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Measuring the impact of some indicators of financial inclusion on economic growth in Iraq's for the period (2005-2022)

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Abstract
The objective of the study is to examine the influence of the correlation between specific measures of financial inclusion and economic growth, and to determine the causal effect of these measures on the economic growth in Iraq. By employing time sequences to illustrate the nature of the correlation between the variables under investigation, and acknowledging the efficacy of financial services offered to individuals in attaining economic progress in Iraq during the research period, this may be accomplished. An empirical investigation of the use of the ARDL model revealed a significant and enduring correlation between the indices of financial inclusion and economic growth in Iraq. Furthermore, the study revealed a link between financial inclusion and Iraq's economic development during the assessed period. Undoubtedly, financial inclusion has had a significant role in enhancing the pace of economic progress in Iraq.

Keywords: Financial inclusion, economic growth, dickey-fuller test, ARDL model

Introduction
The issue of financial inclusion is of great significance and is a top priority for most countries worldwide, regardless of their level of development. It has gained more focus in the wake of the global financial crisis as governments have implemented measures to ensure that financial services are accessible to all individuals in society. In addition to offering a wide range of financial services through approved providers, financial inclusion has emerged as a significant objective on the global policy agenda during a period when the international community is collectively striving to enhance economic growth. The Central Bank of Iraq has prioritized the issue of financial inclusion, particularly in the context of the market economy since 2003. This significance is demonstrated through the development of a national strategy of financial inclusion, which involves the active involvement of relevant stakeholders. Additionally, the Central Bank of Iraq has implemented various measures at all levels to advance financial inclusion. However, despite the measures and measures used to achieve the success of the subject of financial inclusion, Iraq has faced difficulties that have prevented the achievement of its objectives. Therefore, the challenges and obstacles to financial inclusion and the increase in financial services provided to individuals to achieve Iraq's economic growth must be overcome.

The importance of the research
The significance of research lies in its ability to ascertain the actual state of financial inclusion in Iraq via the analysis of its key indicators. Additionally, it aims to comprehend the correlation between these indicators and the influence of financial inclusion on Iraq's economic growth.

Research Problem
In the context of the market economy and the conditions in which the Iraqi economy went after 2003 from economic openness to most countries, financial inclusion did not rise to the

trends announced in the national development strategies, which indicate the need to promote the realities of the banking sector to achieve economic growth. Based on this, the problem with research lies in answering the question: to what extent did the financial inclusion indicators contribute to Iraq's economic growth throughout the study.

Research Hypothesis

This research is grounded on the assumption that there exists a durable ethical correlation between certain measures of financial inclusion and economic development in Iraq during the whole duration of the study.

Research Objective

This study aims to elucidate the correlation between specific indicators of financial inclusion and economic growth in Iraq. It also seeks to assess the impact of these indicators on Iraq's economic growth and evaluate the efficacy of financial services offered to individuals in facilitating economic growth in the country.

Research Structure

The descriptive approach and the analytical quantitative method of data are used in this study, The research structure included three axes. The first of them referred to the conceptual aspect of financial inclusion and economic growth, while the second dealt with the reality of financial inclusion and economic growth in Iraq during the period of the study, while the third focused on analyzing and measuring the relationship between indicators of financial inclusion and economic growth in Iraq during the period studied.

The first axis*:* Theoretical Aspect of Financial Inclusion and Economic Growth

I. The concept of Financial Inclusion

Financial inclusion is one of the most important banking developments that has emerged in Europe and then moved to most of the world's different countries, especially during the last two decades of the last century, taking banks in those countries away from traditional forms of lending and investment. Providing a range of financial services, financial inclusion is an important topic that has emerged on the international scene, particularly after the global financial crisis hit the world (Abdelnabi, 2012:26) [3].

International attention to financial inclusion increased after 2008 through policies aimed at providing financial services to all segments of society. These services represented the basic pillar prepared by the World Bank to combat poverty and thus achieve economic growth (Abdullah, 2016:14) [4]. Therefore, financial inclusion has become an important item on the international policy agenda at a time when the international community's efforts to achieve economic growth are united.

Researchers have disagreed on giving the right concept of financial inclusion, based on each of them seeing the concept, considers that financial is the process of enabling all members of society to have access to a full range of quality, affordable, low-cost financial services and an appropriate way. This contributes to poverty reduction, economic and social development, and thus economic growth (Muritala & Ismail, 2013:40) [20], therefore a development goal pursued by most of the world's countries for its broad importance in achieving economic growth.

While some researchers have identified it as every individual or institution in the community having access to financial and banking services for their needs such as deposit accounts, payment, transfer services, insurance services, cash and trust services, as well as Islamic banking services. the Global Alliance define financial inclusion as all actions taken by regulatory bodies to promote fair, transparent, and affordable access to financial services to vulnerable and affordable groups commensurate with their needs. From this point of view, financial inclusion needs a set of basic requirements to expand the base of the formal financial system to all segments of society, which promotes financial inclusion. This has included the development of infrastructure and coverage of its services.

The Central Bank of Iraq defined financial inclusion as the access of available financial and banking services to as many businesses and individuals as possible at affordable prices, low cost, and an appropriate way to contribute to poverty reduction and economic growth (Abdulnabi, 2018:2) [3]. Based on the foregoing, financial inclusion is a situation where business and low-income individuals have access to formal financial and banking services, which clearly contributes to poverty reduction and thus economic growth.

