-0002-5692-4064 Ahmed Abdulzahra Hamdan https://orcid.org/0000-0002-0935-0539

ARTICLE INFO	Falah Hasan Thwaini and Ahmed Abdulzahra Hamdan (2017). Money supply. Endogenous or exogenous variable? With reference to Iraq. *Banks and Bank Systems*, *12*(4), 144-153. doi:10.21511/bbs.12(4-1).2017.03
DOI	http://dx.doi.org/10.21511/bbs.12(4-1).2017.03
RELEASED ON	Friday, 15 December 2017
RECEIVED ON	Wednesday, 02 August 2017
ACCEPTED ON	Monday, 06 November 2017

LICENSE	This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License

JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
13	3	2

© The author(s) 2025. This publication is an open access article.

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy, 40022, Ukraine

www.businessperspectives.org

Falah Hasan Thwaini (Iraq), **Ahmed Abdulzahra Hamdan** (Iraq)

MONEY SUPPLY. ENDOGENOUS OR EXOGENOUS VARIABLE? WITH REFERENCE TO IRAQ

Abstract

The issue of whether money supply is a dependent or an independent variable remains a debating one, especially with the ongoing development and innovation of institutions, tools, and financial, monetary, and banking derivatives.

In general, we can say that there are two trends of thought about the issue under consideration. The first trend views money supply as an exogenous variable because the monetary authority can control and monitor it. The second one views money supply as an endogenous variable because Federal Bank has no ability to affect it, especially when nominal or money income is changed and reflected on money multiplier and money supply, and also when the monetary authority cannot restrict the monetary expansion as a result of different factors related to the economy structure or related to other non-economic factors.

Received on: 2nd of August, 2017
Accepted on: 6th of November, 2017

Keywords post-Keynesian economics, endogenous money, accommodationists policy, structuralists monetary policy in Iraq

JEL Classification E51, E52

© Falah Hasan Thwaini, Ahmed Abdulzahra Hamdan, 2017

Falah Hasan Thwaini, Dr., Prof., Economics Department, College of Administration & Economics, Al-Mustansiriyah University, Baghdad, Iraq.

Ahmed Abdulzahra Hamdan, Dr., Economics Department, College of Administration & Economics, Al-Mustansiriyah University, Baghdad, Iraq.

This is an Open Access article, distributed under the terms of the Creative Commons Attribution-Non-Commercial 4.0 International license, which permits re-use, distribution, and reproduction, provided the materials aren't used for commercial purposes and the original work is properly cited.

INTRODUCTION

In Iraq, after 2003, the monetary policy witnessed dramatic changes in legal and operational aspects as well as in tools taken which are considered relevant to the aims that the monetary authority is seeking to achieve.

Accordingly, it is important to verify the nature of money supply in Iraq if it is exogenous or endogenous variable because knowing the answer to this question would determine the monetary policy effectiveness and identify suitable tools for central bank to put money supply under control.

The study aims to identify the effects on economy when money supply is considered an endogenous or an exogenous variable.

1. LITERATURE REVIEW

Economic arena witnessed a debate about whether money is an exogenous or an endogenous variable. Two schools of economic thought (Keynesian School and Chicago School) considered money supply as an exogenous variable, while the new Keynesian school considered it as an endogenous variable.

1.1. The mainstream theoretical trend and money supply as an exogenous variable

The quantity theory of money represents the prevailing interpretation of the nature of money supply as an exogenous variable.

The theory assumes that money supply is under the control of the central bank and thus it is determined according to monetary policy targets. That is, the central bank manages the monetary base (the sum of currency in circulation and reserves required) through open market operations and reserve ratio required.

In addition, the process of money creation made by money multiplier is stable over time and that would give the central bank the ability to control money supply efficiently.

Also, the demand for deposits and credit is determined by the nature of the market and characteristics of the economics units. This view assumes that the function of money demand is also stable and linking monetary aggregates with the size of income in the economy.

Thus, the central bank can influence significantly the size of credit by its tools and this would allow for monetary policy to be effective in the control of the monetary aggregates. This view also implies that the mechanism of the monetary policy transmission depends mainly on monetary supply channel.

