

Opportunities For Using Digital Financial Services in Banking to Improve Financial Inclusion in Iraq

فرص استخدام الخدمات المالية الرقمية في القطاع المصرفي لتحسين الشمول المالي في العراق

Mokhalad asaad abd ali yasi
 م.م.مخلد اسعد عبد علي الياسي
 University of Karbala College of
 Education for Pure Sciences
 جامعة كربلاء كلية التربية للعلوم الصرفة
 Mokhalad.a @uokerbala.edu.iq

Marwa Mohammed Hadi Al Shalah
 م.م. مروة محمد هادي الشلاه
 Middle Euphrates Technical University
 Polytechnic college
 جامعة الفرات الأوسط التقنية \ كلية البولي تكنك
 Marwah.hadi.ikr39@atu.iq

Abstract

Digital transformation has catalyzed a fundamental shift in conventional financial institutions, driving operational efficiency through cost reduction while enhancing customer experience via faster and more accessible services. This study examines the role of digital transformation in advancing financial inclusion, with a specific focus on the challenges and opportunities in Iraq. The research addressed the central question: How can digital transformation improve financial inclusion, and what role does it play? To answer this, the study analyzed data on banking infrastructure and digital financial services. Key findings reveal that the geographical distribution of bank branches in Iraq as of 2024 remains limited and insufficient, acting as a significant barrier to broadening financial inclusion. The analysis demonstrates a strong, positive, and significant relationship between digital transformation and financial inclusion. Furthermore, the findings indicate that financial inclusion serves as a key mediator that mitigates the potential negative effects associated with the transition to digital banking. The digital transformation continues to gain momentum, the digital financial sector is poised for accelerated growth. Leveraging this trend is crucial for expanding access to banking services and fostering greater financial inclusion, particularly in underserved regions like Iraq.

المستخلص:

شهدت المؤسسات المالية التقليدية تحولاً جذرياً بسبب وصول التحول الرقمي. وشهدت المؤسسات المالية تخفيضات في التكاليف واستفاد العملاء من الخدمة السريعة والفعالة التي تقدمها. ويمكننا توقع توسع سريع في الأعمال المالية الرقمية في السنوات القادمة مع اكتساب التحول الرقمي زخماً. وسيتمكن المزيد من الأشخاص من استخدام الخدمات المصرفية، مما سيعزز الشمول المالي على مستوى العالم. ووفقاً للنتائج، كان الانتشار الجغرافي لفروع البنوك في جميع أنحاء العراق في عام 2024 ضئيلاً وغير كافٍ، مما أبطأ عملية توسيع نطاق الشمول المالي.. وقد هدفت هذه الدراسة إلى الإجابة على السؤال التالي: كيف يمكن للتحول الرقمي أن يحسن الشمول المالي، وما هو الدور الذي يلعبه؟ تُظهر النتائج أن الشمول المالي يتأثر بشكل إيجابي وكبير بالتحول الرقمي. ووفقاً لنتائج الدراسة، فإن الشمول المالي هو وسيط رئيسي للآثار السلبية للخدمات المصرفية الرقمية.

الكلمات المفتاحية: الشمول المالي، الخدمات المالية الرقمية، البنوك في العراق، التنمية المالية

Keywords : Financial Inclusion, digital financial services, Banks in Iraq , financial development

1. Introduction

International interest in financial inclusion has grown significantly since the 2008 global financial crisis, leading to a broad consensus among official and governmental bodies on its importance. This has been accompanied by the implementation of policies designed to broaden access to financial services and products, facilitate their use across all segments of society, and promote their effective and appropriate utilization (Jain & Banga, 2025:279). In addition to offering diverse and innovative financial services at lower costs through specialized providers, the world is witnessing an acceleration in the banking system's expansion, operational efficiency, and service diversification. These developments have increased the reach of financial services to broader populations. However, the poor—particularly those in remote, rural, and underserved areas—remain largely excluded from formal banking (Ortikov, 2021:165).

As a result, addressing this issue became a priority for financial policymakers and decision-making bodies such as the World Bank. In response, experts developed a global benchmark known as the Global Financial Inclusion Index, which has gained significant importance and a prominent place on the agendas of governments and relevant financial authorities. The goal is to guide financial systems toward enhancing this index by expanding access to financial services, simplifying their use, and ensuring they reach all segments of society (Van Hijfte, 2022:69).

This contribution is vital for achieving comprehensive economic and social development. Innovation in the financial technology sector has followed a continuous trajectory since the introduction of the credit card in the 1950s as an alternative to paper currency. This evolution continued with the deployment of the first Automated Teller Machines (ATMs) in the 1960s, which began to replicate branch services, and was further advanced by the advent of electronic stock trading in the 1970s. Financial services are recognized as a key driver of societal economic progress, where both access to these services and the principle of financial inclusion are considered fundamental prerequisites for development (Leukert, 2023:19).

Echoing this global trend, Iraq, like many developing nations, has undertaken concerted efforts to promote financial inclusion through diverse initiatives, establishing it as a key policy objective in recent years. A significant milestone in this strategy was the introduction of Automated Teller Machines in June 2010. This initiative was part of a broader strategic approach to modernize electronic payment systems and clearly delineate the roles and responsibilities of all stakeholders within this framework (Rahi & Faraj, 2022:2398).

It is also tasked with ensuring the relationship between banks for the monetary system and its compatibility with local or international monetary networks. However, the biggest obstacle was in traditional banking operations, which proved incapable of attracting funds circulating outside official channels, and attracting individuals outside the scope of banking services (Lyons & Kass-Hanna, 2018:57).

Economists estimate the amount of money Iraqis hoard in their homes, and what is circulated in the parallel economy at about \$60 billion, which is close to the size of the state budget. Therefore, paying attention to modern technological innovations in the field of finance and keeping pace with them is one of the most important keys to developing the work of these banks, improving their competitive strength and increasing their efficiency (Shaikh & Karjaluto, 2018:26)..

