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	<p>RESEARCH ARTICLE </p>
	<h2 style="text-align: center;">The Impact of Financial Inclusion on Banking Sector Depth: An Empirical Study in Iraq (2016–2023)</h2>
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<p>Keywords</p>	<p>Financial inclusion, banking sector depth, ratio of private sector credit to GDP, ratio of private sector deposits to GDP.</p>
<p>Abstract</p>	
<p>This research aimed to analyzing the impact of financial inclusion on banking sector depth in Iraq during the period from 2016 until 2023. Financial inclusion was chosen as an independent variable and was measured using the combined index of access and usage indicators. Banking sector depth was chosen as the dependent variable and was measured using the ratio of private sector credit to GDP and the ratio of private sector deposits to GDP. Quantitative data required for the study was collected from reports of the Central Bank of Iraq and the Iraqi Ministry of Planning. SPSS version 27 software was employed to analyze the quantitative data collected. The results revealed that financial inclusion has a positive effect on the two indicators of banking sector depth in Iraq during the study period, but the effect was not statistically significant. This reveals that the development of financial inclusion in Iraq has not reached a level where it has a significant effect on the depth of the banking sector. This calls for the implementation of supportive policies to ensure the effectiveness of financial inclusion in Iraq by means of developing financial and digital infrastructure, as well as encouraging banks to include the unbanked segment, particularly in rural areas. In addition, there is an urgent need to develop financial literacy and modernize banking practices. There is also an urgent need to develop legislative and regulatory frameworks to deepen the banking sector and enhance its efficiency and stability.</p>	
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Introduction

Financial inclusion is one of the cornerstones of economic development, which facilitates the accessibility of all classes of society, especially low-income classes, to financial services. On the other hand, the banking sector depth is one of the key indicators of the efficiency of a country’s banking system.

In Iraq, despite the expansion of financial and banking services since 2003, the level of financial inclusion remains below expectations and is considered low compared to most other countries. This negatively impacts the efficiency and development of banks.

Therefore, this research aims to examine the impact of financial inclusion on the Iraqi banking sector depth from 2016 until 2023 using quantitative indicators, and to offer a set of proposals and recommendations to enhance financial and banking stability.

2. Literature Review

2.1 Financial Inclusion

2.1.1 Concept of Financial Inclusion

There is still no universally agreed-upon definition of financial inclusion. Some define it as a combination of several factors, such as the ease of access to, availability of, and use of financial services by all members of society. Other research papers have addressed financial inclusion in the context of the effective provision of financial services, which promotes growth, productivity, and capital accumulation, and reduces poverty and income inequality (Park & Mercado, 2021: 4).

Financial inclusion is defined as the provision of financial services and access to them for all members of society, particularly the poor and other marginalized groups. It is also defined as the use of and access to formal financial services. Most definitions agree on the necessity of every member of society having access to available financial services (Ozili, 2020: 3).

It has been described as the process of ensuring the affordability, timeliness, and sufficiency of access to a broad spectrum of financial products and services and the promotion of their use among different segments of society, particularly vulnerable segments, through the application of existing and innovative approaches, including financial literacy programs (Adamo et al., 2024: 29).

It is also defined as the endeavor to provide affordable access to financial services for all individuals in a country (Rahul & Renuka, 2019: 43).

It is further defined as the process of promoting affordable, appropriate, and timely access to a wide range of regulated financial products and services, and expanding their usage to cover all segments of society, applying existing and innovative approaches which have been specifically designed, including financial awareness and education, with the aim of promoting financial well-being and social inclusion (Yoshino & Morgan, 2016: 4). It has also been defined as providing affordable financial services to disadvantaged and low-income segments of society, in contrast to financial exclusion where these services are unavailable or unaffordable (Shahul Hameedu, 2014: 118).

Based on the above definitions, financial inclusion can be defined as (enabling all segments of society, particularly disadvantaged groups, to access and use a diverse range of financial products of appropriate quality and at an affordable cost, thereby meeting their needs and supporting economic stability and growth).

2.1.2 Importance of Financial Inclusion

The concept of financial inclusion, which describes the ease with which individuals and businesses can access and use financial services, has garnered significant attention in recent years due to its potential impact on economic growth and development. The significance of financial inclusion is its potential to promote entrepreneurship, alleviate poverty, and reduce inequality of incomes. Financial inclusion is important since it enables the poor, as well as other entrepreneurs, to participate more effectively in the economy, hence promoting economic growth. Financial inclusion is, however, not limited to the promotion of economic development alone but can also be useful for social inclusion, helping poor households to deal with unexpected financial shocks. Financial inclusion can be useful for promoting financial stability since it reduces the usage of informal financial systems, which are usually unstable (Modi & Kulshreshtha, 2017: 261-262).

Therefore, financial inclusion is a key instrument for enhancing the lives of poor people, hence promoting their economic empowerment. It enables access to finance for daily lives, supports people and businesses in planning for all aspects of their lives, from their future plans to unexpected troubles, and enables account holders to make use of other financial services, like credit and insurance, to start and grow businesses, invest in their children's future or health, and respond to unexpected events, which improve their quality of lives. Thus, countries with high levels of financial inclusion have faster and more sustained growth, stability, less inequality, and more sustainable development (Atta, 2023: 1).

Financial inclusion represents the process of providing access to financial products for all residents of a country. An inclusive financial system allows for the efficient redistribution of resources, leading to a reduction in the cost of capital. Another effect of financial inclusion is a decrease in the number of informal credit providers, such as money lenders. Consequently, financial inclusion can incentivize the efficiency of the financial system by providing a safe and reliable way to access a wide range of financial services. Along the way, the importance of financial inclusion has become increasingly appealing to policymakers and has transformed into a priority policy in many countries seeking to alleviate poverty and advance their economies to the next level of development in a sustainable manner (Voica, 2017:122).

Financial inclusion offers tremendous opportunities. It helps ensure that everyone has a suitable account to deposit their income, with the security and accessibility of that account, enabling remote purchases via phone and internet. It empowers individuals to seize economic opportunities, provides valuable services to marginalized groups, and reduces income inequality in countries with strong institutional frameworks. Increased financial inclusion can improve food consumption, access to medical treatment, cash income, and school attendance rates (Ozili, 2023: 4).

Formal financial inclusion starts with having a deposit account or a transaction account with a bank or a financial services provider to facilitate payments and receipts, and to save money. At a later stage, financial inclusion will include having access to appropriate loans from formal financial institutions and using insurance services to reduce financial risks such as fires, floods, and crops. In addition, financial inclusion through having accounts with financial institutions will result in increased savings among farmers, hence increased production. This is particularly important to the poor and poorest of the poor residing in the rural areas. In this regard, financial inclusion will lead to poverty reduction and inequality (Le et al., 2019: 310). This also helps mitigate the impact of financial disasters on individuals, such as fires, floods, or crop damage. Financial inclusion aims to provide affordable and easily accessible financial services to businesses and individuals excluded from the formal financial system. These services are primarily offered by banks, along with other financial institutions such as post offices, insurance companies, brokers, and investment funds, collectively known as the financial sector. The development of this sector will lead to a reduction in information and transaction costs, a crucial factor for mobilizing savings, extending credit, making payments, managing risks, and fostering economic growth and poverty reduction. However, it has been a concern that the wealthy and politically powerful will be the main beneficiaries of the improved financial system. This is true, especially in the initial phases of developing the financial sector, but as the rate of economic growth accelerates, more people will be able to join the formal financial system and reap the other benefits, which will lead to a more equitable distribution of income (Singh & Roy, 2015: 15). Financial inclusion is a vital factor for ensuring equitable access to financial services, which is a fundamental factor for economic development (Suprapti et al., 2024:1).