In his book "The General Theory of Employment, Interest and Money", Keynes concludes that money supply is represented in the quantity of money supplied by the monetary authority, so, it is an exogenously determined variable.

The Chicago school, influenced by Friedman assumptions, also concludes that money supply is an exogenous variable, thus, the central banks are responsible for achieving the stability at the macroeconomy level, and this can be illustrated by Fisher equation $MV=PY$, where money supply (M) is exogenous variable, money demand (1/v) is stable, and movements in money proceed movements in nominal income (PY), these factors imply that changes in money supply made by central bank are the main cause for the fluctuations at the macroeconomy level (Edgmand, 1999, pp. 332-333).

1.2. The new Keynesianism of explaining money supply as endogenous variable

The new Keynesianism presents new arguments to prove that money supply is resulting from the economic activity.

The new Keynesianism

The endogeneity of money supply can be considered as the main assertion of new Keynesianism. This assertion consists of two channels.

The first channel is represented by "credit channel" which focuses on commercial banks asset management and on substitutability between its elements. The credit channel is activated mainly through the lending channel of the commercial banks but in link with the balance sheet channel of the firms (the second channel) (Haghighat, 2011, pp. 62-63).

The general philosophy of new Keynesianism falls within Keynesian traditional theory and neokeynesian postulates. But on the other side, the new Keynesianism reformulated some concepts of traditional and neokeynesian, like concept of sticky prices, and rejected or overlooked some other concepts, like the efficiency wage theory and nominal wage theory.

On the policy side, the new Keynesians recognized Taylor Rule, which recommends central banks to use the interest rate, rather than the money supply, as the primary monetary policy instruments, especially in dealing with inflation and output. Further, it is worthwhile here to say that the model reached by the new Keynesianism is sometimes named as a "neo-wicksellian" model as a result of considering the interest rate as the most important determinant of aggregate demand, and this matching with Wicksell's model for pure credit economy (Handa, 2000, pp. 544-545).

Additionally, the post Keynesianism has two different approaches on money supply endogeneity, particularly Accommodationism and Structuralism. These two different perspectives can be further explained.

Accommodationism

The main exponents of the accommodationists view can be found in the writings by Kaldor (1982), Kaldor and Trevithick (1981), and Moore (1988).

The accommodationists view is a direct challenge to the orthodox approach. Accommodationism is actually dealing with the attitude of both commercial and central banks towards the protagonists of the economy who are the economic agents and the firms in particular. In other words, accommodationism is the pure response of these institutions primarily towards the production needs. These needs are actually borrowing or aggregate demand needs proxied through demand for credit (loans) (Haghighat, 2011, p. 64).

The money supply process described by the accommodationists approach, therefore, implies that loans make deposits and that the resulting deposits are endogenously determined. It follows that changes in the money supply are a result and not a cause of changes in money income, and vary in relation to prices and output (Kevin, 1999, pp. 3-4).

The accommodationists (or horizontalists) view argues that an increase in credit demand leads to a need for additional reserves. In order to ensure the liquidity of the banking sector, the central bank has to respond by increasing the monetary base and hence to accommodate the credit demand. In this view, the microeconomic considerations of the commercial banking sector play a minor role. The accommodationists believe that the behavior of financial institutions is unconstrained by the availability of liquidity (reserves) provided by the central bank, and the supply price by which they finance the banks is fixed at a price set by the central bank (Ching, 2011, p. 6).

According to accommodationism model (Figure 1), the supply of monetary base (northwest quadrant) is horizontal at a policy determined interest rate in money market. The loan supply schedule (northeast quadrant) is horizontal at the loan rate, which is a mark-up over the policy rate. Banks satisfy all loan demand forthcoming at that rate. They are price-setters and quantity-takers. Bank lending determines deposit creation and thereby determines the money supply. The central bank then adjusts the supply of reserves to back deposits created by bank lending. It does so by buying or selling bonds from/to the non-bank public, thereby injecting or draining reserves according to the needs of banks based on their lending activity, while the determination of the money supply really reflects a loan multiplier, which is shown in the southeast quadrant, finally, the southwest quadrant explains the money multiplier (Palley, 2017, p. 11).

Source: Palley, 2017, p. 11.

