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## Measuring the effect of cash credit on industrial production in Iraq for the period of 2003-2020

**Abstract.** The monetary sector in Iraq occupies a distinguished position as it manages the movement of money, which is the main engine of economic activity. The importance of research is determined by studying the relationship between cash credit and its role in fostering economic activities, especially in the industrial sector. The authors of the research aim to study and analyze the nature of domestic credit in Iraq and its role in developing the industrial sector. The research originates from the hypothesis that credit changes in Iraq have a major role in developing industrial economic activities. In order to reach the purpose of the research and verify the hypothesis, an analysis of the domestic crediting in Iraq, along with its role in the development of the industrial sector, and the causal importance of the types of cash credit in Iraq was carried out. In this study, the descriptive inductive approach is relied on the analysis of monetary credit indicators in Iraq. In addition to the quantitative method of analyzing the available data on the relationship between cash credit and the industrial sector, the authors used the EViews 12 software.

**Keywords:** Industrial Production; EViews12; Private Banks; Public Banks; Statistical Analysis

**JEL Classifications:** N10; O13

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**Вимірювання впливу готівкового кредиту на промислове виробництво в Іраку  
за період 2003-2020 рр.**

**Анотація.** Грошово-кредитний сектор в Іраку займає визначні позиції, оскільки керує рухом грошей, що є основним двигуном економічної діяльності. Важливість дослідження обумовлено вивченням взаємозв'язку між грошовими кредитами та їх роллю в економічній діяльності, зокрема промислового сектору. Дослідження має на меті вивчити та проаналізувати природу внутрішнього кредитування в Іраку та його роль у розвитку промислового сектора. Авторами дослідження було встановлено, що зміни у внутрішньому кредитуванні в Іраку відіграють важливу роль у розвитку промислової та економічної діяльності. Для досягнення мети дослідження та перевірки висунутої гіпотези було проведено аналіз внутрішнього кредитування в Іраку, його ролі у розвитку промисловості сектору, а також було проаналізовано важливість готівкових кредитів в Іраку. У цьому дослідженні в основу описово-індуктивний методу було покладено аналіз показників грошового кредитування в Іраку. Окрім кількісного методу при аналізі наявних даних про взаємозв'язок готівкових кредитів із промисловим сектором було використано програмне забезпечення EViews12.

**Ключові слова:** промислове виробництво; приватні банки; державні банки; статистичний аналіз.

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### **Измерение влияния кредита наличными на промышленное производство в Ираке за период 2003-2020 гг.**

**Аннотация.** Денежно-кредитный сектор в Ираке играет важную роль, поскольку он управляет движением денежных средств, которые является основным двигателем экономической деятельности. Важность исследования обусловлена изучением взаимосвязи между наличными кредитами и их ролью в развитии экономической деятельности, особенно в промышленном секторе. Исследование направлено на изучение и анализ характера внутреннего кредитования в Ираке и его роли в развитии промышленного сектора. Данное исследование основано на гипотезе о том, что кредитные изменения в Ираке играют важную роль в развитии промышленной и экономической деятельности. Для достижения цели исследования и проверки его гипотезы авторами был проведен анализ внутреннего кредитования в Ираке, его роль в развитии промышленного сектора, а также были проанализированы виды кредита наличными в Ираке. В данном исследовании описательно-индуктивный метод был применен при анализе показателей денежно-кредитной политики в Ираке. Помимо количественного метода при анализе имеющихся данных о взаимосвязи денежного кредита с промышленным сектором было использовано программное обеспечение EViews12.

**Ключевые слова:** промышленное производство; частные банки; государственные банки; статистический анализ.

## **1. Introduction**

In the prevailing era, the credit policy is one of the most important economic policies driving economic activity, as it is one of the monetary policy tools. The improvement of the rate of economic performance is through its impact on the rest of the other sectors, especially the industrial sector (Awad, 2021). The improvement is made by developing small and medium industrial enterprises and improving the rates of economic growth through the contribution of the industrial sector to the gross domestic product. Cash credit is also one of the most important services and facilities provided by all banks to individuals and institutions in all fields (industrial, commercial, agricultural) and others (Tang & Yan, 2010; Colombo & Paccagnini, 2020). So that these institutions and sectors can develop and develop their economic activities. One of the most important services performed by Iraqi banks is the process of granting credit to individuals, economic sectors, institutions, public and private companies, and investment projects in order to finance all private individual activities as well as general strategic projects (Hassan & Sabah, 2019; Qin et al., 2020; Mahdi & Al-Naimi, 2021).