II. Financial Inclusion Requirements

The most important requirements for financial inclusion can be illustrated by four themes that can be represented through the following: (Ben-Shida and Bouafia, 2018:92) [13].

1. **Financial Infrastructure Support:** This requirement can be considered one of the basic requirements for financial inclusion and can be counted as a key pillar for achieving an environment conducive to financial inclusion. The most important priorities of financial infrastructure processing could be represented through the following:
   a) An appropriate legislative environment that includes all instructions and regulations that promote financial inclusion
   b) Geographical spread of the network of financial service providers of various types from bank branches, bank telephone services, point of sale, ATMs, insurance services, and other banking services.
   c) Development of payment and settlement methods and systems to facilitate the implementation of financial operations and services.
   d) Provide comprehensive credit databases for the business and individuals sector.
2. **Developing financial services and products that meet the needs of the community:** To facilitate the access of financial and banking services to vulnerable groups and small enterprises in society and meet their requirements and participation in the financial system, financial services, and products must be developed. Achieving this requirement is due to the role of supervisors in achieving this pillar by easing funding requirements and reducing commissions and fees on services provided to customers.
3. **Consumer financial protection:** This requirement is achieved through a fair and transparent transaction that contributes to facilitating access to affordable and high-quality financial services, as well as providing adequate and necessary information on financial services and safety systems.

4. **Financial education:** It is imperative for every State to prioritize the topic of financial education and awareness by formulating specific national initiatives aimed at enhancing levels of education and financial literacy. The development of this approach involves the collaboration of several government agencies, together with the corporate sector and associated organizations, to augment the awareness and financial literacy of residents. Especially the target groups that need it such as SMEs of both sexes. Based on the foregoing, the application of financial inclusion requires the concerted efforts of all financial and banking institutions in the public and private sector and the mobilization of their financial resources, and the use of their expertise to streamline regulatory, supervisory, and supervisory procedures that ensure the improvement of financial infrastructure. Diversify sources of finance, develop financial and banking services and introduce financial techniques taking into account the level of risk that can occur. Public outreach and financial education, thus supporting the promotion of financial inclusion and thus contributing to economic growth.

III. Importance of Financial Inclusion

Financial inclusion has gained increasing importance in many of the world's developed and developing countries, especially after the global financial crisis, as it is important to access financial services, which will have a positive impact on both the economic and political environment. The importance of financial inclusion can be highlighted by the following: (Mohi, 2013:97 and Iqbal & Mirakhor, 2012:39) [9, 16].

1. **Financial inclusion contributes to enhancing economic development efforts:** Studies and applied research shows that there is a correlation between financial inclusion and gross domestic product (GDP), that is, increased banking services provided contribute to increasing GDP. Studies have also shown that the deepening of services provided reduces inequalities among individuals and the provision of microfinance services has greatly helped to create jobs outside the government framework. So it can be said that the depth of the spread of financial and banking services provided related to social justice levels of society, which clearly contributes to labor markets and thus economic development.
2. **Financial inclusion contributes to the automation of the financial system:** Expanding the reach and utilization rates of financial services requires further automation of these services, avoiding more users of the world's technological revolution during the current century. Increased reliance on financial services, especially concerning payments, has the benefit of both the sender and the future and the financial institutions that provide these services because its automation of payments will create an opportunity for more individuals to enter the financial system user. This makes these payments arrive more quickly and at less cost, contributing to improving the ability to track and control the movement of funds to reduce levels of financial crime, money laundering operations, and terrorist financing.
3. **Financial inclusion contributes to the development and stability of the financial system:** Expanding the reach of financial services requires the development of these services to attract more users with the technological revolution in the world's communications during the current century. Increasing the population's use of financial services will contribute to financial stability increasing the use of the formal financial system will diversify the deposit portfolio of banks and financial institutions while reducing their levels of concentration. This reduces the risk of these institutions and also promotes diversity in the use of these services to stabilize the financial system and thus achieve economic growth.
4. **Financial inclusion:** Also contributes to reducing the phenomenon of poverty, which achieves economic growth: which enables the poor to facilitate debt to finance income-generating assets, especially human assets such as education and health. In addition, developing the financial sector enables the poor to direct their savings to the formal sector, which contributes to growth.

IV. Principles and Objectives for Financial Inclusion

1. Principles of financial inclusion: Principles of financial inclusion include the provision of aid and assistance to create a special regulatory environment supportive of financial inclusion, to improve the accessibility of financial and banking services to the poor. The most important of these principles can be summarized as follows:

- **Leadership:** It indicates that the Government's commitment to financial inclusion is instilled to help reduce poverty. This means that the most successful Governments are the Governments that support financial inclusion because it contributes to the development of payments systems infrastructure, as well as the collection and provision of data to support policies that maintain the integrity and stability of the financial system.
- **Diversification:** This principle is intended to implement a policy approach that encourages competition to facilitate access to financial and banking services because these policies provide a range of service providers because diversification of products and diversification of service providers can lead to the availability of services and enhance competition as well as increase the access of excluded segments to financial and banking services.
- **Empowerment:** This principle intends to eradicate individuals' financial illiteracy to optimize the use of financial services. Therefore, financial capacities and cultures should be developed and capacities empowered to benefit from financial and banking services. Through this, countries must place financial inclusion among their priorities at the local and international levels.
- **Innovation:** This can be achieved through institutional and technological development as a means of accessing banking and financial services, which contributes to developing the infrastructure of this sector. Experience has shown that the main source of development depends on the provision of technology that arranges and organizes the work of new enterprises, which contributes to economic growth.
- **Protection:** Comprehensive consumer protection elements within the framework of rules recognized by

financial service providers and users because this reduces the risks to consumers, as well as mitigating the possibility of technical or human errors in the financial services provided.