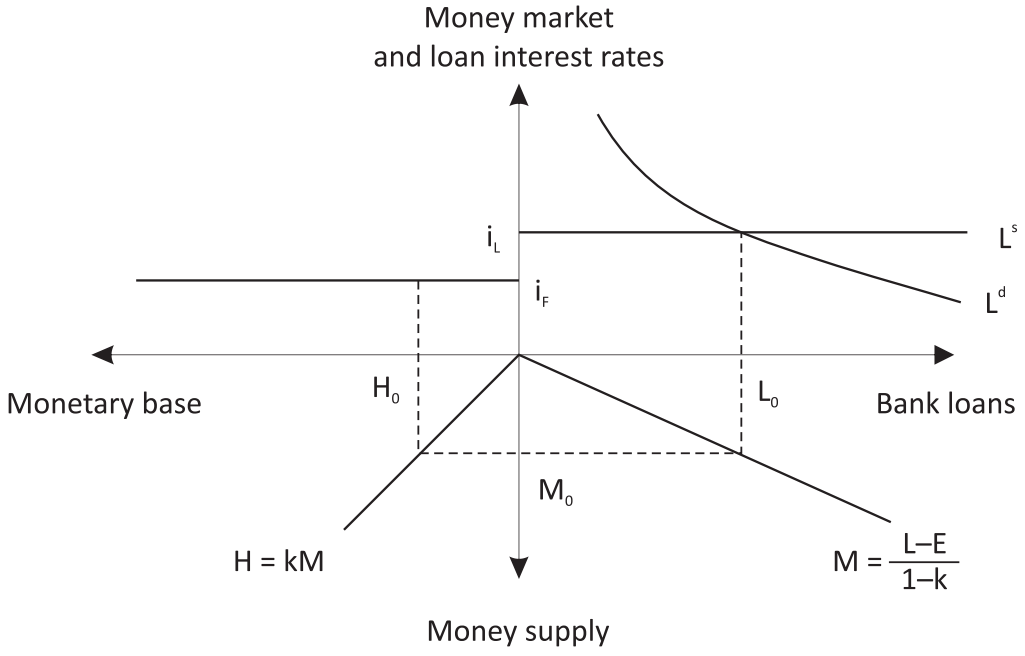

Figure 1. The accommodationist model of the money supply process

Structuralism

The structuralism is the second distinct theory of money supply endogeneity within the post Keynesian school.

Structuralism holds its roots back to the Minsky's tradition. In this post Keynesian approach, although economic agents and firms play the important role in the economic system, central bank (and the auxiliary commercial banks) is a significant player and has the privilege to accommodate reserve needs or not. This view implies the abandonment of passive accommodation (horizontal credit supply function and accommodationism) and the adaptation of resistance on credit expansion. This could lead to an upward sloping in money supply curve. Moreover, the classical view regarding the direction of the money – income relationship – from the left to the right – is not challenged by the structuralists (Haghighat, 2011, p. 64).

An important feature of the structuralist endogeneity approach is the emphasis on liability management practices that allow banks to partly overcome reserve constraints imposed by the central bank. Although liability management can go a long way to overcome reserve constraints, structuralists emphasize that liability management needs not necessarily create an adequate supply of reserves to meet demand (Kevin, 1999, p. 5).

In other words, the structuralist approach argues that commercial banks respond to an increase in credit demand with structural changes in their portfolio on the asset and liability side. This may lead to a change in the demand for reserves and hence in the interaction with the central bank. Structuralists believe that liquidity pressures matter and the supply price by which they finance the banks can increase endogenously (Ching, 2011, p. 6).

The model is illustrated in Figure 2. The northeast panel shows the loan demand and deposit supply schedules. The level of bank lending is determined by the loan rate, which is a mark-up over the money market rate. The deposit supply schedule is derived from loan demand via the banking sector's balance sheet constraint, reflecting the endogenous money process whereby loans create deposits. The southeast panel shows the demand for money balances (deposits) and determines the bond rate. Given the supply of deposit money created by banks, the bond rate must adjust so that agents willingly hold these deposits. The northwest panel determines the supply of high-powered money

Source: Palley, 2017, p. 13.