Financial inclusion has been a main priority for all developing countries for the past decade, aiming to include it as a core element of development. Financial inclusion research analysis carried out in developing countries reveals a direct link between financial exclusion and poverty. Financial inclusion will enable the poor to access financial services, allowing them to save their money securely.

It also helps prevent the concentration of economic power in the hands of a few, thus mitigating the risks faced by the poor as a result of economic shocks. Therefore, providing financial services is a top priority for policymakers due to its far-reaching economic and social impacts (Singh, 2019: 431-433).

2.1.3 Pillars of Financial Inclusion

There are five fundamental pillars of financial inclusion (Kaligis et al., 2018: 354):

1. Full access to financial services (loans, savings, insurance, and other payments).
2. Appropriate and appropriate services in accordance with the principles of dignity and consumer protection.
3. Equal access to financial services for all who can use them, including people with disabilities, minorities, and marginalized or disadvantaged groups.
4. Provision of financial service providers supported by adequate financial infrastructure and clear regulations.
5. A society that understands and is empowered to promote and benefit from financial services.

2.1.4 Indicators for Measuring Financial Inclusion

Measuring financial inclusion is a topic of great importance to researchers, governments, and policymakers. To date, financial inclusion has been measured primarily by the use of and access to formal financial services, using aggregate

supply-side data. However, this approach to collecting supply-side information does not provide an accurate measure of financial inclusion, as it does not provide information about the actual population that accesses the formal financial system or uses financial services. For example, widespread availability (i.e., an increased number of ATMs and bank branches) does not necessarily mean that the system is inclusive, given the lack of information about the geographical location of service delivery points. Regarding usage, figures such as the number of deposits are often overestimated, particularly in developed countries. These gaps should be addressed by using additional demand-side information on usage (Cámara & Tuesta, 2014: 3).

Financial inclusion is often measured using two main indicators: access to financial services and use of financial services (Bahjat & Ahmed, 2025: 9):

2.1.4.1 Financial Services Access Indicator

This indicator reflects the availability of financial and banking services provided by banks and relevant financial institutions. To determine access levels, it is necessary to identify and analyze the barriers that limit the opening and use of bank accounts. This involves using a range of indicators such as cost and proximity to points of access to financial and banking services, such as bank branches and ATMs. Additionally, modern indicators related to the use of financial and banking services, such as mobile banking services, are used to overcome access barriers (Jarjis & Zubair, 2022: 685).

The sub-indicators used to measure the access index are (Central Bank of Iraq, 2023: 40-41):

2.1.4.1.1 Banking Density and Banking Penetration

This indicator is an important criterion for measuring and determining the level of financial inclusion. It is based on the number of bank branches spread throughout the country that provide financial services to the public.

2.1.4.1.2 Penetration of Electronic Payment Services

Electronic payment services are a fast and efficient means of accessing financial and banking services, and they also contribute to reducing costs. The Central Bank of Iraq works to promote the spread of these services, and this indicator is used to measure the level of electronic payment service penetration in order to assess the availability of these services in the country.

2-1-4-2 Financial Services Usage Indicator

Financial services usage indicates the extent to which these services positively impact financial inclusion. Financial inclusion has become increasingly important as a strategic tool supporting economic growth goals. It is generally viewed as access to and utilization of financial services, leading to active participation in the service.

2.1.4.2.1 Mobile Payment Services Penetration

This indicator shows the extent of use and penetration of advanced mobile payment technologies, including digital payment applications and e-wallets, which enable individuals to conduct financial transactions and send and receive money via their mobile phones. This indicator is crucial for financial inclusion, as it contributes to providing easy and efficient access to financial services for different segments of the population. This will lead to financial inclusion, which is a direct result of using financial services (Ahmed & Al-Nuaimi, 2022: 385).

It is not merely about having bank accounts; using these accounts is a major factor in measuring financial inclusion in an economy. There are many individuals who cannot use these accounts due to the distance of bank branches, the cost of financial services, or simply due to a bad experience with the service provider (Mondal & Dayal, 2022: 5). The Usage Index comprises the following two sub-indices (Central Bank of Iraq, 2022: 129-131):

2.1.4.2.2 Contribution of Financial Companies (Processing, Issuing, and Collection Companies) to Financial Inclusion

Financial institutions also play a vital role in enhancing financial inclusion, and the financial services they offer include financial accounts for individuals and businesses, money transfer services, electronic payment systems, credit cards, loans, and insurance services. This helps in the improvement of financial inclusion since it not only allows individuals and businesses to access financial services but also use the services.

2-1-4-3 Composite Index of Financial Inclusion

The composite index is a measure of access to and usage of financial services. It is composed of two indicators, which include the access index and the usage index. The purpose of the composite index is to measure the level of progress achieved in the level of financial inclusion, and it is a measure of the success achieved in promoting financial inclusion and boosting the confidence of individuals to deal with institutions operating in the financial sector (Thuwaini, 2025: 39).

2-2 Banking Sector Depth

2-2-1 Concept of Banking Sector Depth

The banking sector plays a vital role in the economy, promoting economic growth by pooling savings from surplus units and directing them towards available investments. This leads to the expansion of investment operations and supports financial development in the country through the diversification of funding and investment sources. However, it still needs greater financial depth to be able to withstand potential shocks (Mahmoud, 2022: 9).

First, it is essential to distinguish between banking sector depth and financial depth. Banking depth is a subset of financial depth, which is a broader and more comprehensive concept.

Financial depth is defined in several ways, most notably by the World Bank, which describes it as the size of financial activity within a country, including banks, non-bank financial institutions, and their markets, compared to the gross domestic product (Abid, 2024: 414).

The banking sector depth has been defined as the banking system's ability to mobilize financial resources to achieve economic development and increase the provision of banking services (Jassem, 2022: 51).

It has also been defined as focusing primarily on improving the services provided by the banking system, both quantitatively and qualitatively, for the purpose of accumulating and utilizing savings (Khalaf & Rashid, 2017: 336).

Based on the above, **the banking sector depth** can be defined as **(the extent of development and expansion of the banking sector's activity within the economy, reflecting the banks' ability to mobilize savings and direct them towards investment and support economic activity).**

2.2.2 Importance of Deepening the Banking Sector

Deepening the financial sector in general promotes the conversion of savings into investments, in addition to improving corporate governance. Specialization improves while information and transaction costs decrease in an environment of financial sector deepening (Iyoboyi, 2013: 248). The core issue lies in deepening the banking sector financially to enhance its competitiveness and its ability to effectively play an intermediary role in developing and financing investment opportunities across all sectors of the economy (Yusuff & Olaniran-Akinyele, 2019:179).

The banking sector depth is a crucial indicator for any country, whether developed or developing. Deepening the banking sector contributes to boosting GDP growth and addressing the challenges arising from the weak link between the banking sector and the real economy. Furthermore, it facilitates the efficient exchange of goods and services, rationalizes decisions related to saving and investment, and promotes investment and productivity growth, thereby achieving economic growth (Ayal & Abdul-Redha, 2023:424).

2.2.3 Factors Affecting the banking sector depth

(Chikeya & Mpofu, 2024: 1097) identified several factors influencing the banking sector depth, including stock market development, inequality, urbanization, population density, increased demand for financial services, and government regulations.