- **Cooperation:** Means establishing Creating an environment with clear and understandable parameters for coordination between the State, financial institutions, and the business sector, as well as encouraging partnerships with government, companies, the business sector, stakeholders, and stakeholders in the financial sector, therefore, cooperation and interaction between public policy and business interests is a necessary subject in the financial and banking sector.
- **Knowledge:** This principle is intended to provide sufficient and accurate data used to measure progress in financial inclusion by regulators, supervisors, and financial and banking services.
- **Proportionality:** A regulatory policy framework commensurate with the risks and providers' benefits of financial and banking services any politically organized side is commensurate with the risk and benefit involved in the service provided depends on understanding the barriers and gaps in the organization process.
- **The regulatory aspect:** It works to take into account issues that clarify international standards, for the purpose of supporting the competitive landscape between financial service makers, while paying attention to international standards for developing regulations that work to combat money laundering and terrorist financing.

2. **Objectives of financial inclusion:** Establishing an advanced financial sector is the most important solution to support people with low incomes, and financial inclusion aims to facilitate the access of a significant segment of citizens to financial services for, the most prominent objectives of financial inclusion can be determined by the following: (Al Sharabi and Ben Al Khader, 2018:107) [24].

- Financial inclusion aims to systematically utilize financial services by managing payment infrastructure and cash flows that reduce shocks.
- Universal provision of financial and banking services to enhance the social and economic well-being of all individuals in society, therefore promoting financial and social stability.
- Financial inclusion promotes and protects the rights of users of financial services by preparing policies and instructions that contribute to protecting the rights of users of banking services.
- Fiscal inclusion aims to achieve economic growth because fiscal inclusion itself contributes to the equitable growth of all sectors of society which contributes to reducing income and savings inequality.
- Financial inclusion supports the banking sector in the light of diversification of banks' assets, stabilization of deposits, and reduction of liquidity risks.
- Financial inclusion aims to eradicate poverty and provide sustainable livelihoods because financial inclusion is the bridge that connects the vulnerable part of society.
- Financial inclusion focuses on raising financial awareness for low-income women, as well as teaching women easy ways to save money for future operations.

Concept of Economic Growth

The term economic growth is a relatively modern term**,** with its name coupled with the emergence of capitalism, its machinery and its industrial output, and its proliferation and the resulting widespread changes, whether those changes in the industrial structure or the form of continuous technological Changes and capital accumulation have contributed to important changes. It worked to achieve economic development and social growth of most countries, especially the developed ones. Therefore, economic growth is one of the main objectives pursued by countries, being the most important economic indicator and the objective of any economic policy because it is the nearest indicator to give a real picture of economic performance.

The engine that improves the standard of living and greater well-being, and thus represents the material compendium of society's economic and non-economic efforts. Hence, most countries have embarked on economic correction policies and programs that seek to drive economic growth, to achieve sustainable development that contributes to addressing many economic problems, Such as poverty, unemployment, and fluctuating price levels (Awad and Etal, 2021:236) [10]. Therefore, addressing the concept In order to achieve the process of economic growth, the indicator through which we can measure growth must be clarified**,** as well as how long we wish to determine and measure the value of this variable. Among these factors, economic growth refers to the continuous expansion in the generation of material riches. The principal drivers of economic growth include technological advancements, the effectiveness of economic institutions, and investments in capital and human resources. Due to the incorporation of new technological techniques through innovation and invention, together with the inherent risk factor of productive companies, economic systems demonstrate their effectiveness by reallocating resources to sectors that attain economies of scale and optimal production status. Material and human capital positively influence worker productivity and manpower development by enhancing training and qualifications, therefore increasing the share of economically engaged population (Abbas, 2011:66) [1]. Sustainable development is the accumulative and continuous increase of real income over a period of approximately 25 years, surpassing the rate of population growth. This process aims to provide productive and social services, safeguard renewable resources from pollution, and conserve depleted resources.

Growth in this sense is an expression of positive quantitative change or a positive quantitative phenomenon, and it is seen from this Growth is defined as every increase in production undertaken by a country in the long term**,** so it is a terminal for macroeconomic growth. Since economic growth reflects the increase in production, It takes into account the average monkey share of GDP. It is possible that growth is linked to economic development, provided that the growth in gross domestic product is greater than the increase in population (Awad *et al*., 2020:376) [9, 11-12]. Therefore, economic growth is one of the main economic objectives that the State is trying to achieve to develop its economies and achieve a higher level of well-being for its societies, measured by the rates of increase in the national output achieved by increasing the productive capacities of society.