Cash credit contributes to solving most financial problems, whether at the level of the individual or society. It also contributes to improving the level of production and productivity and thus improving economic growth rates by raising the contribution of economic sectors, including the industrial sector, in the formation of the gross domestic product (Mohammed et al., 2020).

The research acquires its importance from the importance of studying cash credit in Iraq and the role of banking and financial institutions in financial investment operations. This research also

came to study the relationship between banks' cash credit and industrial projects through the allocations granted for the development. The development of all small and medium industrial enterprises due to cash credit effects has a great Important in the overall economic activity. The research starts from the hypothesis that despite the development of Iraq's cash credit process after 2003. There is a lack of allocations made to the industrial sector compared to the rest of the other sectors. These issues led to a weakness in industrial projects' productivity and the percentage of their contribution to the gross domestic product (Jo, 2014; Wu et al., 2018).

## 2. Research Methodology

The research relied on the descriptive inductive approach in analyzing cash credit indicators in Iraq. The quantitative method represented by the standard statistical aspect in analyzing the available data on the relationship of cash credit with the industrial sector has been carried out using the Eviews 12 program.

### 2.1. Research Limitation

1. Spatial limits for research: - LIMITED in the study of cash credit for banking institutions in the Iraqi economy.
2. Temporal limits of research: - The temporal limits of the applied aspect of the study are represented in a time series extending for the period (2003-2020).

### 2.2. Analyzing the reality of monetary credit in Iraq for the period 2003-2020

The number of banks operating in Iraq has reached 80, which (7) governmental banks include commercial and specialized banks, (27) private banks, (26) Islamic banks, and (20) branches of foreign and Arab banks. Despite the presence of private banks in Iraq, the volume of their activity is still limited compared to government banks that manage about (85%) of the Iraqi banking sector's total assets. At the same time, private banks manage (15%) of it. The size of the financial assets of governmental and private banks operating in Iraq amounted to about (190) billion dinars in 2020 and the volume of deposits reached (85) billion dinars. As for the distribution of deposits to commercial banks in the public and private sectors, government banks acquired (88%) and government bank deposits were distributed according to the Central Bank of Iraq by the end of 2020 (30%) of which came from the central government and (48%) from public institutions (Colombo & Paccagnini, 2020).

Governmental banks have contributed (64.8%) of the total credit granted in 2020 compared to (24.4%) contributed by the private commercial banks operating in Iraq. The total capital and reserves amounted to about (10) billion dollars in 2020. The balance of profits of commercial banks operating in Iraq reached about (550) million dollars. The cash credit in Iraq for the period (2003-2020) can be analyzed through Table 1.

Table 1:  
Cash credit in Iraq for the period 2003-2020

Year	Local Cash credit	Change ratio, %	Public sectors	Credit ratio in the public sector, %	Public sectors	Credit ratio in the private sector, %	Public institution	Credit ratio in public institutions, %
2003	0.621	-	0.430	69.2	0.130	20.9	0.61	9.8
2004	0.744	19.8	0.510	68.5	0.180	24.1	0.54	7.2
2005	0.850	14.2	0.620	72.9	0.190	22.3	0.40	4.7
2006	2.664	213.4	1.670	62.6	0.620	23.2	0.374	14.1
2007	3.459	29.8	1.900	54.9	0.810	23.4	0.749	21.6
2008	4.587	32.6	2.130	46.4	1.650	35.9	0.807	17.5
2009	5.690	24.1	2.640	46.3	1.750	30.7	1.300	22.8
2010	11.721	105.9	6.810	58.1	3.700	31.5	1.211	10.3
2011	20.344	73.5	13.640	67.1	4.800	23.5	1.904	9.3
2012	28.438	39.7	19.150	67.3	6.590	23.1	2.698	9.4
2013	29.952	5.3	19.640	65.5	6.990	23.3	3.322	11.1
2014	34.123	13.9	24.054	70.4	7.390	21.6	2.679	7.8
2015	36.752	7.7	25.850	70.3	8.440	22.9	2.462	6.6
2016	37.180	1.1	24.600	66.1	7.370	19.8	5.210	14.1
2017	37.952	2.1	24.810	65.3	8.890	23.4	4.462	11.7
2018	38.486	1.4	25.350	65.8	9.204	23.9	3.932	10.2
2019	39.145	1.7	26.470	67.6	8.120	20.7	4.555	11.6
2020	39.889	1.9	25.690	64.4	9.230	23.1	4.969	12.4

Source: Compiled by the authors

The volume of cash credit in Iraq reached (621) million dinars in 2003 (69.2%) provided by government banks, (20.9%) provided by private banks, and (9.8%) provided by public institutions. After 2003, the scope of granting cash credit by governmental and private banks has gradually expanded due to the Central Bank of Iraq's policy in expanding the granting of loans and advances, as the cash credit reached (11.721) billion dinars in 2010. These loans are as follows: (58.1%) what was presented by Governmental banks and (31.5%) what private banks that offered and (10.3%) that public institutions offered.

