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Does Financial Development and Financial Inclusion Matter for Economic Growth? Evidence from Iraq

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Abstract: In contemporary times, the imperative of fostering economic development necessitates the presence of financial inclusion and financial growth. The purpose of this study was to examine the impact of financial development and financial inclusion on the economic growth of Iraq. The empirical investigation in this study utilised time series data spanning from 2001 to 2020. The present study employed the ARDL Bounds test for analysis. The results of the regression model (ARDL) demonstrate the presence of a co-integrating relationship between financial inclusion, economic development, and financial growth. Over an extended duration, the contribution of the private sector to credit facilitated by commercial banks, the quantity of commercial bank branches, liquid liabilities, and labour force participation exhibit a direct and substantial influence on the economic growth of Iraq. Conversely, investment and broad money display a significant yet adverse effect on the country's economic growth. During the short-run period, the provision of credit to the private sector by various branches of commercial banks, as well as the labour force participation rate, have been found to have a substantial and positive impact on the economic growth of Iraq. In contrast, it can be observed that gross fixed capital formation has a notable and adverse impact on economic growth. During the short-term period in Iraq, there is limited evidence to suggest that liquid liabilities and broad money have a significant impact on financial growth. Therefore, in order to enhance economic growth, it is imperative for the government to implement measures aimed at augmenting the participation of individuals in the financial sectors, as well as fostering the advancement of financial institutions.

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1. Introduction

Financial inclusivity refers to a state in which every individual is afforded equal opportunities to access a comprehensive array of financial services at affordable rates, within a welcoming environment that respects the dignity of clients. Achieving financial stability within an economy is a crucial means by which financial policy objectives can be realised, as evidenced by the concept of financial inclusion (Al-Humairi, DubaiAbdulmahdiAl-Jubouri, & Mahmood, 2020). The lack of access to fundamental financial services experienced by billions of individuals across the globe represents a significant global concern. The act of excluding individuals can result in various negative consequences, including limited opportunities for employment, reduced ability to save for the future, and heightened vulnerability to financial emergencies. The primary objective of this initiative is to provide individuals and entities with the necessary means to effectively oversee their finances, amass wealth, and participate in economic endeavours. The impact of financial exclusion is influenced by the interplay of political and technical advancements, as well as the shortcomings in social and economic variables.

There exists a strong correlation between financial inclusion and economic growth, as these two factors mutually reinforce and yield positive outcomes (Kim, Yu, & Hassan, 2018; Ozturk & Ullah, 2022). The financial development is significantly influenced by the households' financial access index, which serves as an estimation of monetary consideration. Increased access to financial services provided by financial institutions leads to favourable economic growth. The impact of monetary consideration on financial development is evident, however, to ensure the enduring sustainability and stability of the financial system, it is imperative to supplement it with robust regulatory frameworks and measures for safeguarding consumer interests. To optimise the benefits of financial inclusion and facilitate prudent financial decision-making for individuals and enterprises, it is imperative to foster the promotion of financial literacy and education (Emara & El Said, 2021).

The progress of a nation is contingent upon the advancement of its financial sectors. The effectiveness of a sector may be associated with its performance rather than the overall level of economic development. It can be argued that a proficient financial sector is more likely to contribute to robust economic development compared to a deprived financial sector. Another aspect of financial growth involves the consideration of non-linearity in the relationship between variables. Previous studies that were recognized for examining the relationship between finance and economic growth predominantly utilized linear methodologies for analysis, but failed to offer explanations for nonlinearity. Financial development refers to the process of augmenting and expanding financial institutions and systems with the aim of facilitating monetary progress and advancement. The objective involves enhancing the efficiency of financial markets, institutions, and services in order to facilitate more effective allocation of capital, provision of risk management tools, and facilitation of financial transactions (Tariq, Khan, & Rahman, 2020). Financial inclusion has the potential to benefit not only individuals or debtors but also the banks or suppliers involved. The financial sector in Iraq exhibits a comparatively lower level of development in comparison to its neighboring countries.

The stability and advancement of financial institutions play a crucial role in the economic development and prosperity of a country. Financial development refers to the process of growth and improvement in the financial sector, characterised by increased monetization of the economy, expansion of the financial sector, and the introduction of new financial innovations. The significance of the financial sector and its stability for society has been extensively documented throughout history. The fundamental function performed by the financial sector showcases its prominence.

In order to comprehensively assess the financial progress of a nation, it is imperative to employ a combination of various factors and indicators. This approach is necessary as no single statistic can sufficiently capture the intricate nature of a nation's financial system. Governments, decision-makers, and international agencies commonly employ these indicators to systematically track development progress, identify areas requiring enhancement, and formulate efficacious policies aimed at fostering financial development and fostering inclusive economic growth. (Hamad Khalaf, 2019). The increasing utilisation of financial services and goods corresponds to a heightened stability within the financial sector, thereby contributing to the overall economic advancement. The dynamic and ongoing economic growth necessitates active development and reforms within the financial sector.