While economic growth is perceived to be the rate of increase in a country's production or real income over a given period, that increase reflects quantitative changes in production capacity and the extent to which it is exploited, because the higher the percentage of energy and productivity utilization available in all productive sectors. Top Growth rates in national income and vice versa, the lower the utilization of productive capacity the lower the growth rates of national income, (Al-Abdali, 2005:19) [5]. So this definition indicates the change in the output A curve results from the increases that occur in the country's resources or the development of technological progress in order to increase the real output of the individual, and from the above it can be said that it is necessary to focus on the real increases in the individual income rather than in its monetary form. As everyone knows, cash income refers to the number of cash units a person receives during a given period for the productive services they provide, whereas real income refers to the number of goods and services a person receives from spending their cash income during a given period.

Also known as the increase that occurs in the gross domestic product (GDP) which is matched by an increase in the average per capita share of it**,** increasing real per capita income. In-depth, this concept focuses on the following elements: (Awad, 2015:3) [8]. Economic growth not only means an increase in GDP but must the increase in real per capita income.

The increase real per capita income is not only a monetary increase, it has to be a real increase, as has been mentioned; therefore, economic growth, as understood above, is concerned with the increased susceptibility of an economy to the provision for the services and goods during a certain period**,** whether the source of such savings is locally or externally. Based on the foregoing, economic growth in the simplest form can be said to be the rise recorded over for a period of one year or period that follows an expansion variable economic of GDP. as well as the change in the volume of economic activity, or the increase in GDP leading to an increase in real per capita income, i.e. an increase in average per capita income provided that the increase is real rather than monetary but the increase is long-term.

V. Types of Economic Growth

There are three types of economic growth represented by the following: (Erekat, 2013:135)

1. **Planned growth:** Comprehensive national planning for all sectors is the result of a planning process for all the necessary resources and needs of society**.** In this type of development, the Government plays a key role, particularly in communist States. Thus, it is founded upon the principle of communal Owning the means of production**,** which underscores the significance of social and economic equity within the nation. And the achievement of the goals achieved for this path depends on the efficiency of the planners and their abilities, as well as the practicality of the planned strategies and the efficiency of their execution and subsequent involvement by the grassroots audiences at all levels of the management process.
2. **Spontaneous growth:** That implies growth that arises organically without any predetermined economic plan, without any involvement from the governmentBut it results from the subjective effects of the contributions of private companies or economic circles at the level of developed countries.
3. **Transit growth:** Growth marked by decline and volatility due to external stimuli that it generates and rapidly vanishes, accompanied by the cessation of growth, is observed in developing countries and Arab oil-producing nations where investments increase in response to fluctuations in oil prices.

VI. Determinants of Economic Growth

There exist several elements that significantly influence economic growth, with the most crucial ones being listed below: (Awad *et al*., 2020:185) [9, 11-12] and (Erekat, 2017:150) [15]

1. **Quantity and quality of human resources:** the economic growth rate can be measured through the real per capita income rate as in the following formula: (real income per capita = real GNP/population). From the previous formula, we can conclude that the higher the rate of increase in real GNP than the rate of increase in population. The greater the increase in real income rate Thus, a greater increase in the rate of economic growth ،If real GNP doubles as population doubles, real income does not change, but there are quantitative and qualitative considerations. The increase in the It affects the number of people who want to work and the productivity of work and thus the rate of economic growth.
2. **Capital accumulation:** Society must sacrifice part of the current consumption for the production of capital goods such as factories, machinery, bridges, transport routes, schools, universities, and hospitals. The rate that society can add to the amount of capital affects that society's economic growth rate the determinants of the capital accumulation rate are those affecting investment.
3. **Quantity and quality of natural resources:** The production and economic growth of a certain economy are contingent upon the amount and quality of its natural resources. Certain economists argue that natural resources lack inherent value unless they are effectively utilized by humans to attain the social and economic aims and purposes of the society. Economic growth relies mainly on their abundant wealth and substantial agricultural production. ، But the question here is whether possession of natural resources is a prerequisite for economic growth? In response, Japan could be cited as an example of countries that had no abundance of natural resources but had nevertheless been able to achieve economic growth By focusing on sectors directly dependent on capital and the abundance of skilled labor, to overcome the lack of natural resources.
4. **Technical progress rate:** Technological advances that occur as a result of inventions and innovations and lead to the development of new products and new production methods that are more efficient than older methods. The concept of technological progress is not limited to the emergence of inventions but includes efforts aimed at exploiting economic resources, discovering new resources, or developing existing resources.

The Second axis: The reality of financial inclusion and the growth of the Iraqi economy for the duration (2005-2022)

I. The Reality of Financial Inclusion in Iraq After 2005

Financial inclusion indicators are among the most important indicators taken by central banks that provide a clear and accurate analysis of the banking sector's work based on a solid database of banking sector business indicators supported by demographic population data. Therefore, financial inclusion has a significant impact on all economic events because it provides financial and banking services to most members of society, especially low-income earners. Based on this, attention to financial inclusion has increased in most countries of the world, placing it high on the list of strategic objectives that these countries seek to increase financial depth. Financial depth has a direct and indirect impact on economic growth. World Bank data indicate that financial inclusion rates rose from 51% in 2011 to 69% in 2017 (Abdulnabi, 2018:5) [3]. However, these ratios vary from country to country, and the Central Bank of Iraq has worked within the strategies prepared by the competent authorities to pay attention to the subject of financial inclusion by raising its ratio because he has a great interest in achieving the economic growth of the country.

