
The Impact of Digital Services in Promoting Financial Inclusion: An Analytical Study Using Panel Data Regression in Iraq

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Abstract

Results: Overall, the results are promising, with clear statistical evidence indicating the importance of a financial inclusion approach that leverages digital innovations while addressing various economic factors and demographic needs.

Purpose: This paper aims to understand the complex relationship between digital financial services (DFS) and digital payment methods to promote financial inclusion. A more holistic view is needed to provide cost-effective and efficient alternatives to traditional banking services, thereby facilitating increased economic growth.

Gap: This study contributes to bridging the gap with an approach that ensures a fairer, more accessible, and more efficient financial payment system to promote financial inclusion and societal well-being.

Importance: The findings of this paper will be economically valuable to financial institutions and emerging digital technology companies that deal with financial payment services, to individuals who use payment processes, and to other researchers seeking continuous adaptation and improvement.

Impact: This has provided a better understanding of the competition between digital and traditional payment methods, indicating their continued long-term importance. This underscores the need for strategies tailored to diverse population segments.

Methodology: The analysis relied on data obtained from the Central Bank of Iraq's

website, which provided reports and statistics related to digital payments and financial inclusion, covering the period from 2017 to 2024.

Keywords: Digital Payments, Financial Inclusion, Digital Payment Methods, Digital Financial Services, and Economic Growth.

1. Introduction

Economic changes, often characterized by a significant portion of the population lacking access to basic financial services, contribute to economic stagnation (Allen et al., 2016). Factors such as inadequate infrastructure, low-income levels, and the scarcity of formal financial institutions in remote or marginalized areas play a role in financial exclusion (Lu et al., 2022). Financial inclusion has emerged as a critical agenda in the context of economic growth in developing countries, where access to formal financial services remains limited.

Financial inclusion refers to a wide range of financial services available to every individual and business, particularly underserved or excluded groups in traditional banking systems. It aims to ensure access to essential financial services such as credit, savings accounts, and payment methods, which help manage finances, planning, and economic activity. Financial inclusion is vital for building and sustaining an inclusive economy.

Financial services enable individuals and businesses to manage their money more effectively, save for emergencies or long-term goals, invest in new initiatives, and mitigate risks. They also empower individuals to grow assets, improve living standards, and support economic growth.

The provision of financial services through digital channels and technologies is referred to as "Digital Financial Services" (DFS). These services encompass access to various financial products and platforms, including mobile phones, the internet, and electronic payment systems. DFS includes multiple services such as mobile banking, electronic payments, online lending, insurance, and investment management (Sarma & Pais, 2011).

Previous research has addressed the benefits of financial inclusion (Ozili, P. K., 2021) in various case studies. However, there are clear gaps that require further research and study. Regulators need to develop policies and create an environment that supports financial inclusion, encourages innovation, and protects consumer rights for safety and sustainability. Financial institutions are developing comprehensive products and services that meet the needs of diverse consumer groups, including those living in rural areas or with limited income. Through mobile banking, digital payments, and other advanced solutions, technology providers and fintech companies are enhancing access to financial services. In recent years, the rapid advancement of digital technology has opened new horizons for improving financial inclusion, and these are now available to researchers and managers in the field of digital financial services. Digital financial services consist of innovative solutions, such as mobile banking, digital payments, online lending, and insurance, delivered through technology-based platforms, among others. Thanks to digital infrastructure such as mobile phones and the internet, these services can provide convenient, affordable, and accessible financial solutions to individuals and organizations wherever possible. (Morgan, P., & Pontines, V. 2014)

2. Literature Review

2.1 Key Definitions:

Access to financial products and services was previously through financial institutions. However, the comprehensive digital transformation through technological advancements is allowing non-financial institutions to offer financial services, a trend commonly referred to as Fin Tech (Elia, et al., 2022). Furthermore, technological innovations are making financial services more accessible to those who previously could not access them (Kowalewski, & Pisany, 2023). Mobile money is one innovation often hailed as crucial to financial inclusion (Odoom, & Kosiba, 2020). Using mobile phones, users can access financial services within an ecosystem that includes banks, regulators, merchants, service providers, and agents (Senyo, & Osabutey, 2020). Mobile money services allow users to complete transactions such as money transfers,

bill payments, and access loans, according to the (Osakwe, et al., 2021) argue that tax exemption on mobile money transfers should be implemented to promote the adoption and use of mobile phones in financial services. It concludes that tax legislation should exempt financial service providers and users, particularly those offering digital financial services through mobile money platforms, from taxes to mitigate their impact on financial inclusion. Tax exemptions for digital financial services may enhance digital and financial inclusion for the poor.