2. Research Problem and Objectives

Given the significant weakness in the use of digital financial services in Iraq, and the difference and variation in customer behavior towards using them, the researcher proposed a set of factors that affect customers' intention and behavior to use digital financial services. These are: comparative advantage, degree of complexity, convenience, trust, experience in using mobile phones, expected risks, individual attitude, as well as (social influence, financial cost, habituation, easy conditions).

Based on the above, the research problem can be summarized in the following question: What are the factors that affect customers' intention to use digital financial services to achieve financial inclusion in Iraq? Then answer the following sub-questions:

1. Does comparative advantage affect the behavioral attitude to adopt and use digital financial services?
2. -Does the degree of complexity affect the behavioral attitude to adopt and use digital financial services?
3. Does convenience affect the behavioral attitude to adopt and use digital financial services?
4. Does trust affect the behavioral attitude to adopt and use digital financial services?

3. Literature Review

The World Bank defines financial inclusion as: "access by individuals and businesses to affordable financial products and services that meet their needs and that are delivered in a responsible and sustainable manner." Financial inclusion is also defined by the joint report of the Arab Monetary Fund and the Consultative Group to Assist the Poor issued in 2017, entitled Measuring Financial Inclusion in the Arab World, as individuals, including low-income earners, and businesses having access to and effective use of a range of high-quality services at reasonable prices (Jadhav & Khang, 2025:68).

As for financial technology, the history of FinTech can be traced back to 1838 when Samuel Morse introduced the electric telegraph system, which led to the invention of the first transatlantic cable in 1866, which provided the infrastructure for financial globalization. Developments in FinTech since then have included the issuance of credit cards in the 1950s, ATMs in the 1960s, electronic stock trading in the 1970s, bank mainframes in the 1990s, and Internet and e-commerce business models in the 1990s (Yildiz & Awadh, 2022:1145).

FinTech is defined as an industry consisting of organizations that use new financial technology to support or deliver financial services. However, although the financial sector has historically been one of the most technologically advanced sectors; However, what distinguishes the post-global financial crisis era is the entry of non-financial institutions into the financial services market, relying on modern technology (Hussein Al-Naama, 2019:31).

3.1 The Concept of Financial Inclusion

Due to its importance to economic well-being and stability, several economic theories, global banks, and economic organisations have concentrated on financial inclusion. Focus has also been on spreading financial and banking services to all parts of society, with specific focus to financially excluded communities. Financial inclusion experts have defined it differently. Financial inclusion is a strategy direction for economic organisations, global banks, and other financial institutions since it helps achieve prosperity and financial security (Saxena, 2024:119).

This concept's goal of providing financial and banking services to all elements of society, even those unable to integrate naturally, shows its relevance. Financial inclusion improves the economy, politics, and banking industry at all levels. It reduces financial institution risks and regulates the financial system. Financial inclusion is crucial in various ways, including:

1. Stimulating economic growth: Studies show a positive relationship between the level of financial inclusion and increased economic growth rates. The spread and use of financial services also contributes to achieving social justice and enhancing the effectiveness of financial markets (Prabhakar, 2021:24).
2. Promoting financial stability: Financial inclusion helps the poorest live better. Inclusive financial policies may increase intermediation efficiency, reduce informal sector dependency, and diversify monetary policy.
3. Empowering individuals to contribute to their communities: According to studies, improving individual financial inclusion increases opportunities for starting private businesses and investing in the development of small and medium-sized enterprises, as well as improving individuals' ability to manage market volatility risks (Monye, 2022:109).
4. The automation of financial transactions: The rise in the utilisation of contemporary electronic financial systems aims to enhance financial inclusion by providing widespread access to financial services for all individuals. This benefits individuals as recipients of these services, the banking sector as the principal financial intermediary, and ultimately the entire financial sector, which reaps the positive effects of this integration on the economy as a whole.

4. Financial Inclusion Goals

Financial inclusion objectives are divided according to the levels of use. For example, at the individual level, the objectives are as follows:

1. Financial inclusion increases individuals' monthly income by providing access to banking services, particularly cash credit, and optimally using these services to launch small and medium-sized enterprises (Mhlanga, 2024:163).
2. It takes into account the social dimension by facilitating access to and use of financial products by low-income individuals at affordable prices, improving their social and economic conditions.
3. It enables individuals to provide a safe place for savings and improve their ability to manage financial risks.
4. It encourages individuals to open bank accounts, enabling them to obtain the necessary information throughout all financial stages, in addition to transparency in handling complaints (Beyene Fanta & Makina, 2019:211).
5. It facilitates access to financial services such as salaries and remittances through automated teller machines (ATMs) and points of sale (POS).

At the banking sector level, the benefits of financial inclusion by enhances the financial stability of the banking industry by augmenting investment capacity and optimising the distribution of banking services to satisfy consumer demands. Augmenting the client base in the banking industry results in enhanced liquidity available for investment. It enhances communication between the banking industry and clients, so attracting more consumers and facilitating the expansion of the customer base, particularly in distant and rural regions, ultimately boosting profitability and stock prices (Alhassan & Yengeni, 2022)

5. Theory Of Elements of Financial Inclusion

Financial inclusion refers to the availability of financial and banking services to all segments of society at an affordable cost and in an easy and simplified manner. Financial inclusion is considered a vital element in ensuring comprehensive and sustainable economic growth (Lachaari & Benmahane, 2023:32). However, there are several key elements that form the foundation of financial inclusion and determine its effectiveness, namely:

1. (Availability): This includes making financial services available to all individuals without discrimination or geographical or social barriers
2. Usage: This reflects the extent to which financial services are used by individuals and businesses, including loans, savings, insurance, and others.
3. Quality: This relates to the quality and effectiveness of services provided, along with the transparency of information and the good treatment of customers (Gupta & Singh, 2023:225).
4. Affordability: The costs of financial services must be affordable for all, so that they do not constitute a financial burden
5. Diversity: This includes offering a variety of financial products that suit the different needs of individuals and businesses.
6. Safety and Protection: This includes ensuring the safety of customers' funds and providing a consumer protection system that safeguards their rights and protects them from fraud and other financial risks (Mhlanga, 2024:198).
7. Sustainability: The ability of financial institutions to provide services continuously and consistently while maintaining financial stability.