Similarly, (Demirguc-Kunt, 2011: 231-232) identified several influential factors, most notably the demand for banking services, which is a function of long-term savings resulting from surplus income; the number of households and accounts; average account balances; population density; demand for credit; income level; education level; branch establishment and operating costs; and financial transfers.

While (Aluko & Ajayi, 2018: 125-127) identified several sets of determinants that influence the banking sector depth, a term they used synonymously with the development of the banking sector, the most important of these factors are:

- **Institutions:** Improving the quality of institutions contributes to enhancing the banking sector depth and increasing the efficiency of financial markets because it reduces transaction costs, while low-quality institutions hinder the development of the banking sector.
- **Laws:** Appropriate laws and legal institutions contribute to the development of the banking sector. This includes two aspects: the quality of legal systems and legal traditions/principles, by providing protection for investors and ensuring the efficient execution of contracts.
- **Financial Liberalization:** Reducing government restrictions on financial activities and liberalizing the financial sector promotes the development, depth, and efficiency of the banking sector.
- **Macroeconomic Factors:** Factors such as openness to trade and capital, economic growth, inflation, remittances, income levels, and the size of the government are key determinants of the development of the banking sector.
- **Geographical factors:** Geography can influence both supply and demand. A country's geographical resources, such as its distance from the equator, land area, accessibility of its coastline and navigable rivers to the ocean, and population density, are potential determinants of banking sector development by impacting foreign trade opportunities and costs.
- **Other potential determinants:** The level of democracy, government and its policies, cultural level, and intellectual capital are potential determinants that influence the development and depth of the banking sector.

2.2.4 Indicators for Measuring Banking Sector Depth

The banking sector depth is measured using two key indicators (Iraqi Ministry of Planning, 2022: 60):

2.2.4.1 Private Sector Credit to GDP Ratio

This ratio is defined as the credit extended by banks and other financial institutions to the private sector divided by the gross domestic product (GDP). This indicator is used to measure the growth of the banking sector and the level of financial intermediation. Unlike any other measure, this ratio is directly related to investment and growth. An increase in this ratio leads to increased services, improved financial intermediation, and growth in total deposits (Hussein et al., 2023: 4). The World Bank defines it as credit extended to all sectors of the economy on an aggregate basis, excluding governments, government agencies, the central bank, and public institutions. The World Bank indicates that this indicator reflects the flow of credit in the domestic economy, which ultimately translates into capital formation (Malla, 2023: 300).

The index measures financial depth in terms of the level of credit extended to the economy. It reflects the role of commercial banks in directing savings towards investment activities. An increase in this ratio means that commercial banks have allocated more savings to investment activities, which may contribute to economic growth (Nguyen, 2022: 6).

2.2.4.2 Private Sector Deposits to GDP Ratio

This ratio is an important indicator of the size of banking activity, as well as a qualitative measure of the depth of the financial sector. Deposits (current and savings) constitute one of the main sources of bank financing, enabling banks to provide credit. Any increase in this ratio can be interpreted as an indicator of an improvement in bank deposits and other financial assets that are likely to be used for asset accumulation, thus contributing to higher rates of economic growth (Madjida, 2021: 166).

3. Materials and Methods

3.1 Research Instrument Description

This research employs a quantitative analytical approach using ten-year time series data, from 2016 to 2023, to analyze the relationship between financial inclusion and the banking sector depth in Iraq.

The research instrument was developed as a measurement model to analyze actual data obtained from official sources.

The research instrument consists of a set of quantitative variables, as follows:

- **Financial Inclusion (Independent Variable):** Measured using the composite index of Financial Inclusion in Iraq.
- **Banking Sector Depth (Dependent Variable):** Measured using the following two indicators:
 - The ratio of private sector credit to GDP.
 - The ratio of private sector deposits to GDP.

The SPSS version 27 statistical analysis software was used to estimate the model by analyzing the indicators, calculating the mean and standard deviation, and performing simple linear regression analysis between the independent variable and the two dependent variable indicators.

3-2 Research Aims

The research aims to analyze the impact of financial inclusion on the banking sector depth in Iraq, in addition to the following objectives:

- To measure the level of financial inclusion in Iraq during the period from 2016 to 2023.
- To measure the banking sector depth in Iraq during the period from 2016 to 2023.
- To analyze the impact of financial inclusion on the ratio of private sector credit to GDP in Iraq.
- To analyze the impact of financial inclusion on the ratio of private sector deposits to GDP in Iraq.

3-3 Research Problem and Hypotheses

Despite the expansion of financial and banking services in Iraq after 2003, the use of these services by individuals remains limited. Conversely, the banking sector depth is a crucial tool for assessing the efficiency and development of the financial system. Therefore, it has become essential to find ways to enhance the banking sector depth. Hence, this research attempts to highlight the positive impact of financial inclusion on the banking sector depth in Iraq.

The research problem can be summarized in the following question:

Is there a statistically significant impact of financial inclusion on the banking sector depth in Iraq? This is further explored in the following questions:

- What was the level of financial inclusion in Iraq during the period from 2016 to 2023?
- What was the banking sector depth in Iraq during the period from 2016 to 2023?
- Is there a statistically significant impact of financial inclusion on the ratio of private sector credit to GDP in Iraq?
- Is there a statistically significant impact of financial inclusion on the ratio of private sector deposits to GDP in Iraq?

Based on the above questions, this research will address the following two hypotheses:

- **First Hypothesis:** There is no statistically significant impact of financial inclusion on the ratio of private sector credit to GDP in Iraq.
- **Second Hypothesis:** There is no statistically significant impact of financial inclusion on the ratio of private sector deposits to GDP in Iraq.

4. Results and Discussion

4-1 Financial Inclusion Indicators

4-1-1 Access Indicators

4-1-1-1 Banking Density and Banking Penetration Indicator

Table (1) shows an increase in the Banking Density Indicator from (43.74) in 2016 to (51.39) in 2023. This reflects a relative improvement in the ease of access to banking services in terms of the number of people served per branch. Conversely, Table (1) reveals a disparity in the performance of the indicator during the period (2016-2023). The Banking Penetration Index has shown a decline from (2.29) in 2016 to (1.95) in 2023. This shows that the banking system's ability to expand its reach geographically and accommodate population growth has declined over time in Iraq. This divergent trend shows that the improvement in the Financial Inclusion Access Index has not been symmetrical, as banking density has improved at the expense of banking penetration. This may impede the positive effects of financial inclusion on banking sector depth without being matched by its expansion on a geographical level.

Table (1)
Banking density and banking penetration in Iraq during the period 2016-2023

years	population (one thousand people)	Number of bank branches	Banking density	Banking expansion
2016	37883	866	43.74	2.29
2017	37140	843	44.05	2.27

2018	28200	865	44.16	2.26
2019	39300	888	44.25	2.25
2020	40150	891	45.06	2.21
2021	41190	905	45.51	2.21
2022	42249	876	48.23	2.07
2023	43324	843	51.39	1.95

Source: Prepared by the researcher and adapted from the years 2022 and 2023, based on:

- Financial Stability Reports 2016-2023 issued by the Central Bank of Iraq.
- Iraqi Ministry of Planning. Population statistics for 2022 and 2023.