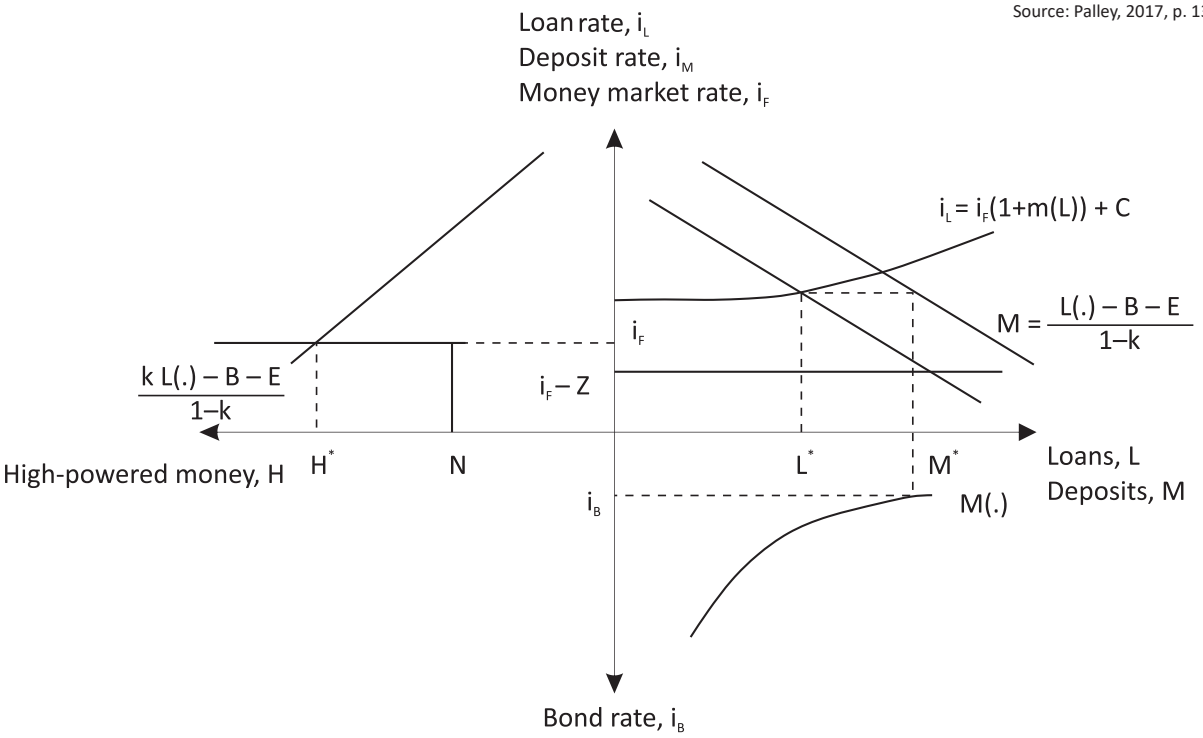

Figure 2. The structuralist model of the money supply process

which consists of borrowed and non-borrowed reserves. The borrowed component is H* – N. The monetary authority targets its policy interest rate and then supplies reserves to banks via borrowed reserves on an as-needed basis (Palley, 2017, p. 13).

1.3. Comparison between the two approaches

The central differences between accommodationists and structuralists are related to (1) the factors going into the determination of the complex of interest rates and assets prices, (2) the behavior of financial institutions and whether they are constrained by availability of liquidity (reserves) provided by the central bank, and (3) the supply price by which they finance the banks. Structuralists believe that liquidity pressures matter and banks will face a rise in supply price by which it will be financed. Accommodationists believe liquidity pressures do not matter and the supply price by which it will be financed is infinitely elastic at a price set by the central bank (Palley, 2008, pp. 4-5).

In other words, the differences between the two approaches relate to the elasticity of the central bank's reaction function. Moore (1991) suggested that central bank's reaction function can be described as short-term interest rate being a function of changes in reserves demand from commercial banks. Moore and his followers assume that this reaction function has infinite elasticity. Advocates of the structuralist approach state that this elasticity is finite. Among other things, central bank has usually several important goals in its policy, which makes impossible to satisfy indefinitely commercial banks demand for extra reserves. In their view, the reaction function of the central bank is not a horizontal line (Vymyatnina, 2013, p. 12).