After 2010, the volume of cash credit increased dramatically, and the volume of credit provided by private banks in addition to government banks and public financial institutions increased. The volume of cash credit in Iraq reached (39.889) billion dinars in 2020 (64.4%) provided by government banks and (23.1%) provided by private banks and (12.4%) offered by public institutions (Kudryavtsev, 2021). Loans and advances occupied high priority of importance in the cash credit granted to the total credit extended over the period (2003-2020) and followed by delinquent debts that started since 2010. As for the credit granted by economic sectors throughout the period (2003-2020) there are three economic sectors occupied the largest part of credit as follow: community services (38%), building and construction (30%) and restaurants and hotels (17%) (Figure 1).

### 2.3. Analyzing the reality of industrial production in Iraq for the period 2003-2020

The industrial production index is considered one of the quantitative indicators that indicate an increase in the volume of economic activity in the industrial sector. The development in the industrial sector is a measure of the development at the economic and social level. Table 2 shows that the value of industrial production during the period (2003-2020) can be analyzed.

- In (2003) the value of industrial production was (303724.2) million dinars, and after (2003) the highest growth rate was recorded in (2004) reaching (208.7%). After that, the value of industrial production in that year was (937,681) million dinars.
- The increase in industrial production gradually continued until it reached (3,678,714) billion dinars in 2010 with a growth rate of (7.8%) which was due to the call to encourage national industries and reduce the percentage of imports.
- The value of industrial production recorded negative annual growth in the years (2013, 2014, 2015), and this growth rate was negative in those years where reaching respectively (9.2%, 21.6%, 20.6%). The reason for that decline in industrial production's growth rate to the decline in the value of industrial production in those years.
- After that, industrial production began to increase clarity, reaching (7,645,345) billion dinars in 2020, with an annual growth rate of (5.9%).
- In the year (2003) the number of large establishments in the industrial sector reached (451) establishments operating in Iraq. The number of large industrial establishments increased in the year (2004) to (489) establishments, with an annual growth rate of (8.4%). Then the number of

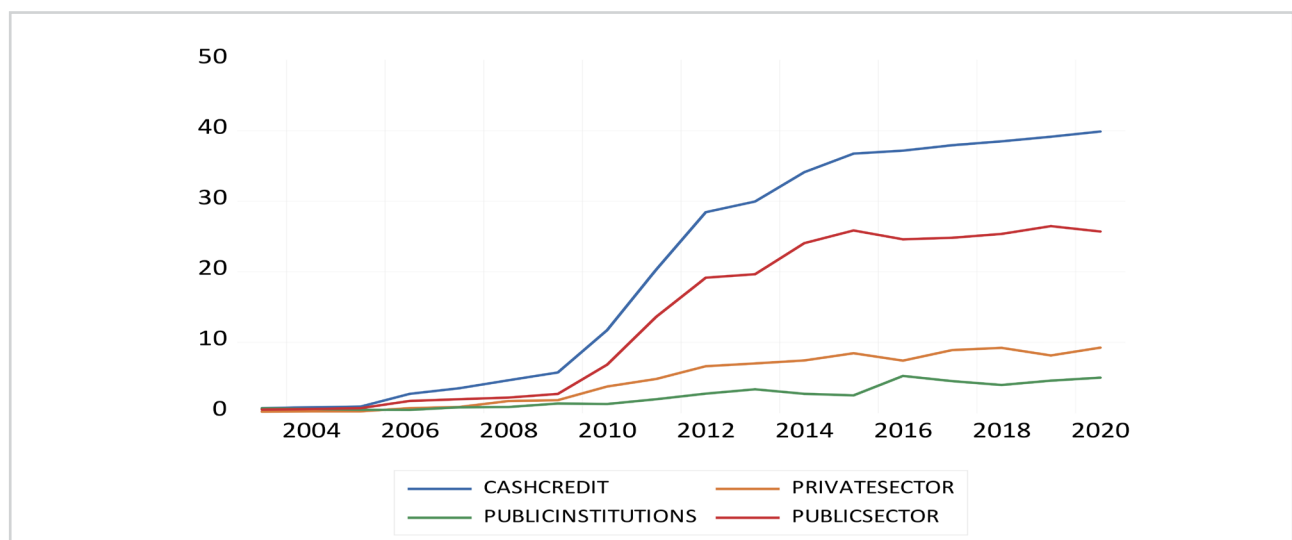


Figure 1:  
Evolution of cash credit by sectors for the period 2003-2020

Source: Compiled by the authors

Table 2:  
The industrial production and the annual growth rate for the period 2003-2020