Figure (1) illustrates the development of the banking density indicator and banking penetration in Iraq during the period 2016-2023

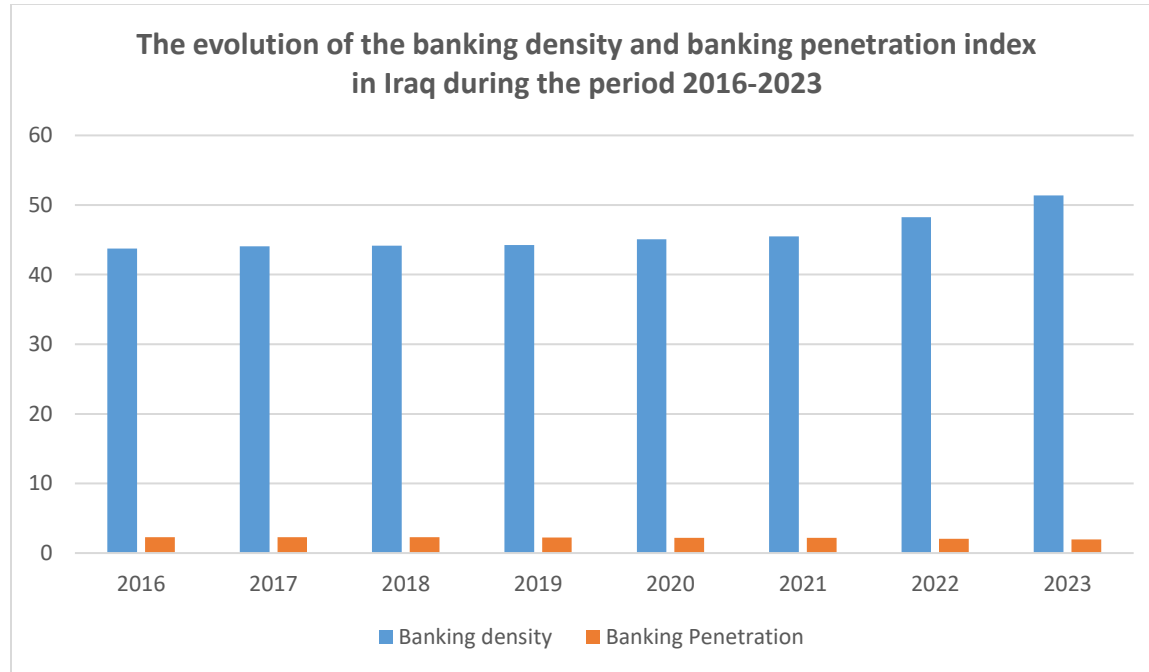


Figure (1)

The evolution of the banking density and banking penetration indicator in Iraq during the period 2016-2023

Source: Prepared by the researcher based on the data in Table (1).

4-1-1-2 Electronic Payment Services Penetration Indicator

Table (2) shows the penetration of electronic payment services across Iraq per 1000 km² during the period 2016-2023. There was a marked improvement in the number of ATMs, POS terminals, and POC terminals per 1000 km² of Iraq's area. The number of ATMs grew from 1.52 in 2016 to 9.2 in 2023, showing a steady rise in the expansion of electronic banking services. The number of POS machines also grew from 1.63 to 52.6, showing a rapid expansion of electronic payment systems, especially for commercial activities. The number of POC machines grew from 11.7 in 2017 to 40.2 in 2023, showing a steady state for the past two years. This increase in the expansion of electronic payment systems in Iraq is a good indicator of the improvement of the financial inclusion index. This will definitely improve the situation, but a balance is still required for the geographic distribution of these services.

Table (2)

Penetration of electronic payment services to every 1000 km² in Iraq during the period 2016-2023

years	POC	POS	ATMs
2016	-	1.63	1.52
2017	11.7	2.1	1.5
2018	15.1	5	2

2019	26.6	5.1	2.3
2020	31.5	17.2	3.1
2021	33.5	19	3.6
2022	40.2	24.5	5.1
2023	40.2	52.6	9.2

Source: Prepared by the researcher based on Financial Stability Reports 2016-2023 issued by the Central Bank of Iraq.

Figure (2) shows the penetration of electronic payment services to the area of Iraq per 1000 km during the period 2016-2023.

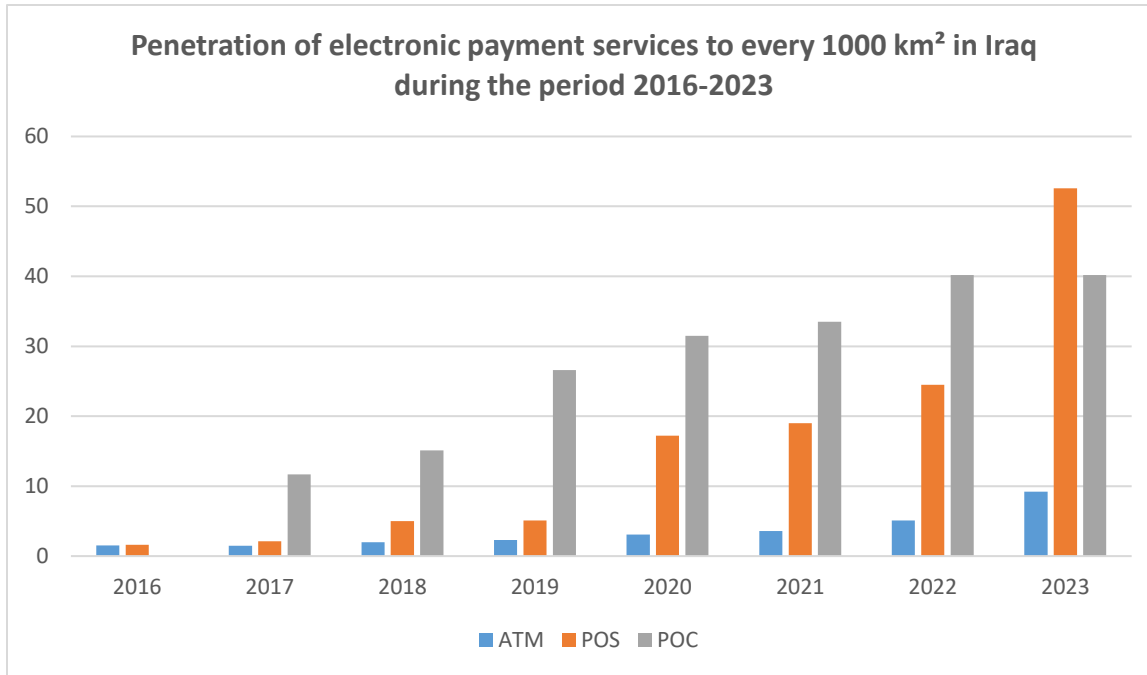


Figure (2)

Penetration of electronic payment services to every 1000 km² in Iraq during the period 2016-2023

Source: Prepared by the researcher based on the data in Table (2).

Table (3) below illustrates the growth of electronic payment services penetration as a percentage of the population of Iraq per 100,000 during the period from 2016-2023. From the table, it is observed that the trend of the population of Iraq is increasing, and the number of ATMs per 100,000 increased from 1.07 in 2016 to 6.69 in 2023. This implies a positive trend towards the improvement of electronic banking services within the population of Iraq. The number of POS terminals per 100,000 also increased from 1.88% to 54.5% during the same period. The number of electronic payment terminals (POCs) also increased from 13.8, when they were officially introduced in 2017, to 55.35 in 2023. This implies the improvement of electronic payment systems within commercial transactions and the increased use of non-cash electronic payment systems. This trend implies a tangible improvement in the financial inclusion index, thus reducing the use of cash. The population of Iraq at large.