2. DATA AND METHODOLOGY

This study relies purely on data collected from the different official publications such as the Ministry of Finance and the Central Bank of Iraq.

In this study we use the inductive methodology, which focuses on the pattern of data to reach a general conclusion about the phenomenon or problem under consideration.

In this study we have used the data of twenty three years for the period of 1993 to 2015 in order to investigate the main factors which determine endogeneity of money supply in Iraq. So the period of 1993–2015 will be divided into two sub-periods, first one 1993–2002 and second one 2004–2015. The main reason for this division is the significant changes that occurred in the political and economic situation in 2003.

In the period of 1993–2002, we investigate the pattern and relationship between money supply (dependent variable) and fiscal policy (independent variable).

$$MS = f\left(FP\right), \tag{1}$$

where MS = money supply; FP = fiscal policy.

For the second period, 2004–2015, we investigate the pattern and relationship between money supply (dependent variable) and oil revenues (independent variable)

$$MS = f\left(OR\right), \tag{2}$$

where MS = money supply; OR = oil revenues.

3. RESULTS AND ANALYSIS

After 2003, monetary policy in Iraq experienced a significant changes at the legal, operational, and tool levels that have to be suitable with targets of the monetary authority. Thus, it is important to verify the nature of money supply in Iraq whether it is exogenous or endogenous. Answering this question would then determine monetary policy effectiveness and what suitable tools are available for central bank in the case of control or not control of money supply. These points would be explained within two periods – 1993–2002 and 2004–2015.

3.1. Money supply nature in Iraq for the period of 1993–2002

The period 1990–2002 can be named as a period of economic collapse and inflationary finance due to economic sanctions, war burdens, destroying infrastructure, and preventing oil exports.

As a result, Iraq became under pressure of severe increases in prices and hyperinflation. The main cause of that was banking finance for government spending, especially the borrowing from central bank to finance budget deficit (Ali & Ajmy, 1992, pp. 99-100).

Thus, the economic policy, including monetary policy, was based on just one goal represented by covering spending need of the state, and so the monetary policy became related totally to fiscal decision which was not directed to achieve any other strategic goals that were essential to stimulate Iraq economy.

Therefore, the economic decision makers became just a tool in the hand of political decision makers who were focusing on the policy of cheap money during the period mentioned above.

According to the situation indicated above, the interaction between the economic and political factors, the variation from economic goals, and making the monetary policy just a tool for finance, resulted ultimately in making money supply an endogenous variable represented clearly in public budget constraint[1], and this consists with what explained by Blinder and other economists. To confirm that money supply depends on public budget constraint, a number of variables have to be examined to discover whether or not there is a correlation between monetary and fiscal indicators. Table 1 (see Appendix) explains both money supply and public budget deficit, especially annual growth levels. This table explains that there is a clear consistency between the growth level of public budget and the growth level of money supply, especially until 1997. However, this consistency relatively decreases after 1997 due to applying Oil-for-food program, which gave a resource to meet some needs without covering them by printing more money.

But, in spite of applying Oil-for-food program, the consistency continued to be clear between the sum of issued currency and the sum of treasury bills value (see Appendix, Table 1) and this is an evidence in support of depending largely on financing the public expenditures by external public debt.

The external debt amounted to 122 billion dollar at the end of 2002 which was distributed among countries of PARIS Club – 42 billion, Arab Gulf countries – 50 billion, Eastern Europe countries – 10 billion, international banks and private companies – 20 billion dollar.

Accordingly, money supply for the period of 1993–2002 is marked by endogeneity, that is, determined by fiscal endogeneity represented by public budget constraint, and this led the monetary policy to be an ineffective economic tool.

The ineffectiveness of monetary policy can be noticed by comparing growth levels of domestic product in current or fixed prices (Table 1) with growth levels of money supply. The huge differences between those two levels of growth are an enough reason to cause a state of monetary imbalance (as Friedman said, when there is no control on monetary factors, the result would be a state of imbalance).

The expanding in money issuing and the absorbing of most banking deposits by government led to hyperinflation, essential declining in exchange rate of Iraqi Dinar, and eventually the economic collapse.