Due to advancements in financial institutions, the pricing of financial assets will align with the competitive costs of overseas investments, thereby enabling domestic customers and firms to access capital from banks and stock markets for the purposes of consumption and investment. The increase in consumption and investment within a nation leads to a rise in employment opportunities, subsequently driving the demand for goods and services. This, in turn, contributes to the acceleration of economic growth and development. From these perspectives, it appears that globalisation is gaining popularity not only in emerging economies but also in developed nations within the domain. Globalization is a phenomenon that fosters the expansion of financial institutions, thereby playing a significant role in the advancement of the economy. Given the growing significance of the financial sector and stock market within the context of financial liberalization, it is crucial to elucidate the role of financial institutions, as they exert significant influence on economic development across all economies. The concept of financial organization is characterized by a sophisticated network of intermediaries that play a crucial role in the allocation of resources between lenders and borrowers, facilitating the efficient provision of funds within an economy. Similarly, the enhancement of the financial sector is crucial for an economy as it facilitates the efficient allocation of resources between debtors and customers.

Financing is widely regarded as the primary catalyst for development on a global scale. According to the estimates provided by the World Bank, the global financial sector has contributed to a significant increase in global GDP, with estimates ranging from 63% to 119%. Broad money is widely recognized as a primary catalyst for the advancement of financial development, exhibiting a direct correlation with the growth and progress of financial sectors. The establishment of financial development initiatives serves to foster competition among banks, enhance credit information, reduce the role of state banks, and provide financial infrastructure that contributes to the growth of banks and the development of financial markets, ultimately leading to advanced long-term economic growth.

Financial development has a substantial and positive

impact on economic growth. Both the growth and finance sectors have devoted significant attention to the significance of the relationship between financial development and economic growth (Ibrahim & Alagidede, 2018). growth uplifts (Alktrani, 2021). The capacity of the financial sector to provide services for risk mitigation disrupts the sustained monetary growth of developing economies by facilitating the allocation of resources and bolstering savings. Risk divergence contributes to the acceleration of technological modernization, while the ability to embrace a broader range of innovative initiatives reduces risk and promotes investment in growth-enhancing activities. In addition to the aforementioned cross-sectional risk divergence, financial sectors also exhibit the phenomenon of risk sharing. Moreover, the presence of financial sectors contributes to the enhancement of liquidity, the reduction of liquidity risks, the increase in investment and profitability, as well as the promotion of economic growth.

Therefore, an increase in economic growth enhances the prospects of employment, subsequently leading to an augmentation in household savings. These savings are then deposited in banks with the expectation of attaining greater returns on investment. In essence, the allocation of funds to banks as part of a credit creation strategy will enhance the availability of credit for businesses, thereby establishing a more robust financial framework to effectively address the needs of debtors and creditors within a given nation. The correlation between a well-established financial structure and economic growth is evident in this context.

Moreover, it is imperative to consider factors pertaining to the real sector, such as trade and government spending, in order to comprehend the dynamics of economic growth (Hassan, Sanchez, & Yu, 2011). The promotion of financial inclusivity fosters heightened competition among diverse financial sectors, thereby driving improvements in their service quality and subsequently attracting consumers. This approach has the potential to enhance individuals' quality of life by providing them with loans at reduced interest rates. As a consequence, their income experiences an upward trajectory, thereby contributing to the potential for sustainable economic growth within the nation. It is important to comprehend that achieving a harmonious equilibrium between financial development and effective regulation and supervision is essential for mitigating excessive risk-taking and potential instability. Financial crises can arise due to the overextension of financial liberalization and inadequate risk management practices, resulting in adverse effects on economic growth. Hence, in order to ascertain that responsible financial development yields positive effects on economic growth, the implementation of effective oversight measures becomes imperative. Financial development plays a significant role in enhancing both high and low economic growth regimes in Pakistan. Recent research has revealed that an economic system characterized by high growth rates exhibits a comparatively more pronounced influence of financial development on the overall expansion of the economy.

According to a study conducted by Rasheed, Law, Chin, and Habibullah (2016), it was asserted that financial inclusion has a positive and significant impact on the development of the financial sector. The enhancement of financial inclusion serves as the foundation for both financial and economic development, as there exists a direct and substantial correlation between GDP and financial development. The stock market, as a market-based indicator, plays a limited role in promoting financial inclusion. The expansion of financial development enhances the availability of credit to borrowers, leading to a subsequent rise in both domestic and foreign investment. Consequently, this increase in investment contributes to the growth of employment opportunities. The correlation between employment and income demonstrates that an increase in employment levels results in a subsequent rise in income, thereby fostering a significant expansion in economic growth. The financial system is capable of fulfilling five key functions, namely: mitigating risk through diversification, acquiring information about investment opportunities and allocating resources, monitoring managers and exerting corporate control, mobilizing savings, and facilitating the exchange of goods and services. These roles play a crucial role in facilitating investment, thereby contributing to the promotion of economic growth at an advanced level.

There is present a strong correlation between financial inclusion and the outreach of microfinance. There exists a significant correlation between monetary developments and economic considerations. Several additional metrics, such as gross domestic product, size, capital depth, and access to capital, contribute to the enhancement of financial development. Lastly, the significant level of debt, the number of active debt holders, and the vulnerable portfolio are all intricately linked to the growth of financial sectors. Group lending is an effective strategy employed by microfinance institutions to mitigate the substantial risks faced by micro borrowers, thereby facilitating the advancement of a nation's financial development (Dacanay, Nito, & Buensuceso, 2011). Financial development and inclusion are intricately interconnected, and they mutually reinforce each other through various mechanisms. Although they are distinct concepts, both of them play a role in fostering economic growth and stability and share similar objectives. Financial inclusion refers to the ability of individuals and entities, particularly those who have historically faced limited access, to avail themselves of a diverse range of financial services and effectively utilise them. Financial development, on the other hand, pertains to the comprehensive growth and intricacy of a country's financial system, encompassing proficient institutions and markets. The relationship between these two entities is founded upon reciprocal assistance. The correlation between heightened financial development and increased financial inclusion arises due to the facilitation of investment, mobilization of savings, and enhancement of risk management through improved access to insurance. Financial inclusion and financial development are closely interconnected elements that mutually support each other and play a crucial role in fostering economic growth, eliminating poverty, and enhancing the stability of the financial system. Collectively, these entities collaborate to establish a financial ecosystem that exhibits enhanced transparency, efficiency, and adaptability, ultimately yielding advantages for individuals, enterprises, and the broader economic landscape.