Although that proportion is lower than neighboring countries, the Central Bank of Iraq has not stopped. It has worked hard to achieve financial inclusion and raise its proportion through various initiatives such as the microfinance initiative, the development of payment systems, and the settlement of electronic exchanges through the development of payment mechanisms for employees' and retirees' salaries electronically. As well as encouraging banks to open new branches to provide financial services to the widest possible segment, there are several steps taken by the central bank to stimulate financial inclusion in Iraq that can be highlighted through the following (Al-Ittihad, 2017:17)

1. Establishment of Deposit Guarantee Company.
2. Preparing a strategy for financial inclusion.
3. Develop the payments system and ensure payment by mobile phone.
4. Deposit employees' salaries in accounts open to them in public and private banks.
5. Establishment of the National Credit Information Office.

Despite the Central Bank's decisions to raise financial inclusion ratios, these ratios did not rise to the level of trends announced, as indicated in table 1. This indicates that there are serious steps by the competent authorities to improve the reality of bank deployment in Iraq to increase the financial and banking services provided to individuals. The increase in the number of banks was accompanied by an increase in the number of branches, from 542 in 2005 to 1,204 in 2014. However, as a result of ISIL's control of some Iraqi governorates, the number of branches decreased to 843 in 2017. The banking sector deteriorated owing to the suspension of those branches, while the number of branches returned thereafter with a gradual rise to 888 in 2019 as a result of the improved security situation. The banking spread of the number of ATMs is no less important than the proliferation of bank branches. It depends on the banking branches as a result of their provision of services to individuals. Therefore, increasing the level of their deployment is important to raise the levels of access and then deal with the banking sector.

The number of ATMs increased for all years except 2014 as a result of Iraq's exposure to the above-mentioned conditions. The number of ATMs subsequently increased to 2223 in 2022. This indicates that the Central Bank's endeavor to develop payment systems and settle electronic exchanges. As well as the important step taken by the Central Bank by localizing the salaries it started with the employees of the Bank itself by partnering with several banks by providing ATMs, As well as private domestic credit, it has also seen a marked rise throughout the study.

Table 1: Some indicators of access to financial services and banking penetration in Iraq for the period (2005-2022)

Year	Number of banks	Number of bank branches	Number of ATMs	Private local credit (1 billion dinars)
2005	31	542	144	950
2006	37	542	166	1881
2007	37	549	130	2387
2008	37	560	130	3978
2009	43	774	225	4646
2010	48	912	423	8527
2011	52	929	467	11356
2012	54	990	467	14650
2013	54	1042	647	16947
2014	57	1204	337	17745
2015	57	854	580	18070
2016	64	866	660	18164
2017	69	843	591	19452
2018	71	865	904	20126
2019	73	888	1087	21042
2020	79	904	1340	81589
2021	79	904	1566	20886
2022	79	904	2223	21561

Prepared by researchers based on the statistical website of the Central Bank of Iraq, annual bulletins for the period (2005-2022.

II. The Reality of Iraq's Economic Growth After 2005

Gross Domestic Product is often regarded as the most reliable measure of economic development in most nations, including Iraq. This is because GDP reflects the overall gross added value generated by all sectors of economic activity over a specific timeframe. Production differential refers to the disparity between the overall output in each branch and the value of the inputs acquired by this branch from other branches in the country, considering both domestic and international production variables. This refers to the aggregate market prices of all ultimate commodities and services generated in the domestic economy within a specific timeframe, often one year (Al-Shamri, 2009:295) [7].

The gross domestic product (GDP) is a crucial measure of economic performance as it serves as the main contribution to a country's national income. Iraq's GDP differs from that of other countries with similar growth in available resources and capabilities. Consequently, the circumstances that Iraq has encountered during the study have had adverse impacts on overall economic activity and specifically on its productive capacity. Furthermore, the presence of extensive financial and administrative corruption in several State institutions has resulted in a disparity in Iraq's GDP as compared to other nations (Awad *et al*., 2021:11437) [10]. The aforementioned analysis suggests that Iraq's gross domestic product (GDP) provides a comprehensive representation of the economic situation and the trajectory of its progress. On the other hand, the per capita share serves as an indicator of actual growth, as the increase in GDP will mirror the growth of its average per capita, so impacting the quality of life for its population.

When going to Table 2, GDP saw an upward trend during the first years in the value of GDP, rising from JD 73,533 billion in 2005 to JD 15, 7026 billion in 2008, owing the end of the sanctions that were imposed on the Iraqi economy before 2003. These developments have resulted in heightened trade and financial accessibility to foreign countries, which has contributed to a surge in oil exports and a corresponding increase in oil prices. Consequently, Iraq has seen a growth in its revenues from this commodity, as oil exports constitute the majority of the country's GDP. Moreover, the growth rates were elevated due to the correlation between growth rates and the demand for exports, particularly oil, because Iraq's economic structure is reliant on external factors, as much as it is linked to internal variables, as it is based on the products of a single commodity whose price is determined outside the state. GDP then fell to 130,643 billion dinars in 2009, Because of the mortgage crisis, which led to a decline in oil exports owing to low oil prices due to low global demand, while GDP data for the period (2010 - 2013) shown a significant surge due to heightened exports from the oil industry. The surge may be attributed to the increase in the prices of oil sector products, which led to a rise in income for the sector. Additionally, the expansion In addition, the government services sector contributes to development in GDP. However, in 2015, it declined to reach a total of 194,680 billion dinars.