Finally, it is obvious that endogeneity nature of money supply has been accompanied by ineffective monetary policy or even its absence (Ali, 1998, pp. 74-78).

3.2. Money supply nature in Iraq for the period of 2004–2015

In 2003 Iraq experienced a dramatic change in its political ruling system. This change led to significant developments in monetary authority, including the adoption of a monetary system based on the monetary authority independence. The 2004 Act No 56 authorized the central bank to fulfil its duties independently and prevented intervention by any other government agencies in its decision.

Generally, endogeneity continued to be the main feature of the money supply. However, the explaining factor of that feature is changed from fiscal con-

1 Kaldor (1970) emphasized this fiscal endogeneity in his initial critique of monetarism. He argued that the apparent statistical significance of money reflected the operation of the government budget constraint, with increased money supplies being the result of money financed government spending. Tobin (1970) also emphasized the role of the government budget constraint in rejecting monetarist claim about the importance of money predicated on leads and lags in money growth (Palley, 2001).

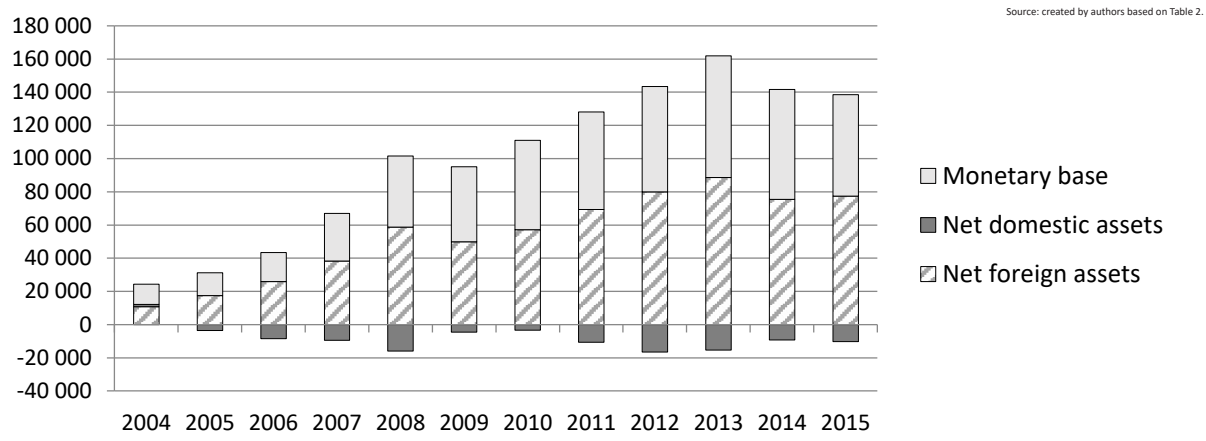

Figure 3. Components of the monetary base for the period 2004–2015

straint before 2004 to balance of payments constraint[2] after 2004 due to economic openness of Iraq toward the international economy. On the other side, Iraq economy, as known, depends on oil revenue, and this causes that net foreign assets to be the main source of monetary base comparing to the absence of local assets contribution at the central bank (see Figure 3 and Table 2 in the Appendix).

This situation means that money supply components, especially currency in circulation and cash reserve in banks, are endogenous variables related to macroeconomic variables, especially oil revenues.

As the government depends largely on oil revenues to finance its expenditures, it would replace foreign currency with central bank to get local currency, that is, increase the money issuing (see Table 2).

This case is called oil-fiscal dominance because there is no possibility to change it by acts or rules without making a substantial change in economy structure.

Finally, it is important to indicate that this period (2004–2015), comparing to the former period (1993–2002), was effective in achieving stability in local prices and in maintaining a stable financial system and these achievements consist with the goals of monetary policy as they are determined by article 4 of 2004 law.

Table 2 shows that inflation rates experienced a clear decrease after 2006 and reached the lowest rate at 2.4% in 2010.

In addition, the monetary authority, by activating short-term interest rate, limited money supply endogeneity by making it responsive to a number of variables, especially inflation rate, and by using currency auctions to maintain a stable value of local currency, and to finance the needs of trade to hard currencies.

CONCLUSION

Generally, for the two periods under discussion, money supply in Iraq is featured by endogeneity.