Financial inclusion and development play a crucial role in fostering economic development. When the promotion of both these factors is facilitated, it leads to a financial system that is characterized by enhanced efficiency and inclusivity, thereby benefiting individuals, enterprises, and the overall economy. According to Rasheed, Law, Chin, and Habibullah (2016), the development of the financial sector and financial inclusion play a crucial role in governing economic growth. The creation of such an environment

fosters a climate that promotes investment, entrepreneurship, and productivity, thereby facilitating sustainable and inclusive economic growth. This is achieved through the expansion of financial services accessibility, the stimulation of innovation, and the strengthening of the financial system. Financial inclusion and development have a substantial influence on economic growth as they contribute to the overall efficacy and stability of a country's financial system. The promotion of financial inclusion facilitates the mobilisation of savings towards investment activities, thereby fostering the accumulation of capital and stimulating economic expansion. On the contrary, financial development, characterized by the presence of efficient institutions and markets, facilitates the efficient allocation of resources and improves the accessibility of credit to productive sectors. Consequently, this phenomenon fosters the development of entrepreneurship, innovation, and business expansion, all of which contribute to the overall growth of the economy (Van, Vo, Nguyen, & Vo, 2021).

The primary objective of this study was to examine the impact of incorporating and enhancing financial sectors on the economic growth of Iraq. To the best of our understanding, this study possesses a distinctive perspective on the economic growth of Iraq. Our findings align with previous research conducted in this area. The present study is subdivided into five sections, each of which incorporates references to relevant prior research. The data and methodology are thoroughly elucidated. The study culminates with the identification of crucial policies, an examination of its significance, and recommendations for future research endeavors.

2. Literature Review

Extensive academic research exists pertaining to the correlation between financial inclusion, economic advancement, and financial development. There exist divergent perspectives regarding their relationship. Although the concept of a monetary area's impact on financial development is well-documented, there is a need for further examination of the factors that can potentially moderate this relationship. This section presents a selection of highly pertinent studies that have been cited. The efficient allocation of resources greatly relies on the proper functioning of the financial sector. This phenomenon results in an augmentation of aggregate productivity, an upsurge in investment, and subsequently enhances the overall magnitude of economic growth within the economy. The importance of financial stability and development in Iraq cannot be overstated, particularly given the prolonged political instability and violence that have hindered the country's economic growth (Aziz & McConaghy, 2014; Khalaf & Ali, 2015).

The predominant focus of academic investigation often revolves around the hypothesis that increased financial resources lead to greater economic growth. The presence of financial inclusion has a direct influence on the growth of per capita GDP. Empirical evidence suggests that robust institutions have a significant impact on firms' ability to access financial resources. Enhancements in governance have the potential to enhance accessibility to financial services (Emara & El Said, 2021). A level of financial inclusion has a positive impact on monetary development, and there is a mutual relationship between financial development and monetary inclusion in OIC nations (Kim, Yu, & Hassan, 2018). Ozturk and Ullah (2022) underscore the importance of developing policies aimed at enhancing digital financial inclusion as a means to stimulate economic growth.

The improvement of monetary consideration contributes to the advancement of monetary conditions, thereby facilitating the expansion of economic growth. Based on the findings of Rasheed, Law, Chin, and Habibullah (2016), the stock market was identified as a factor that does not significantly influence financial inclusion. According to Hlophe's (2018) findings, there exists a causal relationship between financial development and financial inclusion, with the former being the granger cause of the latter. Furthermore, it is observed that these two variables exhibit a sustained and interconnected relationship over an extended period of time.

The liberalization of the capital account enhances the efficiency and efficacy of financial transactions. Therefore, it is imperative that the commencement of the local capital market to foreign individuals and the integration of international capital markets to domestic citizens be expedited without further delay. There is a significant correlation between economic growth and financial development, as measured by total factor productivity and capital stock (Yang, 2019). Additionally, there is evidence of causality between economic growth and market development. The financial sector serves as an intermediary in the process of economic development.

The impact of private credit on financial development, as measured by real output, is a significant factor to consider in assessing monetary progress. If the growth of private sector credit is not accompanied by an increase in real output, the expansion of the financial sector may have a detrimental impact on economic development (Ductor & Grechyna, 2015). In developing economies, a well-established financial system is not only necessary but also insufficient for achieving sustainable economic growth (Hassan, Sanchez, & Yu, 2011). There is a clear correlation between financial development and economic growth. Government expenditures and international trade play a pivotal role in fostering economic growth.