Year	Industrial production	Change ratio, %	No. of large industrial establishments	Change ratio, %
2003	303.724	-	451	-
2004	937.681	208.7	489	8.4
2005	971.031	3.6	452	-7.6
2006	1.473.218	51.7	411	-9.1
2007	1.817.913	23.4	423	2.9
2008	2.64.4173	45.5	487	15.1
2009	3.411.291	29	495	1.6
2010	3.678.714	7.8	500	1
2011	6.132.760	66.7	546	9.2
2012	6.919.449	12.8	686	25.6
2013	6.286.042	-9.2	669	-2.5
2014	4.930.068	-21.6	609	-9
2015	3.915.770	-20.6	621	2
2016	4.155.632	6.1	586	-5.6
2017	6.937.474	66.9	574	-2
2018	6.410.012	-7.6	627	9.2
2019	7.213.455	12.5	720	14.8
2020	7.645.345	5.9	810	12.5

Source: Compiled by the authors

large industrial establishments decreased in (2005 and 2006), to successively (452,411) large industrial establishments, at a negative annual growth rate of 7.6% (9.1%). This is due to the suspension of some large industrial establishments in Iraq.

- The number of large industrial establishments usually increased (from 15 in 2007) to reach (423) establishments with an annual growth rate of (2.9%) and the increase in the number of establishments continued by (2.9%) during the year (2012) when the number of large industrial establishments increased significantly (25.6%) reaching (686) industrial establishments in that year.
- The increase in the number of large industrial establishments has not continued where the number decreased in the two years (2013, 2014). The number decreased gradually by (669) and (609) also by an annual growth rate of (2.5%) and (9%), respectively. Again returns to decreases in 2014 and decreases.
- In the year (2020), the number of large industrial establishments increased in Iraq, reaching (810) which is the highest level during the research period reaching the number of establishments by 12.5%. This increase is due to the rehabilitation of some industrial establishments that were suspended in Iraq due to the unstable security situation.

### 3. Results and Discussion

#### 3.1. Model description

The data of the standard model can be determined through the Table 3 that concerns the independent variable (X), which expresses the cash credit in Iraq (billion dinars). As well as the dependent variable (Y), which expresses industrial production in Iraq (one billion dinars) for the duration (2003-2020).

Table 3:  
Variables of the Standard Model for the period 2003-2020

Years	X	Y	Years	X	Y
2003	0.621	303.724	2015	36.752	3.915.770
2004	0.744	937.681	2016	37.180	4.155.632
2005	0.850	971.031	2017	37.952	6.937.474
2006	2.664	1.473.218	2018	38.486	6.410.012
2007	3.459	1.817.913	2019	39.145	7.213.455
2008	4.587	2.64.4173	2014	39.889	7.645.345
2009	5.690	3.411.291	2015	36.752	3.915.770
2010	11.721	3.678.714	2016	37.180	4.155.632
2011	20.344	6.132.760	2017	37.952	6.937.474
2012	28.438	6.919.449	2018	38.486	6.410.012
2013	29.952	6.286.042	2019	39.145	7.213.455
2014	34.123	4.930.068	2020	39.889	7.645.345

Source: Compiled by the authors

#### 4. Conclusions

Cash credit has great importance in developing the banking business and achieving economic growth to develop the economic sectors, especially the industrial sector. This growth can be achieved by providing the required financial financing.

Through the practical side's findings, there is a positive relationship between the cash credit and the industrial sector in Iraq for the period (2003-2020). However, these industrial sectors still do not constitute only a small percentage of the gross domestic product.

The value of cash credit has increased in Iraq for the period (2003-2020) can be divided into three economic sectors that occupied the largest part of the credit, community services (38%), building and construction (30%), and restaurants and hotels (17%). The loans and advances ranked first in terms of the volume of credit and exposed credit. Then the discounted commercial paper of the delinquent debts.

#### 5. Recommendations

Developing the credit capacity of all banks in granting loans by easing the legal procedures and guarantees imposed in order to enable the largest number of individuals to obtain these loans.

It is necessary for the Central Bank of Iraq to take measures and policies to regulate banks' work in granting cash credit, monitor the basic objectives of this credit, and raise their ability to finance economic activity.

Granting of a cash credit to the basic sectors of the national economy. Such as the agricultural and industrial sectors, along with the water and electricity sector.

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