The analysis of the first period revealed that monetary aggregates (especially M_1) are endogenous depending on fiscal factors related to public budget, as a result of the international sanctions imposed on

2 The earliest form of open economy endogenous money is Hume's specie flow account of the gold standard which has gold flowing out of the countries with trade deficits to countries with trade surpluses. This lowers the money supply and price level in countries losing gold, and raises the money supply and price level in countries gaining gold. These relative price adjustments then restore balance of payments equilibrium.

A second approach to open economy endogenous money is the Fleming-mundell model with fixed exchange rates. Departures of the domestic interest rates from the world interest rate result in international capital flows that the domestic monetary authority must offset to maintain the fixed exchange rate. Consequently the domestic money supply is endogenous (Palley, 2001, p. 15).

Iraq. In summary, we can say that the endogeneity of that period is fiscal constrained and it is not banking credit constrained.

The studying of the second period showed that money supply endogeneity came from depending on oil revenues. In summary we can say that the endogeneity of that period is open-economy constrained.

In sum, money supply whether endogenous or exogenous is governed by a number of factors and variables even when the monetary authority has an essential control on its tools for achieving its goals. However, the structure of economic activity and how financing it can impose a variety of factors and variables related to the economy structure and the main way to finance it. As a result, the central bank and its monetary policy, even when there is an acceptable degree of independency, may have little effect when the money supply is subject to endogenous factors.

REFERENCES

1. Ali, A., & Ajmy, H. (1992). Political Economy of Inflation in Iraq 1988–1992. 99-100.
2. Ali, A. (1998). Iraqi economy to where? Reflections and aspirations. *Journal of Arab Future, Center of Arab Unity Studies, 228*(20), 74-78.
3. Ching, Ho Dong (2011). Endogenous money – a structural model of monetary base. The South East Asian Central Banks (SEACEN), Research and Training Centre, Occasional Paper No. 52, Kuala Lumpur, Malaysia. Retrieved from http://seacen.org/GUI/pdf/publications/occasional/2011/occ52/occ52.pdf
4. Edgmand, Michael R. (1999). Macroeconomics Theory and Policy, Arabic translation, Al-Marikh Publishing, KSA, 332-333.
5. Haghighat, J. (2011). Endogenous and Exogenous Money: an empirical investigation from Iran. *Journal of Accounting, Finance and Economics, 1*(1), 62-63, 64. Retrieved from http://www.wbiaus.org/5.%20Jafar.pdf
6. Handa, J. (2000). Monetary Economics (2nd ed.). Routledge, London and New York, 544-545. Retrieved from http://dl4a.org/uploads/pdf/Monetary%20Economics.pdf
7. Iraq Republic, Ministry of Finance, Economy's Department. Retrieved from http://www.mof.gov.iq/Pages/MainMof.aspx
8. Kevin, S. Nell (1999). The Endogenous / Exogenous Nature of South Afric's Money Supply Under Direct and Indirect Monetary Control Measures, Department of Economics Discussion Paper, University of Kent, No. 9912, 3-4. Retrieved from http://hdl.handle.net/10419/105538
9. Palley, T. I. (2001). Endogenous Money. What it is and Why it Matters, Public Policy Department, AFL – CIO, Washington. Retrieved from http://www.thomaspalley.com/docs/articles/macro_theory/endogenous_money.pdf
10. Palley, T. I. (2008). Endogenous Money: Implications for the Money Supply Process, Interest Rates, and Macroeconomics, Political Economy Research Institute, University of Massachusetts Amherst, Working paper series, No 178. Retrieved from http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1149&context=peri_workingpapers
11. Palley, T. I. (2017). The theory of endogenous money and the LM schedule: prelude to a reconstruction of ISLM. *Brazilian Journal of Political Economy, 37*(1), 3-22. http://dx.doi.org/10.1590/0101–31572016v37n01a01
12. Statistical Report, Central Bank of Iraq, Especial Number, 2003. Retrieved from https://www.cbi.iq/
13. Vymyatnina, Yu. (2013). Money supply and monetary policy in Russia: A Post-Keynesian approach revisited, European University at ST. Petersburg, Working paper Ec-04/13. Retrieved from https://eu.spb.ru/images/ec_dep/wp/Ec-04_13.pdf

APPENDIX

Table 1. Selected variables for Iraq economy (1993–2002) / millions of dinars

Sources: Iraq Republic, Ministry of Finance, Economy's Department. Statistical Report, Central Bank of Iraq, Especial Number, 2003.