Banks and stock markets are not mutually exclusive entities, but rather function in a complementary manner to offer a range of financial services. In line with the findings of Masoud and Hardaker (2012), a consistent and enduring relationship exists between financial markets and economic growth. Stock markets and banks exert a positive influence on the process of economic growth. Enhancing financial access to various sectors of the economy contributes to the overall economic growth of a nation. The research conducted by Abdullah and Abbas (2022) demonstrated a long-term relationship between the financial sector and monetary development. However, their analysis also revealed that there is no causal connection between financial development and the monetary sector.

Financial inclusion has been found to have a substantial positive influence on prospective economic growth, as indicated by consistent long-term associations. Conversely, the impact of financial development is more varied, as it is observed to have a notable negative effect. The research findings indicate a one-way relationship between bank claims on the private sector and monetary development, as well as a two-way relationship between mobile money and financial development (Rasheed, Law, Chin, & Habibullah, 2016).

Reforms implemented within the domestic financial sector have been observed to have a positive impact on Foreign Direct Investment (FDI), which is widely recognized as a significant driver of economic growth. In accordance with the findings of Omran and Bolbol (2003), there exists a

positive relationship between economic growth and foreign direct investment at a specific threshold level of development. Tariq, Khan, and Rahman (2020) discovered a U-shaped relationship and a non-linear association between financial development and economic growth. According to the aforementioned review, the factors of workforce, physical capital, and government expenditures have been found to have a positive influence on economic development.

There is a positive correlation between financial progress and economic expansion in developing nations. Moreover, when conducting short-term multivariate analysis, conflicting results emerge. Specifically, in the majority of regions, a two-sided causal relationship between money and development is observed. However, in the two denied areas, an uneven causal connection is identified (Hassan, Sanchez, & Yu, 2011).

Hamad Khalaf (2019) illustrates a unidirectional relationship between the monetary turn of events and financial development. Abdullah (2022) proposed that there exists a significant and direct relationship between monetary developments and economic growth, both in the short run and the long run. There is a direct correlation between economic development and financial growth within the Organization of the Petroleum Exporting Countries (OPEC). In a research study conducted by Hassan, Sanchez, and Yu (2017), there is evidence to suggest that there is a unidirectional causal relationship, specifically from economic growth to financial development. The existence of financial inclusion has a direct impact on the capital per worker and the overall production of the factors of production, thereby providing a further stimulus to economic growth (Babajide, Adegboye, & Omankhanlen, 2015).

The proliferation of bank branches and improved accessibility to financial services and institutions are among the contributing factors that enhance the economic growth of a nation (Sulong & Bakar, 2018). Van, Vo, Nguyen, and Vo (2021) demonstrated that a positive and robust relationship exists between financial inclusion and economic growth in countries with low financial inclusion and low pay. Monetary consideration plays a significant role in driving financial development. The study conducted by Sethi and Acharya (2018) unveiled a significant and causal relationship between financial inclusion and economic growth in the long term. In the context of monetary considerations and development, the bidirectional causal connection emerges as the prevailing factor.

The advancement of inclusivity within financial sectors is crucial for facilitating the efficient allocation of savings towards optimal investment projects. Levine (1997) demonstrates that there is empirical evidence supporting a robust, positive, and enduring correlation between the integration of monetary systems and the advancement of financial sectors. The influence of monetary considerations on financial development is significantly greater in emerging nations when compared to developed economies. (Valickova, Havranek, & Horvath, 2015). There is evidence of bidirectional Granger causality between monetary integration and financial development. The causal relationship between monetary considerations and financial development is more pronounced in emerging nations compared to modern economies (Calderón & Liu, 2003; Hassan, Sanchez, & Yu, 2011)

Abu-Bader and Abu-Qarn (2008) assert that there exists a robust and bidirectional causal relationship between financial development and economic growth. The enhancement of economic growth is facilitated by financial investment, which is achieved through increased investment and improved efficiency of financial institutions. Investment serves as a significant catalyst for financial development, whereby the direct impact of financial development on a country's growth is observed (Xu, 2000).

The research conducted by Al-Yousif (2002) demonstrates that the relationship between monetary development and economic growth cannot be generalized across all countries. The extent to which economic conditions vary across countries and the effectiveness of their financial institutions are determining factors. Yildiz and Awadh (2022) found a negative correlation between the financial stability index and ATM usage, while a positive and enduring relationship exists between the financial stability index and money deposits.

By mobilizing savings and investing them, the financial sector's contribution increases, thereby accelerating economic development (Abdullah, 2022). According to a study conducted by Al-jebory (2017), there is evidence of a limited correlation between economic growth and the development of the financial sector in the short term. However, no significant relationship between these two variables was found in the long term.

Based on theoretical reasoning and existing scholarly literature, we have developed two research hypotheses, which are presented below;

Hypothesis: Monetary incorporation and monetary improvement emphatically affect financial development

3. Data and Methodology

3.1 Data Description

In light of limited data availability, we have utilised time series data spanning from 2000 to 2021 for the purpose of conducting econometric analysis. This data was sourced from the World Bank's data series, specifically the World Development Indicators (WDI). A comprehensive exposition of variables is provided herein.