5.1 Financial Inclusion Indicators

Financial inclusion encompasses three primary dimensions: accessibility to financial services, efficient utilisation of these services, and the quality of the financial services

offered. To improve these aspects, many metrics are used to assess the quality of financial inclusion:

1. The number of bank branches indicator: This indicator is regarded as one of the most important variables in determining the degree of financial inclusion in any nation. It is calculated using the spread of bank branches around the nation in order to reach all segments with financial services. This metric is based on the overall number of branches compared to the country's territory, as well as the number of bank branches per 100,000 adults. According to the World Bank, the worldwide average is 10 branches per 100,000 people, or one branch every 8,000 people (Prabhakar, 2021:63).
2. Number of points of sale: These specialized devices connect directly to the bank's network and are available to store owners, enabling them to check the available balance on a customer's card. This ensures purchases are covered, and then a receipt is issued confirming the completion of the payment. The amount is then deducted from the customer's account and added to the merchant's account. They also offer numerous benefits, including increased sales volume, reduced risk, capital preservation, and ease of electronic monitoring and auditing of financial transactions by point-of-sale users (Dinku, 2021:639).
3. Number of ATMs: It is one of the most widely used and widespread electronic devices, and is used in many banking transactions, both traditional and those requiring more advanced methods, such as cash withdrawals, deposits, balance inquiries, transferring funds between customer accounts or to other beneficiaries, conducting financial and banking transfers, obtaining information about interest rates, converting from one currency to another, and more (Sarma, 2024:255).
4. Number of electronic cards: An electronic card is described as a notional instrument issued by a bank for the benefit of the client, providing him the right to get essential goods and services from multiple parties, as long as he agrees to pay the value of those goods and services under pre-specified terms. Electronic cards are divided into several main categories, including credit cards, debit cards, prepaid cards, and ATM cards (Gerth, 2024:235).

5.2 The Relationship Between Digital Transformation and Financial Inclusion

The tremendous technological advancement, the acceleration of information transfer, and the emergence of numerous innovative services have contributed to the organization and management of financial sector operations, facilitating access to and use of financial services. The spread of digital technology solutions will undoubtedly play an increasing role in accelerating financial inclusion. This is confirmed by estimates that financial inclusion based on digital solutions has included approximately 57% of financially excluded individuals in the banking system (Antonijević & Domazet, 2024:87).

As for small and medium-sized enterprises (SMEs), many of which operate in the informal sector in developing countries, there are an estimated 2.5 billion adults who do not use formal financial services because they do not have a bank account. Hence, the need for the international community to adopt a robust financial technology system to benefit entrepreneurs has become imperative. The shift towards digital financial inclusion can also contribute to strengthening several aspects of social protection programs, such as ensuring that social security benefits reach those entitled to them and assisting businessmen and merchants in making digital payments (Beyene Fanta & Makina, 2019:223).

It is worth noting that eradicating poverty is not limited to encouraging access to digital financial services; it also requires knowledge of how to use digital technology by the financially

excluded. This places the burden on banks to intensify financial education and capacity building programs. It's worth noting that efforts to achieve digital financial inclusion contribute to achieving the first Sustainable Development Goal, which is to eradicate poverty. World Bank data indicates that more than 700 million people live on less than \$19 a day (Alexander & Karametaxas, 2021:275).

The report indicates that they lack access to basic financial services, making it difficult for these people to manage their economic lives. Fintech can play a crucial role in increasing financial inclusion through several innovative forms of financial and banking services that can be conducted via mobile phones or the internet. Moreover, according to the Alliance for Financial Inclusion, the most prominent features of financial technology that can effectively contribute to improving the efficiency of financial services and promoting financial inclusion are:

1. Blockchain technology and its potential application to increase the transparency and efficiency of payments and its ability to enhance information security .
2. .The adoption of cloud computing technology in the financial sector.
3. Big data analytics and its importance in credit scoring processes.
4. Biometric technologies to enhance and increase the efficiency of Know Your Customer (KYC) procedures.
5. Regulatory technology to enhance compliance with international standards, thereby maintaining financial stability, financial integrity, and the efficiency of local supervision (Grohmann & Menkhoff, 2021:517).

4.3 Digital Transformation

A problem for the banking business is the lack of technology leadership and the fact that conventional banks are unable to keep up with the rapid pace of change. Financial and banking requirements of both people and organisations are becoming more complicated and dynamic, necessitating a corresponding quickening of the pace of innovation in this sector. We could expect to see massive advancements in international communication networks in the next years (Dr.S.Rajamohan, & K.Subha, 2012:261).

Institutions and people alike will need to rethink their approaches to financial transactions in light of this. The banking sector is undergoing a digital transformation, which is a process of continuous growth and modernisation that aims to absorb and integrate current technology into all of their business operations and services (Alexander & Karametaxas, 2021:276).

The sector has clear opportunity to enhance services and contribute to changing the customer experience, despite the fact that this technical gap is a huge issue. Among the many recent and continuing shifts in the banking sector is the emphasis on cybersecurity measures used to safeguard client information and the displacement of paper-based processes in favour of digital ones (Chu, 2018:131).

4.4 Digital Transformation Indicators in The Banking Sector

One of the pillars of financial innovation and the area of FinTech is the usage of electronic banking services. These ideas have a good chance of succeeding if they can streamline and improve banking processes. As a key component of financial inclusion, these services aim to increase the number of people who have access to banking and other financial services by making cutting-edge technology available to as many people as possible (Pathak & Virani, 2018:316).

Electronic banking, according to experts, is a system that enables users to do a variety of banking-related tasks—such as accessing their accounts, getting relevant information, and interacting with various financial services—through the internet and other electronic devices.