Table (3)

Penetration of electronic payment services to the population of Iraq per 100,000 people during the period 2016- 2023

years	POC	POS	ATMs
2016	-	1.88	1.07
2017	13.8	2.5	1.8
2018	17.3	5.8	2.3
2019	29.7	5.7	2.6
2020	32.2	9.8	2.9
2021	35.7	20.2	3.8
2022	41.68	25.37	5.26

2023	55.35	54.5	6.69
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Source: Prepared and adapted by the researcher for the years 2022 and 2023, based on:

- Financial Stability Reports 2016-2023 issued by the Central Bank of Iraq.
- Iraqi Ministry of Planning. Population statistics for 2022 and 2023.

Figure (3) illustrates the development of the penetration of electronic payment services to the population of Iraq per 100,000 people during the period 2016-2023.

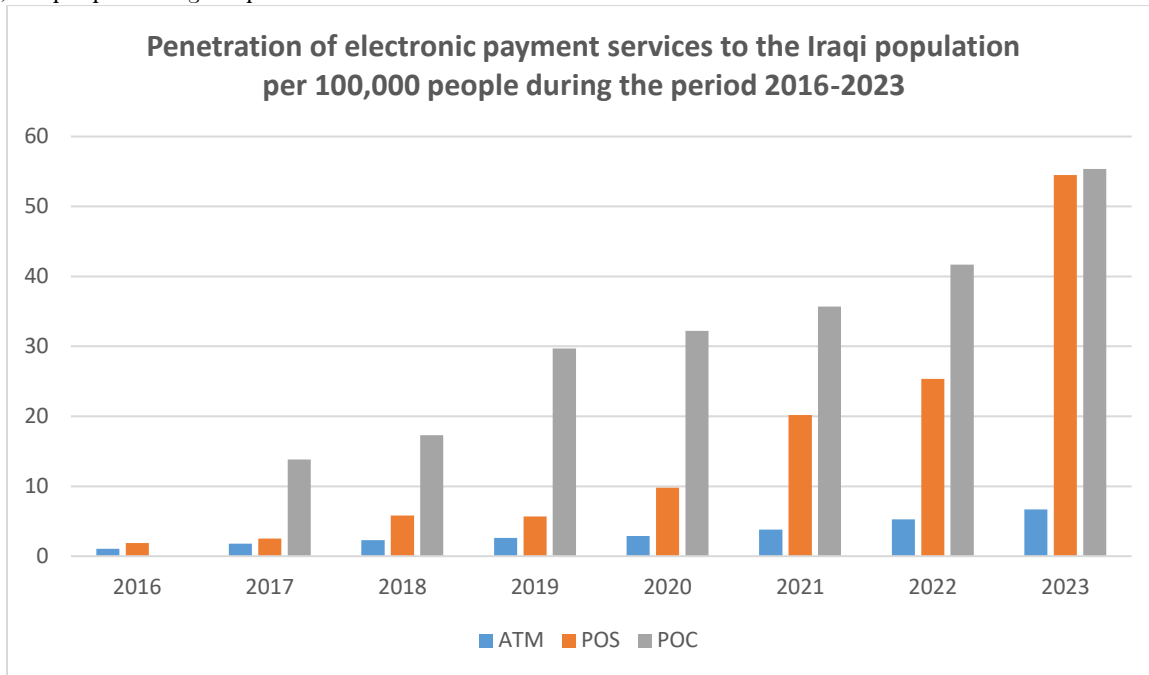


Figure (3)

Penetration of electronic payment services to the Iraqi population per 100,000 people during the period 2016-2023
Source: Prepared by the researcher based on the data in Table (3).

4-1-2 Usage Indicators

4-1-2-1 Mobile Payment Services Penetration

Table (4) shows the development of mobile payment services penetration through the percentage of amounts transferred by payment companies during the period 2016-2023. A clear expansion in the use of these services is observed, with varying market shares among companies. Zain Cash dominated the largest percentage of transferred amounts, with its share increasing from (26.1%) in 2017 to (98.8%) in 2023. This reflects user confidence and the widening base of users of this service. In contrast, Asiahawala's share declined from (73.9%) in 2017 to (0.3%) in 2023, indicating its weak competitiveness. As for NassWallet, its activity began in 2020 at a rate of (0.03%), peaking at (7.3%) in 2022 before declining to (0.8%) in 2023. This indicates The growth of mobile payments in Iraq has been characterized by continuous increase, which has contributed to enhancing financial inclusion in terms of ease of transfers, but at the same time it highlights the need to diversify service providers and enhance competition to ensure the sustainability and balance of this type of financial service.

Table (4)

Percentage of funds transferred from mobile payment companies during the period 2016-2023

years	AsiaHawala%	Zain Cash %	NassWallet %
2016	-	-	-
2017	73.9	26.1	-
2018	53.6	46.4	-
2019	22.2	77.8	-
2020	30.7	69.3	0.03
2021	18	78.7	3.2
2022	8.3	84.5	7.3
2023	0.3	98.8	0.8

Source: Prepared by the researcher based on the Financial Stability Reports 2016-2023 issued by the Central Bank of Iraq.

The evolution of the percentage of amounts transferred from mobile payment companies in Iraq during the period 2016-2023 can be illustrated through figure (4).

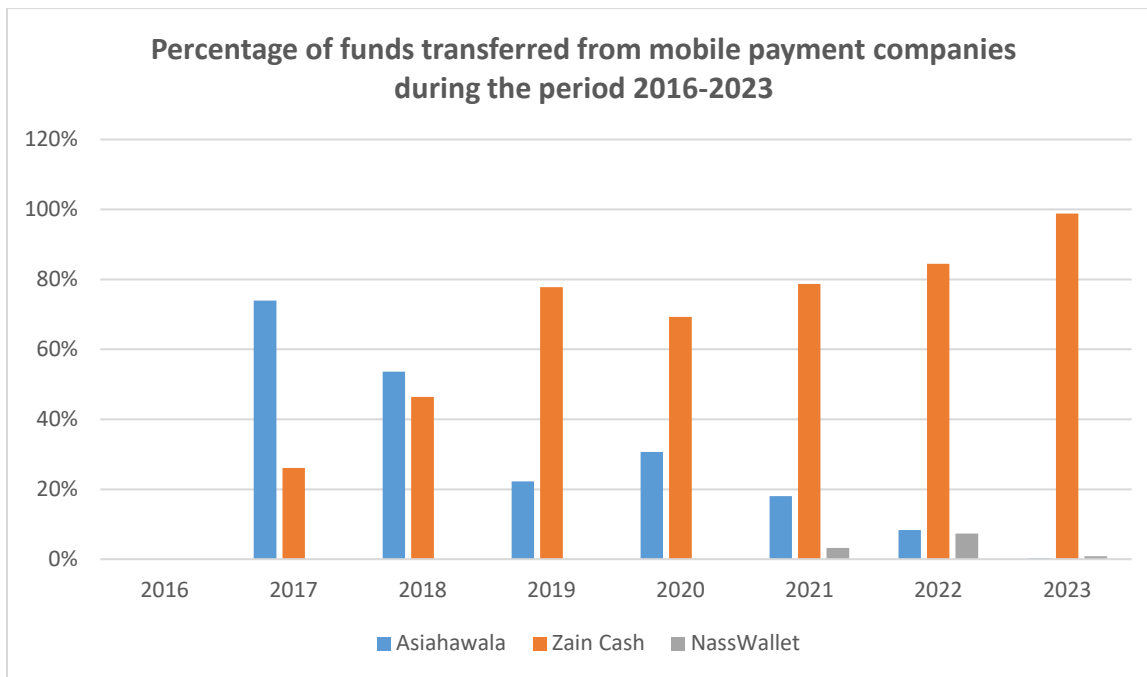


Figure (4)

Percentage of funds transferred from mobile payment companies during the period 2016-2023

Source: Prepared by the researcher based on the data in Table (4).