Table 1: Explanation of variables

Symbols	Variable's Definitions	Data Source
GDP	Per capita GDP growth (annual %)	WDI
CB	No. of commercial bank branches per 100,000 adults annual	WDI
DC	Domestic credit to private sector by banks (% of GDP) annual	WDI
LL	Net incurrence of liabilities, total (% of GDP) annual	WDI
BM	Broad money (% of GDP) annual	WDI
LF	Labor force participation rate for ages 15-24, total (%) (modeled ILO estimate) annual	WDI
GFCF	Gross fixed capital formation (% of GDP) annual	WDI

3.2 Model Specifications

The neo-classical growth models demonstrate a robust long-term connection between finance and economic growth, particularly in developing economies. The outcome variable in this study was the per capita GDP

growth, which is widely utilised and regarded as a significant indicator of economic growth. Proxies of financial development were selected to include domestic credit to the private sector, liquid liabilities, and broad money. The proxies of financial inclusion in this study were determined by the number of bank branches per 100,000 adults. In accordance with economic growth theories and existing scholarly literature, the control variables employed in this study were the labour force participation rate and gross fixed capital formation. In order to evaluate our hypotheses, we developed a comprehensive model in a general format, as presented below.

GDP per capita growth= f (No. of commercial bank branches, credit to private sector, liquid liabilities, broad money, labor force participation rate, gross fixed capital formation)

By following this general form of model an econometric model is constructed below.

$$GDP = \alpha_0 + \alpha_1 CB + \alpha_2 DC + \alpha_3 LL + \alpha_4 BM + \alpha_5 LF + \alpha_6 GFCF + \mu$$

In the given equation, the coefficient α0 represents the intercept, while α1 to α6 represent the coefficients denoting the impact of changes in various factors on economic growth. These factors include the number of commercial bank branches, credit provided to the private sector, liquid liabilities, broad money, labor force participation, and gross fixed capital formation. The symbol μ represents the error term, accounting for unexplained variability in the model..

The Autoregressive Distributed Lags (ARDL) model is employed to establish a relationship between financial inclusion, development, and economic growth in both the long and short term, while accounting for the influence of control variables. The ARDL technique confers numerous advantages. The Bounds test is utilized to determine the results of co-integrating relations. In this methodology, the issue of endogeneity is mitigated as all variables are assumed to be endogenous. This methodology possesses the capability to differentiate between outcome and explanatory variables in the presence of a long-run relationship, utilizing a single concise equation. In order to ascertain the long-term relationship between the outcome variable and the independent variables, an Autoregressive Distributed Lag (ARDL) model has been formulated.

$$\Delta GDP_t = \theta_0 + \theta_1 CB_{t-i} + \theta_2 DC_{t-i} + \theta_3 LL_{t-i} + \theta_4 BM_{t-i} + \theta_5 LF_{t-i} + \theta_6 GFCF_{t-i} + \sum_{i=1}^{q} \sigma_1 \Delta CB_{t-i} + \sum_{i=1}^{q} \sigma_2 \Delta DC_{t-i} + \sum_{i=1}^{q} \sigma_3 \Delta LL_{t-i} + \sum_{i=1}^{q} \sigma_4 \Delta BM_{t-i} + \sum_{i=1}^{q} \sigma_5 \Delta LF_{t-i} + \sum_{i=1}^{q} \sigma_6 \Delta GFCF_{t-i} + \mu_t \dots (1)$$

ECM (Error Correction Mechanism) equation is required for the short run estimates that is given below.

$$GDP = \sigma_0 + \sum_{i=1}^{q} \sigma_1 \Delta CB_{t-i} + \sum_{i=1}^{q} \sigma_2 \Delta DC_{t-i} + \sum_{i=1}^{q} \sigma_3 \Delta LL_{t-i} + \sum_{i=1}^{q} \sigma_4 \Delta BM_{t-i} + \sum_{i=1}^{q} \sigma_5 \Delta LF_{t-i} + \sum_{i=1}^{q} \sigma_6 \Delta GFCF_{t-i} + \mu_t \dots (2)$$

3.3 Methodological Framework

The first step in analyzing time series data involves examining the stationarity or order of integration of variables. In order to ascertain this, it is imperative to employ a stationarity test, with the Augmented Dickey-Fuller (ADF) test being the most frequently utilized method. The examination of data stationarity occurs at two distinct stages: the initial level and the first difference. Based on the findings presented, an additional estimation technique is employed. If each variable exhibits stationarity at the level, then the ordinary least squares (OLS) method is applicable. The ARDL test is chosen when there are variables that are stationary at the level and others that are stationary at the first difference. The examination of co-integration has been conducted through the utilization of the ARDL bounds test, as proposed by Pesaran, Shin, and Smith in 2001. The coefficients obtained from the Autoregressive Distributed Lag (ARDL) technique provide insights into the long-run equilibrium relationship between variables. On the other hand, the coefficients of the Error Correction Model (ECM) shed light on the dynamics of equilibrium adjustment from the short run to the long run.

4. Results and Discussions

Table 2: Descriptive statistics

	GDP	Number of commercial bank branches	Credit to private sector by banks	Broad money	Liquid liabilities	Labor force participation rate	Gross fixed capital formation
Mean	25.5687	-2.970424	1.179809	3.438763	3.435632	3.734786	2.463376
Median	25.5150	6.731018	1.685120	3.487922	3.486211	3.735047	2.679361
Maximum	26.0303	6.941190	2.588881	4.018170	4.083369	3.764682	3.258759
Minimum	24.8227	-140.4000	-1.749176	3.007985	3.007983	3.707039	1.070908
Std. Dev.	.32155	33.27746	1.148598	0.279387	0.280678	0.014729	0.561512
Skewness	-.27913	-3.675355	-0.905206	0.221700	0.358361	0.338595	-0.859838
Kurtosis	2.40557	15.38665	3.075184	2.100962	2.491259	3.021555	2.935336
Jarque-Bera	.58188	181.5293	2.872836	0.879263	0.675945	0.401669	2.591286
Probability	.74756	0.000000	0.237778	0.644274	0.713215	0.818048	0.273722
Sum	536.943	-62.37890	24.77598	72.21403	72.14827	78.43050	51.73090
Sum Sq. Dev.	2.06789	22147.78	26.38553	1.561146	1.575600	0.004339	6.305910
Observations	21	21	21	21	21	21	21