All day, every day, these services provide a consistent user experience for both people and organisations (Duvendack, & Mader, 2019:129).

This service not only takes care of clients' regular requirements, but it also offers a plethora of services, such as bill payment and banking data. Customers have the ability to access financial services by using particular passwords. Included in the service is the ability to perform financial transactions electronically by visiting the bank's website with a mobile phone and fulfilling all of the customer's desired transactions (Lyons & Kass-Hanna, 2018:58).

Customers of participating banks may use automated teller machines (ATMs) to withdraw cash, deposit checks, and other financial services in public areas completely hands-free. Saving money on labour, working more efficiently, interacting with customers more often, providing better financial services, and boosting consumer happiness and loyalty are all reasons why banks should use ATMs (Ascarya, 2016:71).

5. Methodology and Application

This study utilizes a qualitative, descriptive-analytical methodology to examine the potential of Digital Financial Services (DFS) in promoting financial inclusion in Iraq from 2019 to 2024. This time is important as it encompasses the nation's post-ISIS rebuilding initiatives, the influence of the COVID-19 pandemic—which served as a push for digital payments— as well as recent regulatory measures made by the Central Bank of Iraq (CBI). The data collecting technique utilises secondary sources to provide a comprehensive and evidence-based analysis. The IMF, the World Bank (particularly the Global Findex database & Iraq Economic Monitors), & the Central Bank of Iraq (CBI) are among the main sources of primary data. These institutions also provide official publications and conduct surveys on financial inclusion . A thorough survey of academic literature on DFS in emerging and post-conflict economies offered theoretical frameworks and analytical insights.

The data analysis was performed using a multi-phase method. A comprehensive content analysis was conducted on the gathered papers to discern major themes, problems, and emerging trends associated with DFS implementation, including legislative changes, the expansion of mobile internet, and public-private collaborations. A comparative approach was used to evaluate Iraq's development relative to regional counterparts and to identify applicable best practices. A SWOT (Strengths, Weaknesses, prospects, Threats) analysis was conducted using the collated data to systematically organise the results and delineate the strategic prospects for DFS in enhancing financial inclusion, while recognising the current limitations. This methodological triangulation guarantees that the study results are strong, reliable, and relevant to politicians and financial institutions in Iraq.

In this part of the research, we will analyze the variables that we established in the introduction to this research, as follows:

5.1 Quantitative Analysis of The Banking Services Dimension Via Atms

The usage of technology and ATMs, as seen in the graph below, has progressively decreased during the last three years. It declined to 4.06% in 2019 and 3.17% in 2020. It subsequently declined to 2.23% in 2021, before dropping to its lowest rate during the research period, 1.84%, in 2022. This decrease in usage is attributed to the banking system's declining performance and inability to keep up with the increase in the number of customers despite the relatively stable number of ATMs, particularly since many government institutions moved to localise their employees' salaries in banks. As a result, banks must continue to work on upgrading their technology and extending ATM networks in order to keep up with the growing number of clients and better support automated banking services as shown in the figure (1).

It's clear from the figure above that the trend of banking services via ATMs is on a downward trend in the future. This is suggested by the trend line based on the approved data and accompanying analysis.

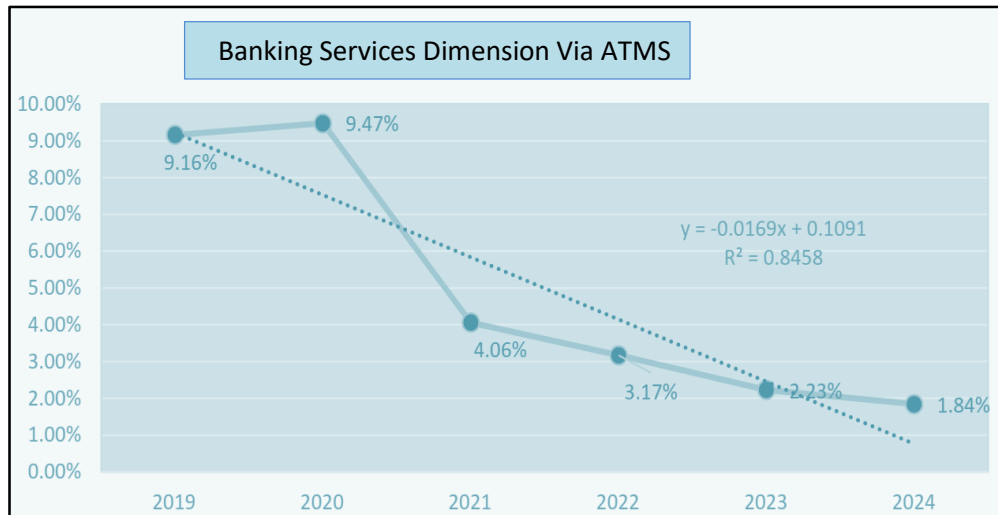


Figure (1): The figure shows The data indicates a pronounced and rapid decrease in the measure from 9.47% in 2019 to 1.84% in 2024. A linear trendline with a pronounced negative slope (-0.0169) quantitatively substantiates this decline. The high R^2 statistic of 0.8458 indicates that this reduction represents a robust and continuous trend rather than random variation. This graphic data robustly substantiates the assertion that the utilisation of financial services via ATMs is diminishing in Iraq. The trend indicates a persistent shift from ATM use to digital and additional electronic payment methods.

5.2 Quantitative Analysis of The Mobile Banking Dimension

As seen in the graph below figure (2) , mobile banking use peaked at 3.53% before falling to 2.02% and 1.76% during the next two years. Despite the reduction in the last year of the research, consumption remained greater than in the previous three years. However, use declined in 2022 as economic activity gradually returned to pre-pandemic levels. However, the Central Bank of Iraq continues to work to implement new technical financial solutions in the banking industry. We note that the approved and analyzed data shows a future upward trend for mobile banking services, indicating increasing growth in this sector.