4-1-2-2 Electronic Payment Companies Contribution (Processing, Issuing, and Collection Companies) in Financial Inclusion

Table (5) shows the percentage of financial transactions provided to the public during the research period for five electronic payment companies that were ranked as the top five in 2023. It should be noted that the researcher did not have access to the transaction percentages for 2016. The data in Table (5) reveals the dominance of Arab Company in the percentage of financial transactions in most years, reaching its highest levels in 2017 at (94%) and 2020 at (86.3%), compared to a decline in 2021 to (6.5%). In contrast, Iraq Gate recorded high percentages in some years, particularly in 2018 at (72.9%) and 2021 at (69.1%). Limited contributions from the remaining companies appeared, with percentages of less than (15%) in most years. This reflects an unbalanced expansion of financial inclusion through electronic payment companies, with continued concentration among a limited number of them.

Table (5)

Percentage of financial transactions offered to the public by the top five electronic payment companies during the period 2017-2023

years	Arab %	Ishtar Gate %	Iraq Gate %	Amwal %	National Gate %
2017	94	0	1.6	4.4	0
2018	18.6	0	72.9	8.5	0
2019	78.2	0	19.9	1.6	0.2
2020	86.3	0	7.7	5.7	0.2
2021	6.5	0	69.1	5.3	0.8
2022	75.2	13.5	6.6	3.8	0.05
2023	70.6	9.8	12.1	5.5	0.002

Source: Prepared by the researcher based on the Financial Stability Reports 2020-2023 issued by the Central Bank of Iraq.

Figure (5) shows the development of the percentage of financial transactions provided to the public for the top five electronic payment companies during the period 2017-2023.

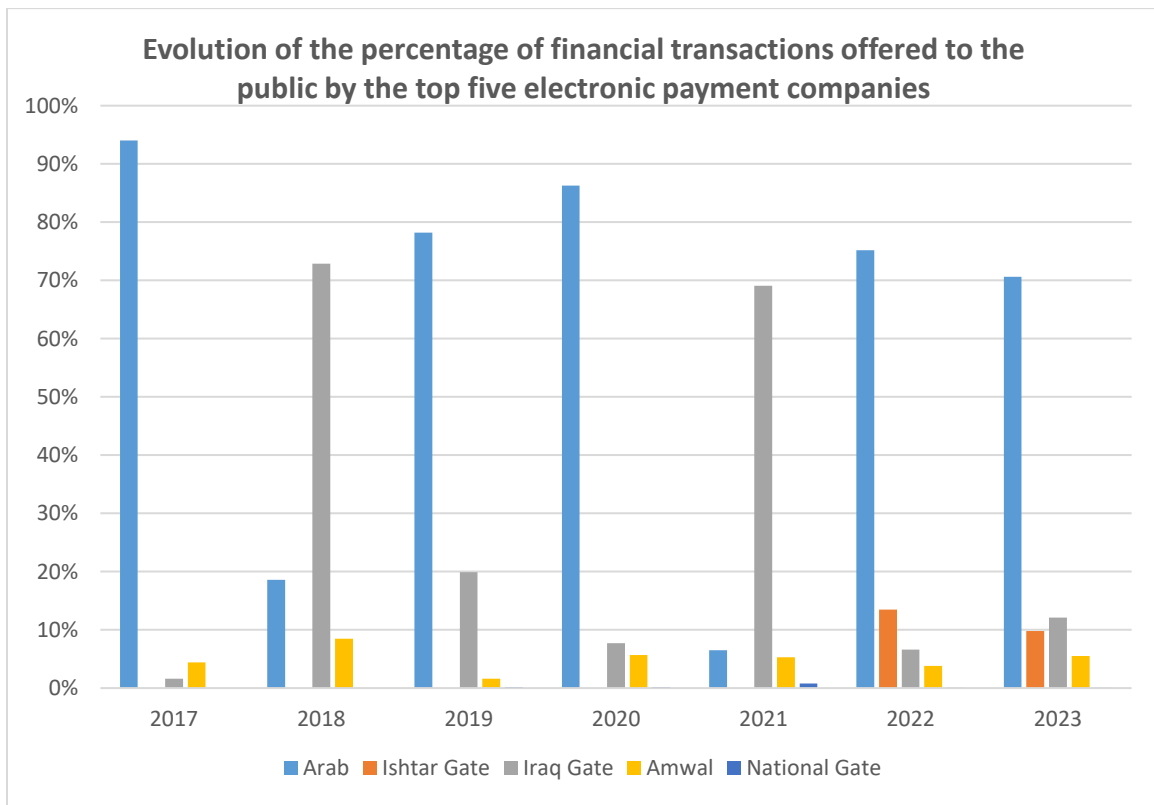


Figure (5)

Evolution of the percentage of financial transactions offered to the public by the top five electronic payment companies during the period 2017-2023

Source: Prepared by the researcher based on the data in Table (5).

4-1-3 Composite Index of Financial Inclusion in Iraq

Table (6) shows the development of the composite index of financial inclusion in Iraq during the period 2016-2023. A clear and continuous upward trend is observed in the index percentages, as the index percentage rose from (10.4%) in

2016 to (48.58%) in 2023. This reflects a tangible improvement in the level of financial inclusion as a result of the expansion of access to and use of banking services. The last three years of the research period witnessed an even greater acceleration in the growth of the index, rising from (33.5%) in 2021 to (48.58%) in 2023. This indicates the positive impact of adopting digital financial technologies and the increasing use of electronic payment services. Despite this notable improvement, the fact that the index remained below the (50%) level until 2023 indicates the continued existence of a gap in financial inclusion, which necessitates strengthening policies that support expanding the base of beneficiaries and enhancing financial inclusion in Iraq.

Table (6)

Composite index of financial inclusion in Iraq during the period 2016-2023

years	The composite index of financial inclusion %
2016	10.4
2017	20.87
2018	22.09
2019	25.4
2020	25.8
2021	33.5
2022	41.6
2023	48.58

Source: Prepared by the researcher based on the Financial Stability Reports 2016-2023 issued by the Central Bank of Iraq.

Figure (6) illustrates the development of the composite index of financial inclusion in Iraq during the period 2016-2023.