Table 2 presents the descriptive statistics of the variables employed in the current study. The mean value for GDP, number of bank branches, credit to the private sector, broad money, liquid liabilities, labour force participation, and gross fixed capital formation are 25.5687%, -2.970424 per 100,000 people, 1.179809%, 3.438763%, 3.435632%, 3.734786%, and 2.463376, respectively.

4.1 Unit Root Results

Based on the conventional guideline associated with the Augmented Dickey Fuller test statistic, if the calculated P value is below the threshold of 0.05, it indicates that the

variable under consideration is integrated or stationary at the specific point in question. Conversely, if the P value exceeds 0.05, it suggests that the variable is not integrated or stationary. The integration order of variables must be within the range of 0 and 1. These findings aid in the identification of additional appropriate methodologies for the purpose of analysis.

Table 3: ADF results

Variables	Stat of variable at Level (P value)	Stat of 1st difference (P value)	Decision about integration
Per capita GDP growth	-0.911014 (0.7630)	-5.562954 (0.0003)	I (1)
No. of bank branches	-32.69716 (0.0000)	-3.078827 (0.0476)	I (0)
Domestic credit to private sector	-0.914825 (0.7618)	-10.09679 (0.0000)	I (1)
Liquid liabilities (% of GDP)	-0.537331 (0.8639)	-3.253030 (0.0355)	I (1)
Labor force participation rate	-1.591226 (0.4684)	-2.816186 (0.0547)	I (1)
Gross fixed capital formation	-3.546464 (0.0173)	-4.341762 (0.0037)	I (0)
Broad money	-0.668912 (0.8330)	-3.605363 (0.0183)	I (1)

5. Diagnostic Tests

5.1 Serial correlation LM test

Once the integration order of variables has been verified, it becomes imperative to conduct additional diagnostic tests in order to ensure the validity of the data. The LM test is commonly employed to identify the presence of autocorrelation within a specified model. The probability associated with the F-statistic is determined to be 0.5042, leading to the acceptance of the null hypothesis, which states the absence of autocorrelation. The results of this test indicate that there is no autocorrelation present among the variables in the specified model.
Null hypothesis: No autocorrelation

Table 4: Diagnostic Test for correlation

Serial Correlation LM Test:			
F-stat	0.489079	Probability F (1,8)	0.5042
Observed *R^2	1.152254	Probability Chi-Square (1)	0.2831

5.2 Heteroskedasticity test

Another step in the analysis involved checking for the presence of heteroscedasticity in the data. To accomplish this, the Breusch-Pagan-Godfrey test was employed. The probability value of the F statistic is 0.4265, which exceeds the significance level of 0.05. Therefore, we accept the null hypothesis, indicating the absence of heteroskedasticity. The findings of this examination indicate that there is an absence of heteroskedasticity within the model being studied.

Table 4: Diagnostic test for Heteroskedasticity Null hypothesis: No heteroskedasticity

Breusch-Pagan-Godfrey Test			
F-stat	1.140529	Probability F (10,9)	0.4265
Observed *R-squared	11.17876	Probability Chi-Square (10)	0.3438
Explained SS	2.157215	Probability Chi-Square (10)	0.9950

5.3 Lag length selection criteria

Dependent Variable: GDP
Method: ARDL
Dynamic regressors (1 lag, automatic): BANK_BRANCHES CREDIT_TO_PRIVATE_SECTOR LIQUID_LIABILITIES___GDP BROAD_MONEY GFCF LABOR_FORCE_PARTICIPATIO
Selected Model: ARDL (1, 1, 0, 1, 1, 0, 0)

Variable	Coefficient	Standard Error	t-Stat	Probability*
GDP (-1)	-0.210965	0.177148	-1.190898	0.2642
Bank branches	0.011643	0.007205	1.615938	0.1406
Ban branches (-1)	-0.014144	0.003333	-4.244229	0.0022
Credit to private sector	0.639107	0.094665	6.751249	0.0001
Liquid liabilities	1.476942	1.542078	0.957761	0.3632
Liquid liabilities (-1)	3.530569	2.115836	1.668640	0.1295
Broad money	-2.079803	1.555105	-1.337403	0.2139
Broad money (-1)	-3.205155	2.056161	-1.558806	0.1535
GFCF	-0.169254	0.081326	-2.081172	0.0671
Labor force participation	7.477855	2.788619	2.681562	0.0251
C	3.578684	9.075104	0.394341	0.7025
R^2	.971544	Mean dependent var		25.5797
Adjusted R^2	.939927	S.D. dependent var		0.32577
S.E. of regression	.079847	AIC		-1.9159
Sum squared resid	.057380	SC		-1.3682
Log likelihood	30.15906	HQ criter.		-1.8089
F stat	30.72806	D W stat		2.30130
Prob (F-statistic)	0.000010			

Results showed that ideal lag length for given model is 1.

6. Bounds Test

Table 6: Null Hypothesis: No co-integrating relation prevails.