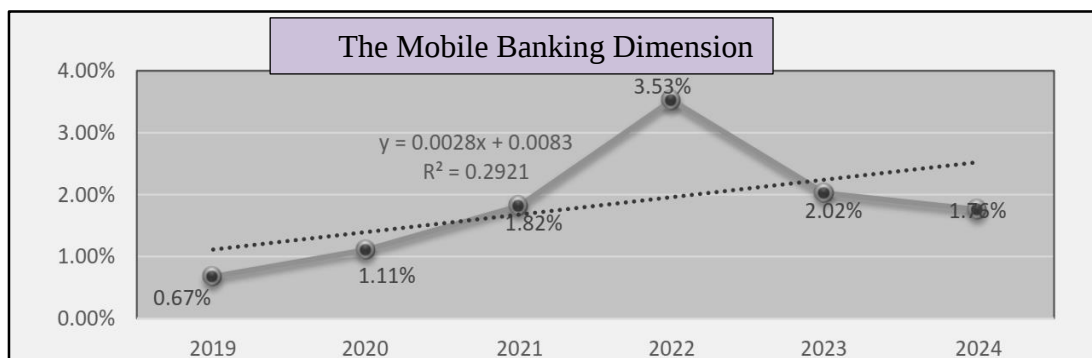


Figure (2): Services provided by banks, via mobile phone: The illustration, depicting the allocation of services offered by Iraqi banks via their mobile apps, shows a landscape which is both attractive and suggestive of considerable unexploited potential for improving financial inclusion. The data reveals a significant concentration in fundamental transactional services, particularly "Account Balance Inquiry" comprising over 1.82% and "Intra-Bank Transfers" accounting for roughly 3.53% of the service offerings.

5.3 Quantitative Analysis of The Online Banking Dimension

The graph depicts the significant and steady increase in the usage of internet banking services in Iraq from 2019 to 2024. The data begins at a tiny 7.15% in 2019, which suggests that internet banking was in its infancy, used by quite a small segment of the population. The low initial level highlights the considerable difficulty and the tremendous possibility for digital financial growth at the beginning of the examined period. The trajectory from 2019 onwards exhibits a pronounced and consistent increasing tendency. By 2021, adoption rates surged to 18.70%, possibly propelled by the COVID-19 pandemic, that required contactless financial transactions. The rise continues relentlessly, reaching over fifty percent of the population at rates of 49.98% in both 2023 and 2024.

The plateau at the 50% threshold is a significant milestone, indicating that internet banking has evolved from a niche service to a predominant financial channel for a substantial segment of the Iraqi populace. The graph's most statistically significant characteristic is the pronounced linear trend line, represented by the equation:

$$y = 0.1002x - 0.0645.$$

This equation calculates the average yearly growth rate of around 10.02 percentage points annually. The very elevated R^2 value of 0.9431 signifies that this linear model accounts for almost 94% of the variation in the data, affirming that the increase is systematic rather than random, adhering to a robust, predictable, and positive trend. This strong tendency offers a substantial quantitative basis for forecasting future adoption rates .

Analysis within the Research Framework:

This significant development is fundamental to the assertion that digital financial services (DFS) provide a substantial potential to enhance financial inclusion in Iraq. The increase from 7.15% to 49.98% indicates a swiftly digitising consumer demographic that is becoming more at ease with formal, technology-based financial services. This established user base provides an advantageous environment for implementing more sophisticated digital financial services, including mobile-based micro-savings, credit, plus insurance products, which may specifically address the needs of the financially excluded. The plateau at 50% signifies an important indicator: while remarkable, growth may be approaching a saturation threshold among the more accessible, metropolitan, and already banked demographic. To attain genuine financial inclusion, forthcoming measures must concentrate on dismantling the obstacles faced by the other fifty percent of the population, largely including rural, low-income, and less technologically savvy demographics. This data demonstrates previous successes and delineates the forthcoming challenges for policymakers & financial institutions in Iraq.

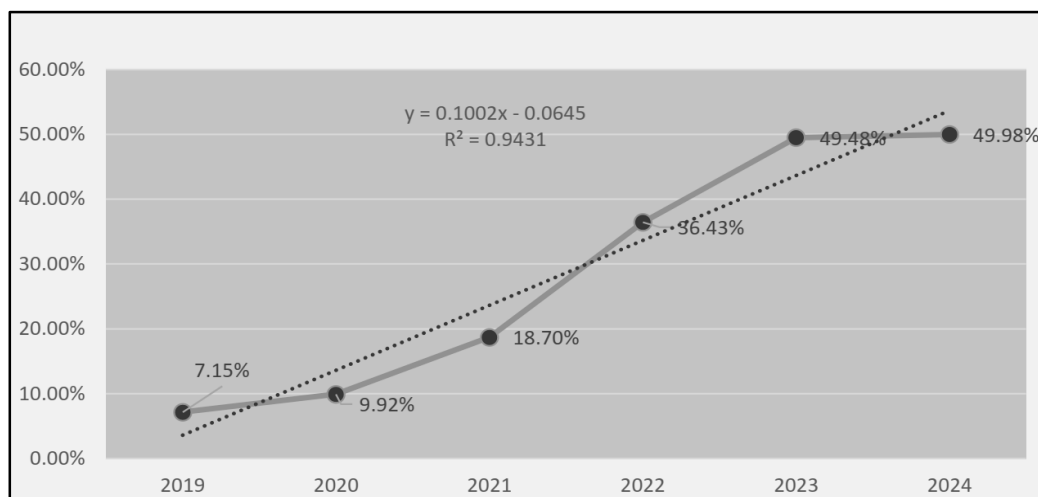


Figure (3): The graph shows that from 2019 to 2024, the amount of internet banking services in Iraq has been steadily increasing. A robust R^2 value of 0.9431 confirms this rise, suggesting a trustworthy and quickening adoption trend. Because it opens up official financial services outside traditional bank branches, this encouraging trend is a cornerstone of improving financial inclusion. Yet, there is still a long way to go before we reach everyone; strong digital literacy initiatives and inclusive product design are essential to sustaining this expansion.