The security circumstances in Iraq and the ensuing crisis have led to a global decrease in oil prices. This has contributed to reduced income for the sector, which is reliant on the composition of GDP. Consequently, the loss in average GDP per capita during that period has been visibly influenced.

As of 2019, the GDP amounted to KD 262,917 billion. As a result of the improvement in the country's security conditions during the period. From this vision, Then the gross domestic product declined again in 2020 to become (219,774) billion dinars due to the events that the world went through (COVID-19), the cessation of life, and the decline in oil exports, which led to a decline in Iraq's financial revenues derived from oil sector products, which negatively affected the gross domestic product.

Then it returned to improvement, reaching (384,555) billion dinars in 2022, as a result of improved health conditions in most countries of the world and the re-export of oil, This factor led to a rise in the pricing of items in this industry, thereby resulting in an acceleration of the gross domestic product.

The growth rates observed in the Iraqi economy may be attributed to the profusion of oil income, albeit these rates did not manifest in favorable transformations in the Iraqi economic landscape. The Iraqi economy relies heavily on the exports of the oil industry. Therefore, whatever situation the nation faces would directly impact the generation of income from this sector, which in turn affects the country's economic growth rates.

Table 2: GDP at current prices and average duration per capita (2005-200)

Years	GDP (1 billion dinars)	Annual Change Amount (%)
2005	73533	-
2006	95587	29.9
2007	111455	16.6
2008	157026	40.8
2009	130643	16.8-
2010	162064	24.1
2011	217327	34.1
2012	254225	16.9
2013	273587	7.61
2014	266332	2.65-
2015	194680	26.9-
2016	196924	1.15
2017	221665	12.5
2018	254870	14.9
2019	262917	3.15
2020	219774	16.40-
2021	301469	37.17
2022	384555	27.56

Prepared by researchers based on data from the Ministry of Planning, Directorate of National Accounts, annual bulletins for the period (2004-2022)

Amount of change from researchers' preparation

III. Financial Inclusion's Relationship to Economic Growth: Financial inclusion contributes to increasing competition opportunities among financial institutions by diversifying the services provided by these institutions as well as paying attention to the quality of those services to enhance their ability to retain their customers, as well as attract other customers. This contributes to reducing the leakage of informal channels, and financial inclusion contributes to influencing the social aspect by paying attention to the limited incomes on the one hand, and to the youth and women's groups on the other. Which contributes to the reduction of unemployment and poverty, which helps to redistribute income, which raises the living standards of individuals, which helps to achieve the economic growth of the country. From this vision, economic growth and financial inclusion are mutually productive. Growth is the product of financial inclusion and inclusion is the product of economic growth, so financial inclusion can be a development goal in itself.

The third axis: Results of the analysis of the relationship between financial inclusion and term economic growth (2005-2022)

I. Study Variables and Dali Description

To test the research hypothesis and achieve its objective, independent variables have been identified as some indicators of financial inclusion (number of machines of ATMs, private domestic credit) and the dependent variable as an indicator (GDP) and as in the following table.

Table 3: Study variables

Code	Significance	Description
Log ass	Private Local Credit	independent
Log mc	Number of ATMs	independent
Log GDP	GDP	Dependent

Reference: Researchers' work

And depending on the theoretical aspect that was used, it is necessary to test the following relationship

Yi = a + b1X1 +b2x2 +ui

Given that Y represents an indicator of economic growth, x1 and x2 represent the variables of financial inclusion, and the study period spans from 2005 to 2022, which is insufficient time according to contemporary standard methods, the data has been transformed into quarterly data and the logarithmic formula has been employed to address standard issues. A feature of Eviews 10 is the capability to transform data from an annual to a quarterly format**.**

II. Results of the stabilization test of study variables

Table 4: Stabilization test results for study variables at the original level of data

(Unit Root Test Table (P.P) At Level				
		LOG_GDP	**LOG_MC**	**LOG_ASS**
With Constant	t-Statistic	-1.6550	-0.5978	-5.8662
	Prob.	0.4482	0.8623	0.0000
		No	No	***
With Constant & Trend	t-Statistic	-1.9747	-2.0030	-1.4806
	P.rob.	0.6018	0.5867	0.8244
		No	No	No
Without Constant & Trend	t-Statistic	1.1189	1.8990	3.1399
	Prob.	0.9300	0.9852	0.9994
		No	No	No

(*)Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1% and (no) Not Significant

Reference: The results of the table are the work of researchers based on the program outcomes Eviews 10

It is clear from Table (4) that all independent variables and the dependent variable are unstable at the original level of the data as determined by the pp test.

Therefore, the first difference will be calculated as shown in Table (5).