Test Statistic	Value	k
F-stat	5.670124	6
	Critical Bounds Value	
Significance level	I_0 Bound	I_1 Bound
10%	2.13	3.22
5%	2.46	3.60
2.5%	2.76	3.98
1%	3.16	4.42

The calculated value of the F statistic is 5.670, which exceeds the lower and upper bounds at the 1% significance level. The critical value for the upper bound is determined to be 4.42 when considering a significance level of 1%. This suggests that there exists a co-integration relationship between GDP, financial inclusion, and financial development.

6.1 Short-run estimates

Table 4 presents an analysis of the short-term dynamics pertaining to the effects of monetary consideration and monetary improvement on financial development in the context of Iraq. The Error Correction Term, commonly referred to as CointEq (-1), holds significance within the field of statistics. The value of CointEq (-1) is negative (-1.210965) and exhibits statistical significance ($p < 0.0001$). This suggests that the rate at which the system adjusts towards long-term equilibrium is 121%. The presence of co-integrating relations is indicated by the negative valueof the error correction term. The presence of a coefficient indicates the nature of the relationship between the dependent and independent variables.

In the short term, the presence of a greater number of commercial bank branches has a direct and substantial impact on economic growth. A one-unit increase in the number of business bank offices results in a 0.011643 unit increase in financial development. The provision of domestic credit by private banks has a direct and significant correlation with economic growth. The increase in domestic credit extended to the private sector by banks leads to a corresponding rise in economic growth by a factor of 0.639107.

The impact of liquid liabilities and broad money on monetary development is not considered to be fundamental. The arrangement of gross fixed capital has a fundamental impact on financial development. The increase in gross fixed capital formation is associated with a decrease in economic growth of 0.169 units. The labour force participation rate has a direct and substantial impact on economic growth. An increase of 1 unit in the labour force participation rate in Iraq leads to a corresponding rise of 7.47 units in short-term financial growth. The conclusions drawn in our study are corroborated by various scholars in the field (Al-Duhaidahawi et al., 2019; Al Dulaimi, 2022; Alktrani, 2021; Anand & Chhikara, 2013).

6.2 Dependent Variable: Per Capita GDP growth

Table 4: Short-run Forecasts

Variables	Coefficient	Std. Error	t-Statistic	Prob.
No. of bank branches	0.011643	0.007205	1.615938	0.1406
Credit to private sector	0.639107	0.094665	6.751249	0.0001
Liquid liabilities	1.476942	1.542078	0.957761	0.3632
Gross fixed capital formation	-0.169254	0.081326	-2.081172	0.0671
Labor force participation rate	7.477855	2.788619	2.681562	0.0251
Broad money	-2.079803	1.555105	-1.337403	0.2139
CointEq(-1)	-1.210965	0.177148	-6.835897	0.0001

6.3 Estimation of Long-run Relationship

Table 5 presents the empirical findings regarding the impact of financial inclusion and financial development on long-term economic growth.

Table 5: Long-run Forecasts

Variable	Coefficient	StandardError	t-Statistic	Prob.
No. of bank branches	-0.002066	0.003824	-0.540187	0.6022
Credit to private sector	0.527767	0.064506	8.181682	0.0000
Liquid liabilities (% of GDP)	4.135141	2.264550	1.826032	0.1011
Gross fixed capital formation	-0.139768	0.072826	-1.919210	0.0872
Labor force participation rate	6.175120	2.004822	3.080134	0.0131
Broad money	-4.364253	2.220325	-1.965592	0.0809
C	2.955233	7.551686	0.391334	0.7047

***, **, * denotes that variables are stationary at 1, 5, and 10% respectively

The relationship between the number of commercial bank branches, which is a measure of financial inclusion, and economic growth, specifically per capita GDP growth, is found to be inverse (-0.002066) and statistically insignificant (p-value = 0.6022). Based on the findings, an increase of one unit in the number of bank branches is associated with a decrease in economic growth by 0.002 units.

The findings of this study indicate a statistically significant positive relationship (0.527767) between the credit extended to the private sector by banks and economic growth. The empirical findings indicate that there is a positive relationship between credit expansion to the

private sector by commercial banks and economic growth. Specifically, a 1 unit increase in credit to the private sector is associated with a 0.52 unit increase in economic growth. There is a positive and statistically significant relationship between the percentage of liquid liabilities in relation to the country's GDP and its economic growth. A one-unit increase in liquid liabilities is associated with a 4.1351 unit increase in the economic growth of Iraq. Gross fixed capital formation exhibits a noteworthy (0.0872) yet adverse (-0.139768) influence on the trajectory of economic growth. This implies that a marginal increase of 1 unit in gross fixed capital formation results in a corresponding decrease of 0.0872 units in economic growth.

The coefficient of labor force participation rate exhibits a positive correlation with economic growth. The obtained P-value of 0.0131 indicates a statistically significant impact of the variable on economic growth. The labor force participation in Iraq has a positive impact on economic growth, with a 1 unit increase in labor force participation resulting in a corresponding increase of 6.175120 units in economic growth. There is a significant negative association between broad money and economic growth in the context of Iraq. The increase in broad money by 1 unit is associated with a decrease in economic growth by 4.3642 units.

The conclusions drawn in our study are substantiated by the investigations conducted by numerous scholars (Abdullah, 2022; Abdullah & Abbas, 2022; Abu-Bader & Abu-Qarn, 2008; Al Dulaimi, 2022).