Years	Real indicators			Monetary indicators						Fiscal indicators			
	GDP (current prices)	GDP (fixed prices)	Deflator % $=\frac{1}{2}$	Inflation rate %	Narrow money supply M1	Annual growth rate %	Real money supply M1 $=\frac{5}{3}$	Issued currency	Annual growth rate %	Government budget deficit	Annual growth rate %	Sum of treasury bills	Annual growth rate %
	1	2	3	4	5	6	7	8	9	10	11	12	13
1993	321736.9	18453.6	1743.49	207.62	86430	96.84	49.6	68692	72.39	59957–	115.39	125500	82.55
1994	1658325.8	19164.9	8652.93	492.15	238901	176.41	27.6	209753	205.35	173783–	189.85	301750	140.44
1995	6695482.9	19571.2	34210.90	351.39	705064	195.13	20.6	619906	195.54	583797–	235.93	751500	149.05
1996	6500924.6	21728.1	29919.43	15.43–	960503	36.23	32.1	910171	46.82	364528–	37.5–	1144250	52.26
1997	15093144	26342.7	57295.36	23.02	1038097	8.08	18.1	976043	7.24	195265–	46.4–	1328500	16.10
1998	17125847.5	35525	48207.87	14.77	1351876	30.23	28.0	1225068	25.51	400071–	104.89	1794500	35.08
1999	34464012.6	41771.1	82506.84	12.58	1483836	9.76	18.0	1346955	9.95	507153–	26.77	2043750	13.89
2000	50213699.9	42358.6	118544.29	4.98	1728006	16.46	14.6	1521884	12.99	365666–	27.9–	2350250	15.00
2001	41314568.5	43335.1	95337.43	16.37	2159089	24.95	22.6	1891210	24.27	780481–	113.44	3242500	37.96
2002	41022927.4	40344.9	101680.58	19.32	3013601	39.58	29.6	2184424	15.50	547160–	29.89–	–	–

Table 2. Selected variables for Iraq economy (2004–2015) / billions of dinars

Sources: Statistical Reports, Central Bank of Iraq, for the period 2004–2015; Iraq Republic, Ministry of Finance, Accounting Department

	1	2	3	4	5	6	7	8 = 6+7	9	10
Years	GDP (current prices)	Oil revenues	Inflation rate %	Interest rate (policy rate) %	Narrow money supply M1	Net foreign assets of the CB	Net domestic assets of the CB	Monetary base M0	Exchange rate of dinar VS $ (auction price)	CB purchases of foreign currency from the Ministry of Finance
2004	53,235	32,593	27.0	6.00	10,149	10,742	1,477	12,219	1453	15,041
2005	73,533	39,448	37.0	7.00	11,399	17,366	–3,571	13,795	1469	21,820
2006	95,588	46,873	53.2	16.00	15,460	25,973	–8,452	17,521	1467	26,406
2007	111,456	49,557	30.8	20.00	21,721	38,217	–9,409	28,808	1255	33,508
2008	155,982	77,874	2.7	16.75	28,190	58,718	–15,859	42,859	1193	54,281
2009	130,642	43,000	2.8–	8.83	37,300	49,792	–4,522	45,270	1170	26,910
2010	167,093	56,000	2.4	6.25	51,743	57,185	–3,375	53,810	1170	47,970
2011	217,327	70,100	5.6	6.00	62,473	69,379	–10,681	58,698	1170	59,670
2012	254,225	95,400	6.1	6.00	61,375	79,968	–16,577	63,391	1166	57,000
2013	273,587	111,078	1.9	6.00	73,858	88,611	–15,352	73,259	1166	62,000
2014	258,900	126,613	2.2	6.00	72,692	75,446	–9,215	66,231	1188	47,515
2015	191,715	57,655	1.4	6.00	69,107	77,491	–10,248	60,961	1190	32,450