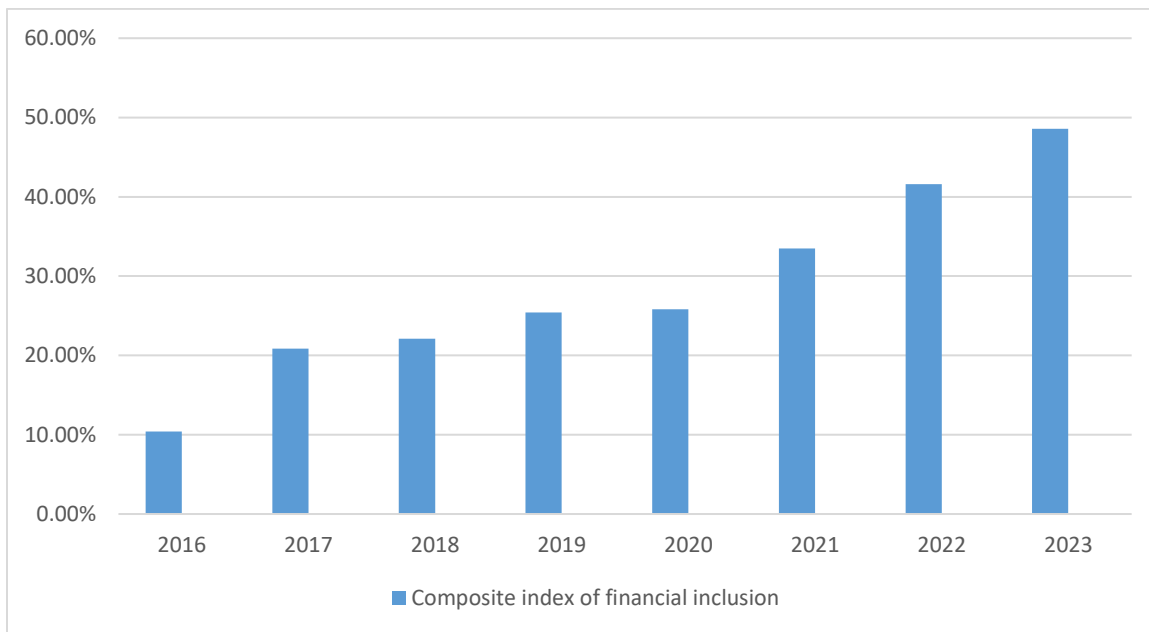


Figure (6)

Development of the composite index of financial inclusion in Iraq during the period 2016-2023

Source: Prepared by the researcher based on the data in Table (6).

4-2 Indicators of Banking Sector Depth

4-2-1 Ratio of Private Sector Credit to GDP

Table (7) shows the evolution of the ratio of private sector credit to GDP in Iraq during the period 2016-2023, as one of the main indicators of banking sector depth. This ratio recorded relatively low levels during the period 2016-2019, declining from (9.2%) to (8%). This reflects the limited role of the banking system in financing the economic activity of the private sector during the aforementioned period. In 2020, the ratio rose significantly to (13%), which may be

attributed to the increased need for financing under exceptional economic conditions, before declining relatively in 2021 and 2022 to register (9.8%) and (9.1%) respectively. In 2023, the ratio rose to (12%), indicating a relative recovery in the role of bank credit in financing private sector activity in Iraq during that year. However, the ratio remained at low levels. Compared to other economies, this indicates the weakness of the banking sector in Iraq, and highlights the need for banking and financial policies that promote directing credit towards the private sector to support economic growth and deepen financial intermediation.

Table (7)
Ratio of private sector credit to GDP in Iraq for the period 2016-2023

years	Private sector credit ratio to GDP %
2016	9.2
2017	8.6
2018	8
2019	8
2020	13
2021	9.8
2022	9.1
2023	12

Source: Prepared by the researcher based on the Financial Stability Reports 2016-2023 issued by the Central Bank of Iraq.

Figure (7) illustrates the evolution of the ratio of private sector credit to GDP in Iraq during the period 2016-2023

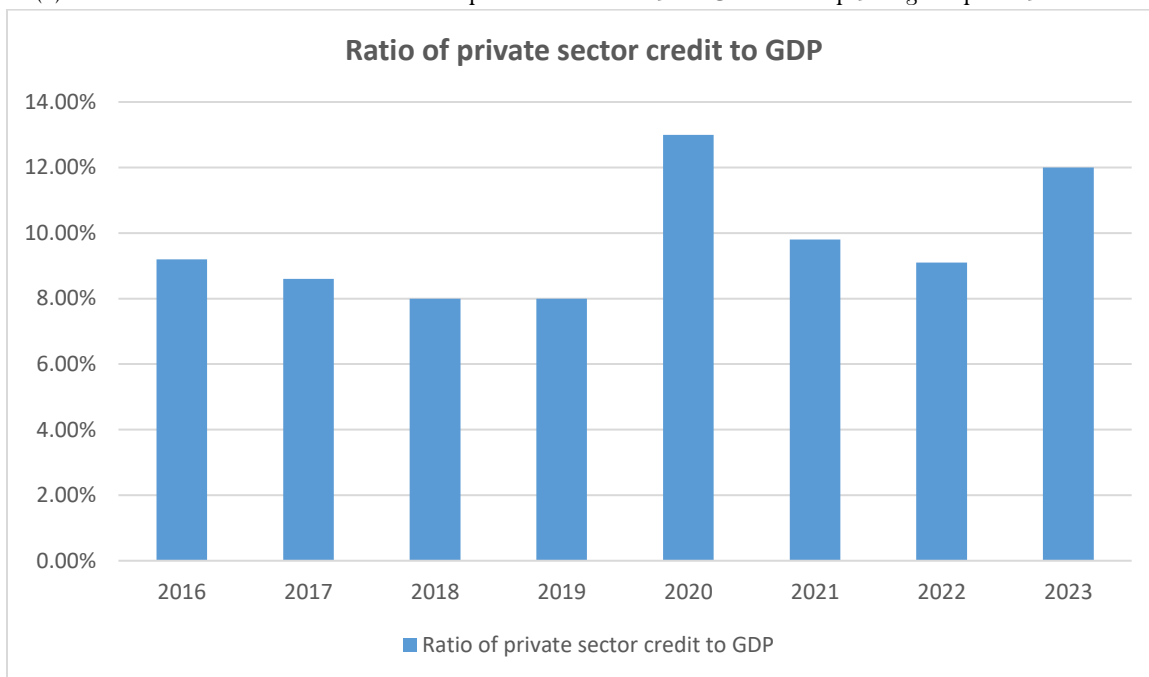


Figure (7)

Evolution of the ratio of private sector credit to GDP in Iraq during the period 2016-2023

Source: Prepared by the researcher based on the data in Table (7).

4-2-2 Ratio of Private Sector Deposits to GDP

Table (8) illustrates the evolution of the ratio of private sector deposits to GDP in Iraq during the period 2016–2023, as one of the indicators of the banking sector depth. The ratio recorded relatively low levels during the period 2016–2018, decreasing from (12.1%) in 2016 to (10.9%) in 2018. This reflects the weak ability of the banking system to attract savings from the private sector during that period. From 2019 onwards, a noticeable improvement in this ratio was observed,

rising to (18.1%) in 2020, then declining to (14.3%) in 2021 and 2022, before rising again to (17.1%) in 2023. This trend indicates a gradual improvement in the ability of Iraqi banks to attract private savings, which enhances the liquidity available for banking activity and forms a basis for expanding credit to the private sector. However, The fluctuation in the ratios of this indicator suggests that the banking sector depth in Iraq is still relatively limited, which calls for policies to enhance confidence in the banking sector and increase bank savings in the long term.

Table (8)
Ratio of private sector deposits to GDP in Iraq during the period 2016-2023

years	Private sector deposits to GDP %
2016	12.1
2017	11.5
2018	10.9
2019	11.7
2020	18.1
2021	14.3
2022	14.3
2023	17.1

Source: Prepared by the researcher based on the Financial Stability Reports 2016-2023 issued by the Central Bank of Iraq.

Figure (8) shows the development of the ratio of private sector deposits to GDP in Iraq during the period 2016-2023.