6.4 Test for model specification

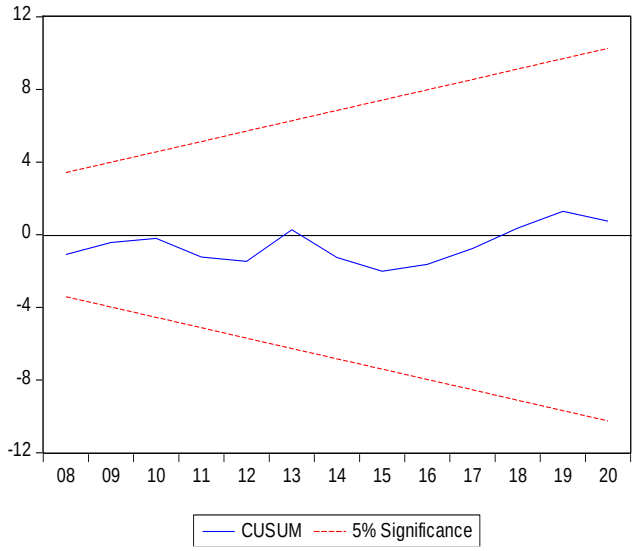
Null hypothesis: model is well specified.

	Value	Df	Probability
t-stat	.106135	8	.9181
F-stat	.011265	(1, 8)	.9181

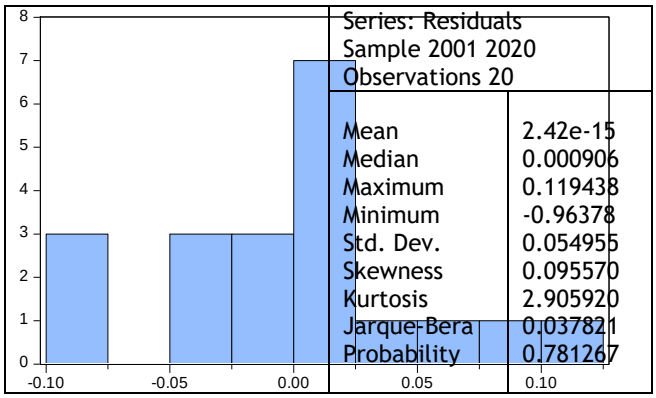
The ramsey reset test was employed to assess the suitability of the functional form of the model. The probability value associated with the F statistic is 0.9181, indicating that the model is adequately specified.

7. Stability Diagnostic

The plots of the Complex-Unitary Symmetric Model (CUSM) consistently remained within the 5% critical bounds, providing evidence of parameter stability. This indicates that the model is structurally stable.



7.1 Normality test



The assessment of the normality of residuals is conducted using the Jarque-Bera test. The Jarque-Bera test yielded a value of 0.037821, with a corresponding p-value of 0.781267. These results indicate that the residuals conform to a normal distribution.

8. Conclusion and Policy Suggestions

The objective of this study was to examine the impact of financial development and financial inclusion on the economic growth of Iraq. This study employed time series data spanning from 2001 to 2020 for the purpose of conducting empirical analysis. The ARDL Bounds test was selected as the preferred method for analysis. The measurement of economic growth is determined by the rate of growth in per capita gross domestic product (GDP). The metric used to assess financial inclusion is the quantity of commercial bank branches. The evaluation of financial development involved the utilization of liquid liabilities as a means to acknowledge the contribution of the private sector through bank credit. This study also included control variables, namely broad money, gross fixed capital formation, and labor force participation rate. The results of the regression model (ARDL) demonstrate the presence of a co-integrating or long-run relationship between financial inclusion, financial development, and economic growth. In the long run, the provision of credit to the private sector through commercial bank branches, the availability of liquid liabilities, and the participation of the labor force have been found to have a positive and significant impact on the economic growth of Iraq. On the other hand, the level of gross fixed capital formation and the broad money supply have been found to have a significant but negative effect on the economic growth of Iraq.

Over the short-run period, it has been observed that the presence of a higher number of commercial bank branches, increased credit to the private sector by commercial banks, and a higher labor force participation rate have had a significant and positive impact on the economic growth of Iraq. While it is true that gross fixed capital formation has a significant negative impact on economic growth, In the short term, the influence of liquid liabilities and broad money on economic growth in Iraq is found to be statistically insignificant.

This study presents significant implications for policy makers in Iraq based on our research findings. To start with, it is imperative for the Iraqi government and policy makers to implement measures aimed at strengthening liquid liabilities and facilitating credit provision to the private sector through commercial banks. These initiatives are crucial for the

advancement of the financial sectors, ultimately leading to a substantial increase in the country's GDP and overall economic growth. Secondly, enhancing the quantity of commercial bank branches can serve as a means to augment financial inclusion, thereby fostering economic growth. Thirdly, it is imperative for the government to undertake substantial measures aimed at augmenting labor force participation and gross fixed capital formation, as these factors exhibit a substantial correlation with the overall economic growth of a nation. Finally, it is imperative for government officials and policymakers to devise policies that promote financial inclusion and foster the advancement of financial sectors, thereby leading to a positive trajectory in economic growth.

This study is subject to certain limitations, including the omission of sub-regional analysis within Iraq. Despite the limited availability of data, this study provides valuable insights that can inform policymakers in various ways. Moreover, a similar type of investigation can be conducted by incorporating additional variables and utilising a substantial dataset.

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