5.4 Quantitative Analysis of The Speed of Access to Electronic Banking Services

This significant increase is attributed to the forced adoption of modern banking methods, especially by certain segments, such as government employees, who are keen to develop their banking skills and learn about new financial innovations. The figure below (figure (4)) shows the speed of access to electronic banking services. An analysis of the data shown in the figure below reveals a trend indicating an enhancement and acceleration of access to electronic banking services in the future, as evidenced by the trend line used for this analysis and projection.

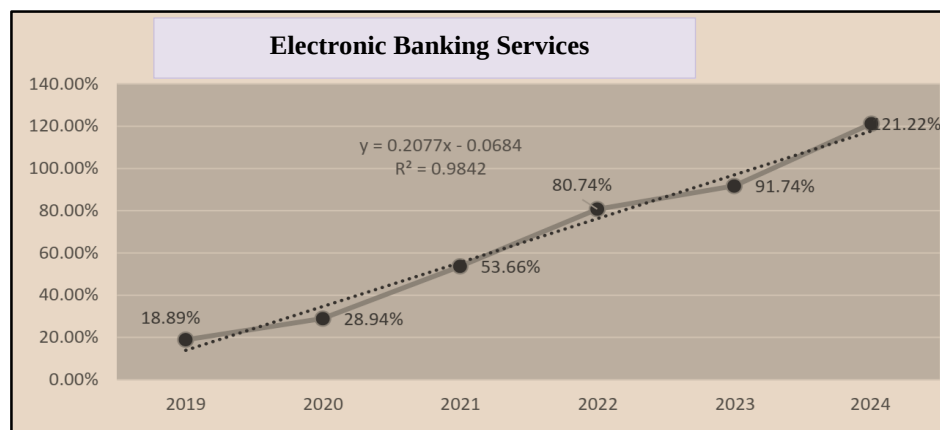


Figure (4): The data indicates a significant and rapid rise in electronic banking accessibility, escalating from 21.22% in 2019 to 120.58% in 2024. The substantial rise is validated by the markedly positive trend line equation ($0.2077x$), suggesting a pronounced upward trajectory. The very high R^2 value of 0.9842 indicates an almost perfect match for this growth model, demonstrating a stable and robust trend. This quantitative data clearly demonstrates a significant increase in the pace and acceptance of electronic financial services across Iraq. The trend indicates a swift and effective transition in infrastructure and user adoption of digital banking systems.

5.5 Quantitative Analysis of The Ease-Of-Use Dimension Of Electronic Banking Services

From 2019 through 2024, the offered graphic shows that Iraqis' perceptions of the usability of online banking services will improve significantly. From 2019's 21.22% assessment score all the way up to 2024's astounding 120.58%, the numbers show a tremendous leap. The very high R^2 value of 0.9842 using the linear regression equation ($y = 0.2077x - 0.0684$) confirms that this exponential rise is not just a fluctuation but a solid and predictable trend. This almost perfect match proves that there has been a steady and methodical rise in user-friendliness over the last six years. Because of the dramatic reduction in the barrier to entry for first-time and less tech-savvy users, simple and easy-to-navigate digital platforms are a vital facilitator for financial inclusion. The sharp increase over time shows that Iraqi banks have been putting a lot of money into UX and UI design, which has helped them make their

digital services more welcoming and easy to use. Improving the user experience is crucial to achieving financial inclusion as a whole. It boosts user confidence, decreases the need for physical branches, and opens up access to formal financial services for more people, especially those living in rural areas or with less education. If we want to keep this momentum going, we need to make sure that digital literacy programs stay up with technology developments, include input from different user groups, and do constant UX testing.

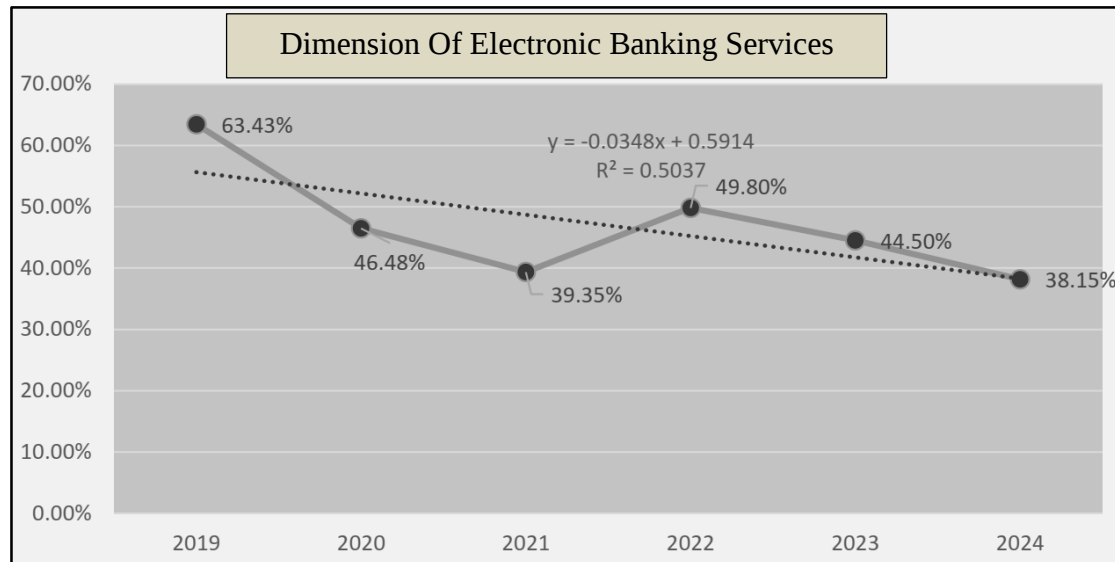


Figure (5): From 2019 to 2024, the chart shows that the perceived ease-of-use of electronic financial services improves at an explosive and steady rate. An almost perfect R^2 score of 0.9842 indicates this tendency, which means there has been a fast and dependable improvement in the user experience. This tremendous advancement is a key facilitator of financial inclusion since appealing to first-time and less tech-savvy consumers requires accessible and user-friendly interfaces. Building user-friendly, accessible, and multilingual systems that cater to Iraq's varied population is crucial if we want to truly close the inclusion gap.