Table 5: Stability test results for study variables at the first data difference

Unit Root Test Table (P.P) At Fist Difference				
		d(LOG_GDP)	**d(LOG_MC)**	**d(LOG_ASS)**
With Constant	t-Statistic	-3.3115	-3.3140	-2.7025
	Prob.	0.0192	0.0190	0.0802
		**	**	*
With Constant & Trend	t-Statistic	-3.2666	-3.2917	-3.6329
	Prob.	0.0829	0.0786	0.0362
		*	*	**
Without Constant & Trend	t-Statistic	-3.2765	-3.0210	-2.4123
	Prob.	0.0015	0.0032	0.0166
		***	***	**

(*)Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1%. and (no) Not Significant

Reference: The results of the table are the work of researchers based on the program outcomes Eviews 10

According to the pp test, all variables in Table (5) reached stability when computed as the first difference of variables. Given this premise, it is more advantageous to utilize the ARDL distributed self-regression approach as the variables demonstrated stability at the initial difference, except for a few perspectives.

III. Analysis of the results of the relationship between financial inclusion variables and Iraq's GDP during the duration of the study

1. Preliminary assessment of the ARDL model

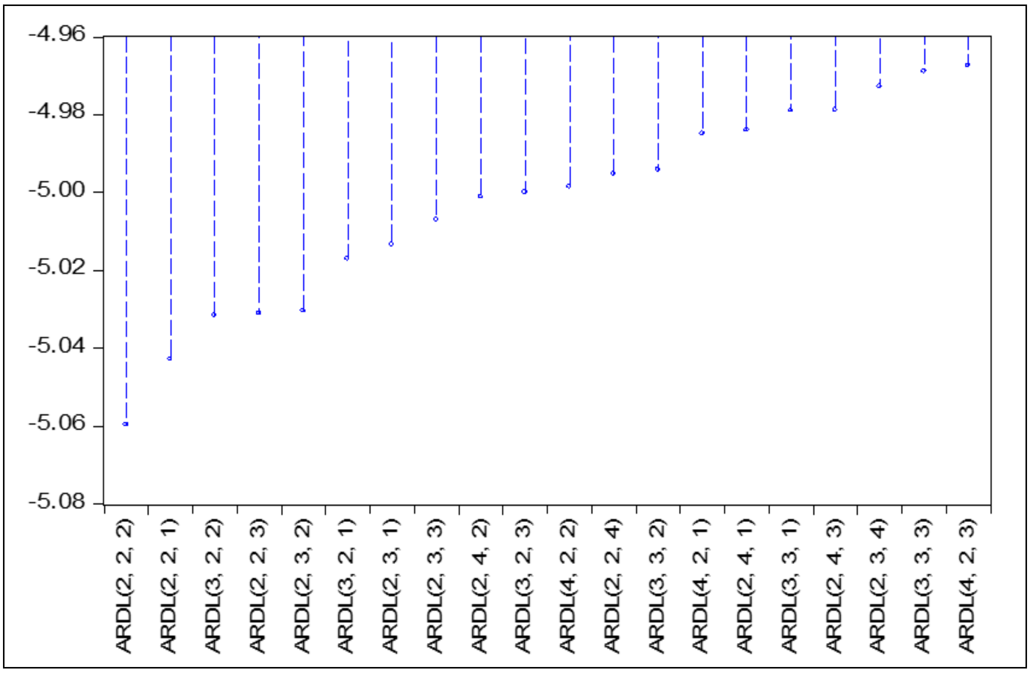
In this study, Table 6 presents the findings of the initial evaluation of the ARDL model in relation to many measures of financial inclusion and economic growth in Iraq.

Table 6: ARDL Preliminary Assessment Results Relationship between Study Variables

Dependent Variable: LOG_GDP				
Method: ARDL				
Selected Model: ARDL(2, 2, 2)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
LOG_GDP(-1)	1.648688	0.100917	16.33701	0.0000
LOG_GDP(-2)	-0.713982	0.098388	-7.25680	0.0000
LOG_ASS	0.875453	0.097800	8.951433	0.0000
LOG_ASS(-1)	-1.458776	0.197682	-7.37940	0.0000
LOG_ASS(-2)	0.593270	0.129681	4.574825	0.0000
LOG_MC	-0.147735	0.043330	-3.40953	0.0014
LOG_MC(-1)	0.251362	0.080223	3.133309	0.0030
LOG_MC(-2)	-0.085529	0.050956	-1.67850	0.1002
C	1.043192	0.400024	2.607822	0.0123
R-squared	0.992408	Mean dependent var		19.15243
Adjusted R-squared	0.991058	S.D. dependent var		0.184451
S.E. of regression	0.017442	Akaike info criterion		-5.108872
Sum squared resid	0.013690	Schwarz criterion		-4.777375
Log-likelihood	146.9395	Hannan-Quinn criteria.		-4.981026
Durbin-Watson stat	2.015169			

Reference: The results of the table are the work of researchers based on the program outcomes Eviews 10

It is clear from the results shown in Table (6) and Figure (1) that the appropriate lag period is (2, 2, 2) to measure the relationship between the research variables in the Iraqi economy for the period 2005-2022. By estimating the model we note that the R-value is (99%). This means that the independent variables explain the change in the dependent variable of (99%) and (1%) are due to factors outside the model.