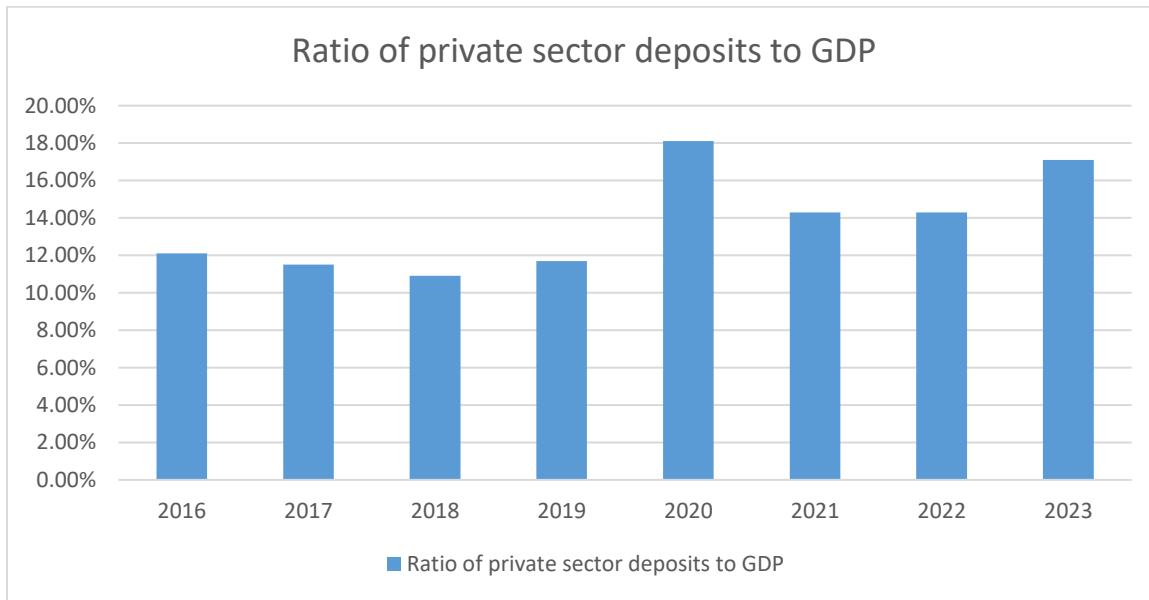


Figure (8)

Evolution of the ratio of private sector deposits to GDP in Iraq during the period 2016-2023

Source: Prepared by the researcher based on the data in Table (8).

Testing the research hypotheses

Testing the first hypothesis: Table (9) shows the results of testing the first research hypothesis, which were obtained after conducting the statistical treatments.

Table (9)

Results of testing the first hypothesis

Dependent variable Independent variable	Private sector credit to GDP (y_1)	
	Interpretation factor R^2	Significance level
Financial inclusion X	0.163	0.322

Source: Prepared by the researcher based on the outputs of (SPSS V.27) statistical software.

Based on the results shown in Table (9), it is clear that there is a positive effect of financial inclusion (x) on the ratio of credit provided to the private sector to GDP (y_1), but this effect was not significant at the significance level of 0.05, because the significance level of 0.322 is greater than 0.05, and the value of the interpretation coefficient (R^2) reached (0.163, which indicates that the percentage of changes in this ratio explained by financial inclusion reached (16.3%), while the remaining percentage of 83.7%) is due to the contribution of other variables not included in the model. Accordingly, we accept the first hypothesis, which states that (there is no significant effect of financial inclusion on the ratio of credit provided to the private sector to GDP), despite the existence of a positive effect, but it did not reach the required significant level.

Testing the second hypothesis: Table (10) presents the results of testing the second hypothesis of the research.

Table (10)
Results of the Second Hypothesis Test

Dependent variable Independent variable	Private sector deposits to GDP (y_2)	
	Interpretation factor R^2	Significance level
Financial inclusion X	0.354	0.12

Source: Prepared by the researcher based on the outputs of (SPSS V.27) statistical software.

Based on the results shown in Table (10), a positive effect of financial inclusion (x) on the ratio of private sector deposits to GDP (y_2) is evident. However, this effect was not statistically significant at the 0.05 significance level, as the significance level was 0.12, which is greater than 0.05. The coefficient of interpretation (R^2) was 0.354, indicating that financial inclusion explains 35.4% of the changes in this ratio. The remaining 64.6% is attributed to other variables not included in the model. Therefore, we accept the second hypothesis, which states that financial inclusion does not have a statistically significant effect on the ratio of private sector deposits to GDP, despite the presence of a positive effect, because it did not reach the required statistical significance level.

5. Conclusion

The research findings show a gradual improvement in the level of financial inclusion in Iraq during the period (2016–2023). However, this improvement was uneven, focusing more on the density of banking services and the expansion of electronic services than on the geographical spread of bank branches. This may limit the full impact of financial inclusion in deepening the banking sector. Electronic payment services experienced significant development, both in terms of geographical coverage and relative to the population size, as measured by the number of ATMs, POS terminals, and electronic payment terminals. This indicates the rapid growth of non-cash payment systems and the reduction of cash usage. Despite geographical disparities, it also indicates the need to extend coverage to the wider population size. Mobile payment services also experienced a clear expansion in the amounts being transferred, varying from company to company in terms of the proportion of the market. While Zain Cash dominated the largest proportion, other companies experienced declines. This indicates the growth of financial inclusion, despite the low level of competition. The results of the analysis of the financial transactions of five of the most prominent electronic payment companies in 2023 showed the dominance of Arab Company. While the proportion of other companies varied, it indicates the uneven growth of financial inclusion across these companies. In terms of the aggregate level of the financial inclusion index, it experienced

a continuous growth trend, particularly over the last three years, driven by the adoption of digital financial technologies. However, it remaining below 50% until 2023 indicates the continuation of the financial inclusion gap. In terms of banking sector depth, the ratios of private sector credit to GDP and private sector deposits to GDP experienced relatively low levels and volatility. These ratios reflect the limited role of the banking system in financing economic activity and attracting savings. Despite the relative improvement in these ratios over certain years, they remained low. Finally, the econometric analysis results showed a positive impact of financial inclusion on both the ratio of credit extended to the private sector to GDP and the ratio of private sector deposits to GDP. However, this impact did not reach the level of statistical significance, indicating that the development of financial inclusion in Iraq, despite its importance, has not yet reached a sufficient level to have a substantial impact on deepening the banking sector. This necessitates the adoption of supportive policies to enhance the effectiveness of financial inclusion. This includes developing financial and digital infrastructure, expanding electronic payment services, encouraging banks to include unbanked groups, especially in rural areas, in addition to promoting financial literacy and updating legislative and regulatory frameworks to deepen the banking sector and increase its efficiency and stability.

Ethical Considerations

This study is based exclusively on secondary quantitative data obtained from official and publicly available sources, including reports of the Central Bank of Iraq and the Iraqi Ministry of Planning. No primary data were collected from human participants, and therefore ethical approval and informed consent were not required.

All data used in this research were handled responsibly and utilized solely for academic and scientific purposes. The study was conducted in accordance with the principles of research integrity, transparency, and academic ethics, ensuring accurate reporting and proper citation of all data sources.

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Conflict of Interest

The author(s) declare that there is no conflict of interest regarding the publication of this paper. The research was conducted independently, and there are no financial or personal relationships that could have influenced the study's results or interpretation.

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