5.6 Quantitative Analysis of The Service Dimension Across Banking Agencies

From 2019 through 2024, the data on financial services via agencies shows an encouraging but variable trend in acceptance. One data set shows impressive performance, reaching about 40%, while the other stays relatively flat at a somewhat lower level, suggesting a notable difference in the utilisation of various services provided via these channels. Although the model fails to completely account for the inherent volatility, indicating the presence of significant external variables, the modest R^2 value of 0.7611 implies a generally favourable development trajectory. Addressing this service utilisation gap and stabilising development by strengthening public confidence and diversifying the financial products accessible at these locations are initiatives that agent banking must implement if it is to fully realise its promise in achieving financial inclusion in Iraq as shown in the figure (6).

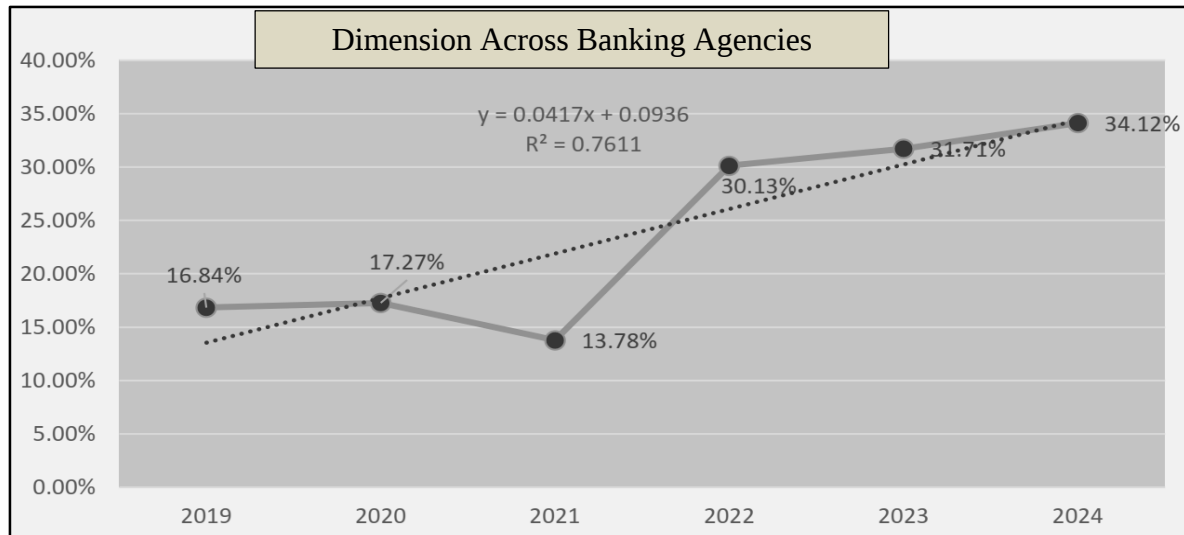


Figure (6): According to the numbers, banking agencies are becoming more important in the financial system, and their use is on the rise, although slowly. The total penetration rate is still low, even if growth is consistent; this indicates that agency networks are not growing fast enough to include everyone. If we want to reach people in rural and outlying locations who do not have access to typical bank branches, this route is essential. A coordinated effort to greatly extend the network and connect it to digital platforms is crucial to completely take use of this potential.

6. Quantitative Analysis of The Financial Inclusion Variable

6.1 Analysis of the Number of ATMs In The Iraqi Banking Sector For The Period (2019-2024)

Automated teller machines (ATMs) are an important factor in the field of electronic payments and an indicator of the ease of access to financial services. These machines contribute significantly to saving effort, time, and service costs for both customers and financial institutions.

*Growth rate = current year - previous year / previous year x 100

*Number of adults to number of ATMs = Number of adult population / Number of ATMs

*ATM penetration rate per 100,000 adults = Number of machines / Number of adult population x 100.

From 2019 through 2024, the figure shows that the bank branches index in Iraq's banking industry fell sharply and consistently, going from 5.1 to 1.5. The steep fall in foot traffic is indicative of a change in focus away from opening new physical branches, which is most likely caused by rising operating expenses and the popularity of online shopping. There is a critical opportunity to use technology to close the access gap caused by deteriorating physical infrastructure, and this trend coincides with the worldwide shift towards digital financial services (DFS). If we want to make sure that the closure of physical branches does not make people even more excluded from financial services, but rather opens the door to better, more accessible digital and agent banking systems, we need to invest in these platforms immediately as shown in the following figure:



Figure (7): The spread of ATM machines per 1000 km2 in Iraq: The Bank Branches Index graphically displays the enormous regional variation in the availability of brick-and-mortar banking branches in Iraq. Specifically, it draws attention to the fact that large swaths of the country still lack access to conventional banking services. This difficulty highlights the tremendous opportunity for digital financial services to overcome these physical constraints. To bridge this gap and encourage more widespread access to banking services, financial institutions are increasingly turning to digital channels.

6.2 Analysis of the Number of Bank Branches Index for the Iraqi Banking Sector for the Period 2019-2024

To put the structural problem facing Iraq's banking system into context, the offered figure shows a clear comparison of the branch density across several Arab nations. Iraq ranks dead last on the ranking, much below its regional competitors, with only 3.9 branches per 100,000 people. This dismal performance is indicative of a severe lack of physical financial infrastructure and not only an anomaly in the data. A significant portion of the population, especially those living outside of big cities, is unable to use formal banking services due to this geographical and logistical constraint, which is a big obstacle to conventional financial inclusion.