Reference: The results of the table are the work of researchers based on the program outcomes Eviews 10

Fig 1: Akaike information criteria (Top 20 models)

2. Border test results for joint integration

Table 7 shows the relationship between some financial inclusion indicators and GDP during the study period.

Table 7: Relationship between financial inclusion variables and Iraq's GDP

Test Statistic	**Value**	**K**
F-statistic	4.193066	2
Critical Value Bounds		
Significance	**I_0 Bound**	**I_1 Bound**
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Reference: The results of the table are the work of researchers based on the program outcomes Eviews 10

The border tests conducted between some financial inclusion indexes and GDP indicate a shared integration, since the computed F value exceeds the tabular F value at a morale level below 5%.

3. It is evident from the presentation of short-term and long-term results based on the ARDL model regarding the correlation between many financial inclusion indicators in Iraq and GDP are presented in Table 8.

Table 8: Short-term and long-term response assessment among study variables

`Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOG_GDP(-1)	0.713982	0.098388	7.256805	0.0000
D(LOG_ASS)	0.875453	0.097800	8.951433	0.0000
D(LOG_ASS(-1)	-0.593270	0.129681	-4.574825	0.0000
D(LOG_MC)	-0.147735	0.043330	-3.409536	0.0014
D(LOG_MC(-1)	0.085529	0.050956	1.678501	0.1002
CointEq(-1)	-0.065294	0.022522	-2.899072	0.0058
Cointeq = LOG_GDP - (0.1523*LOG_ASS + 0.2772*LOG_MC + 15.9768)				
Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LOG_ASS	0.152333	0.151332	1.006613	0.3195
LOG_MC	0.277181	0.223111	1.242346	0.2205
C	15.976814	1.035768	15.425085	0.0000

Reference: The results of the table are the work of researchers based on the program outcomes Eviews 10

Based on the data shown in the table above, we see the following

It turns out that the error correction factor is inverse and significant at a level of less than (1%), which indicates a return to balance within (-0.06) of time, and this proves the research hypothesis that indicates that there is a long-term balanced relationship between the research variables. in Iraq during the period (2005-2022).

It turns out that the long-term results are weak outward impact between (private domestic credit and gross domestic product (GDP) in Iraq, i.e., private domestic credit in Iraq increased Iraq's GDP but weakly because most of the increase came through oil imports.

Long-term response results show a weak expulsion effect between (the number of ATMs and GDP in Iraq). That is, the number of ATMs in Iraq increased Iraq's GDP but weakly during the study period due to the weak confidence of individuals in the Iraqi banking sector.

4. Analyze test results to detect autocorrelation problem

Table (9) displays the results of the autocorrelation test and the examination of the lack of consistency of variance between the financial inclusion variables in Iraq and the gross domestic product. It is clear from the results that the estimated model does not suffer from the autocorrelation problem, and the presence of inconsistency in variance is not confirmed. This is because the calculated values of the tests indicate that there is no strong evidence to reject the hypothesis of the absence of autocorrelation.

Table 9: Self-correlation test results and asymmetry of the relationship between study variables

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.003253	Prob. F(2,43)	0.4421
Obs*R-squared	0.008168	Prob. Chi-Square(2)	0.3329
Heteroskedasticity Test: ARCH			
F-statistic	0.063903	Prob. F(1,51)	0.8014
Obs*R-squared	0.066326	Prob. Chi-Square(1)	0.7968

Reference: The results of the table are the work of researchers based on the program outcomes Eviews 10

Conclusions

1. Financial inclusion is an important need to achieve economic growth by integrating SMEs into the financial sector. Contributing to the reduction of poverty and unemployment, thereby increasing economic growth rates, However, despite the Central Bank's actions to increase financial inclusion, However, it was not at the required level and was stated in the national development plans.
2. A sophisticated financial system is one of the prerequisites for economic growth, and this is done through positive communication between customers and banks in a balanced relationship that gives positive results to all parties.
3. The results of the study showed that there is a long-term balance between indicators of financial inclusion and economic growth in Iraq during the study period, which supports the research hypothesis.
4. The financial inclusion index has witnessed the development of payment systems, as well as the localization of employees' salaries and the increase of some financial and banking services provided to individuals, as evidenced by the increase in the number of ATMs and the increase in the number of bank branches. It is a positive indicator that Iraqi economy is moving towards the development of the financial sector in the light of openness to the other parts of the world.

Recommendations

1. To implement the State's strategy to reduce poverty and redistribute income to achieve economic growth, family and artisan financing programs should be supported by encouraging banks to finance small enterprises.
2. Enhancing disclosure and transparency in banking transactions and making them the basis of consumer financial protection principles, helps to enhance the

individual's confidence in the financial sector, thereby contributing to the expansion of the customer base, thereby increasing credit, and thus achieving economic growth.

3. Emphasize increased attention to financial inclusion by moving towards the participation of educational institutions, through educational and educational programs to achieve inclusive growth of the economy, thereby increasing economic growth rates.
4. The need to expand the use of ATMs, POSs, and electronic cards, as these procedures achieve in providing electronic banking transactions and delivering them to the largest possible segment, thereby clearly contributing to economic growth.

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