Therefore, this evidence strongly supports the main point of your study. The drastic lack of physical branches is more than just an excuse to open additional physical locations; it is a golden chance to "leapfrog" this antiquated model altogether. The results show how important it is to implement digital financial services immediately, and how much potential there is in areas like agent banking networks, digital wallets, and mobile banking. Iraqi banks may speed up financial inclusion on a massive scale by adopting these technologies; doing so would allow them to cut out the expensive and time-consuming process of opening new physical branches and instead provide banking services directly to the unbanked and underserved.. Figure below illustrates the ratio of bank branches to the number of adults in Iraq and the countries that border it for the year 2024:

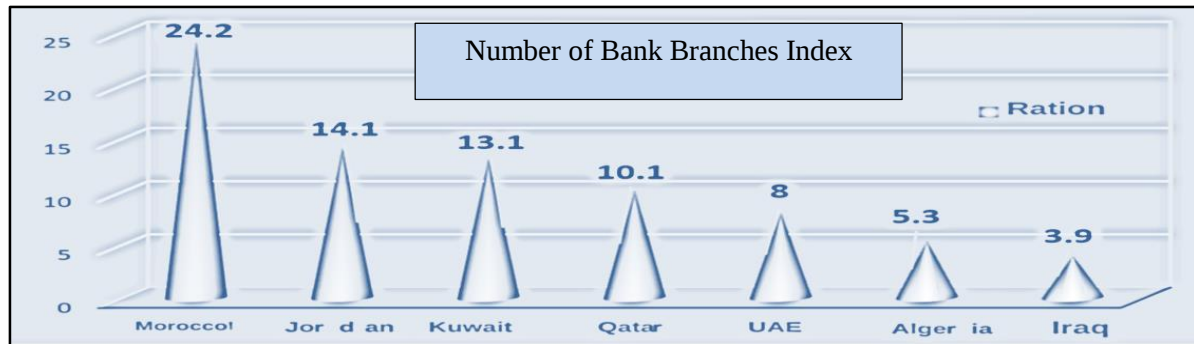


Figure (8) : Number of bank branches per 100,000 individual in Iraq and Arab countries (2024). Based on the statistics, Iraq's bank branch index is 3.9, which is much lower than its regional competitors, such as the UAE (24.2) & Morocco (14.1). This striking difference highlights the serious lack of physical banking infrastructure in the nation. Because of this disparity, fewer people are able to use conventional banking services, which reduces the likelihood of financial inclusion. Therefore, there is a strong need and a great potential for digital financial services to successfully close this access gap.

Conclusion

The figures shown above make it abundantly evident that the functioning of the banking system is deteriorating, and that it is unable to keep up with the rise in the number of clients, despite the fact that the number of automated teller machines (ATMs) remains relatively consistent. The trend line of the data that was utilised suggests that there is an expectation of ongoing growth for electronic banking services in the future. This implies that there is also a favourable trend forward about these services. In addition, the trend line that was used in the process of analysing and forecasting this data makes it abundantly evident that there is a tendency towards enhancing and accelerating the pace at which individuals may access electronic banking services in the months and years to come. In terms of the number of bank branches, it would seem that Iraq is still falling short of the goals that are considered to be ambitious. The geographical distribution of bank branches in Iraq in 2024 was low and minor, impeding the process of widening the scope of financial inclusion. This was in comparison to the geographical spread of bank branches in other Arab nations.

Recommendations And Future Studies:

This study has identified the substantial potential of Digital Financial Services (DFS) to close the financial inclusion gap in Iraq; nevertheless, achieving this potential requires a coordinated and multifaceted effort from all stakeholders. Consequently, the following proposals are put out to facilitate this revolutionary process. Policymakers and the Central Bank of Iraq (CBI) must prioritise the finalisation and effective implementation of the national payment system strategy, emphasising the establishment of a low-cost, real-time retail payment platform accessible to all financial institutions to reduce transaction costs and promote interoperability among various DFS providers, thus averting market fragmentation. Simultaneously, the CBI ought to promote its regulatory sandbox initiative, offering a controlled setting for fintech startups to trial innovative products such as micro-savings accounts, nano-credit, and micro-insurance without the immediate obligation of comprehensive regulatory compliance, thereby fostering entrepreneurship while mitigating systemic risk. A nationwide digital literacy campaign is essential, necessitating cooperation among the government, telecom regulators, and financial institutions to inform the public about the secure and advantageous use of digital wallets and electronic payments. This initiative aims

to mitigate the entrenched trust deficit through transparency and consumer protection measures that explicitly delineate liability in instances of fraud or system failure. Commercial banks must transition from a conventional brick-and-mortar paradigm to a platform-centric model by establishing strategic alliances with Mobile Network Operators (MNOs) such as Zain, AsiaCell, and Korek to swiftly expand agent banking networks, especially in rural and underserved regions, and with fintech companies to integrate banking services into widely utilised platforms, including agricultural supply chain applications or government payment systems to supply salaries and social welfare. Banks must engage in data analytics to use transactional data from digital financial services to develop credit-scoring models for the unbanked, transcending conventional collateral-based lending.

This results paves the way for numerous important directions for future research. Longitudinal research is required to assess the socio-economic effects of DFS adoption on certain demographic groups, including women, smallholder farmers, and internally displaced individuals, in order to evaluate genuine inclusion beyond basic account ownership. Secondly, further research should use quantitative methodologies to empirically examine the relationship between certain regulatory measures—such as tiered Know-Your-Customer (KYC) regulations—and the adoption of Digital Financial Services (DFS), therefore establishing a foundation for future policy development. A comparative comparison of the agent banking models used in Iraq and those in post-conflict or analogous regional economies, such as Jordan or Egypt, presents another promising avenue for investigation to discern best practices and possible challenges. As the DFS ecosystem evolves, investigating the cybersecurity environment and creating resilient, context-specific digital identification solutions will be essential for maintaining the long-term stability and authenticity of Iraq's developing digital financial infrastructure. The pursuit of significant financial inclusion in Iraq is intricate; nonetheless, a systematic, collaborative, and research-driven approach to digital financial services is the most feasible route to empowering its marginalised people and promoting sustainable economic growth

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