Financial inclusion is the process of ensuring access to and use of financial services for all members of society, including savings, credit, payments, and risk management (Allen, et al., 2016). These services should be provided at an affordable cost and fairly and transparently to customers, while ensuring their sustainability for their providers (Demerge, et al., 2015; Kabakova, & Plaksenkov, 2018). While commercial banks have traditionally dominated service providers, they have expanded to include the healthy private sector, non-profit, and public service providers (Chakrabarty, K. 2012). The concept of financial inclusion is multidimensional, focusing on four key aspects: access, use, cost, and quality of financial services (Pesqu'e-Cela, et al. at. 2021).

However, although mobile money technology provides financial services to users at a low cost and with sufficient convenience, the impact of e-taxation on mobile money adoption cannot be determined. Most studies rely on technological and behavioral models to validate or deny the factors influencing mobile money adoption (Odoom, & Kosiba, 2020; Senyo, & Osabutey, 2020), neglecting studies on the financial factors that may influence adoption. This study offers a new perspective on mobile money adoption literature by examining the relationship between intention to use the innovation and actual usage. The study draws on the Unified Theory of Acceptance and Use of Technology (UTAUT) to assess the factors enabling mobile money adoption. Furthermore, this study examined the relationship between intention to use the mobile money innovation and actual usage. The financial inclusion agenda has received considerable attention from scholars who have focused on the adoption of mobile money (Narteh, et al., 2017; Osei-Assibey, E., 2015). Consequently, the

phenomenon is not relatively new in the field of mobile money. However, emerging digital technologies offer further opportunities for financial inclusion because they can overcome structural and infrastructural challenges to reach people excluded from traditional financial services (Ouma, et al., 2021). Thus, digital financial inclusion is defined as the use of digital technologies to provide digital products and services and promote financial inclusion. Reports indicate that mobile devices are accelerating the global growth of financial inclusion. The specific requirements for mobile money services may vary depending on the country, regulatory framework, and specific service provider. In an emerging economy like Ghana, often hailed as a pioneer of technology-based transactions in Sub-Saharan Africa, mobile money adoption has seen a significant increase, with many individuals, both banked and unbanked, turning to mobile money services. The mobile money ecosystem consists of users, providers, agents, banks, and regulators (Donovan, K., 2012). Users refer to the people and businesses that benefit from mobile money services and products. The institutions that offer mobile money services are known as providers; these are often telecommunications companies. Agents act as intermediaries between customers and providers, enabling mobile money services such as cash deposits, withdrawals, and transfers. Banks act as custodians of mobile money for service providers. Finally, regulators are government bodies with the authority to oversee operations within the mobile money ecosystem. Mobile money services leverage telecommunications networks to facilitate secure and convenient money transfers, payments, and other financial activities. This development has enhanced the digital banking experience for bank account holders, as they can deposit and transfer funds between their accounts (Alnemer, H. 2022). Existing studies have reported a significant impact of social intelligence on behavioral intention to adopt an innovation (Esawe, 2022; Sultana, 2020). When interacting with others, users' decisions about using mobile money services are sometimes influenced by their interactions with their networks.

Social. In the context of mobile money services, social influence refers to the extent to which a person's close friends or family members influence their decision to use an

innovation.

Although money has played an important role in the modern economy, providing a measure of value and a means of payment for economic activity, it has now become impractical (and even expensive) to use in various transactions, which, due to their nature, volume, or urgency, require more flexible methods (in terms of speed, practicality, and efficiency).

The importance of retail electronic payments in promoting financial inclusion lies, among other factors, in the fact that the arrival and rapid spread of information and communication technologies (ICTs) in the financial sector, particularly in the provision of payment services, has led to the emergence of products and services that are more suited to the population's current needs for value exchange.

Performance expectancy (PE) refers to "the degree to which an individual believes that using a system will lead to some gain in performing a function." PE measures the perceived profit or gain associated with using an innovation. In the context of mobile money, performance expectancy measures the extent to which mobile money service users adopt an innovation due to its associated benefits and gains. According to (Lepoutre, & Oguntoye, 2018), performance expectancy (PE) is an extrinsic motivating factor that motivates users to perform a behavior. Several studies have found significant predictive power of PE on behavioral intention (Marinkovic, Djordjevic, & Kalinic, 2020; Netshirando, Munyoka, & Kadyamatimba, 2020; Sitar-Taut & Mican, 2021). They have found a positive relationship between financial performance and behavioral intention to conduct digital transactions.

While financial inclusion significantly benefits users, service providers, governments, and economies, some persistent challenges must be addressed to maximize the benefits for individuals, businesses, and governments. These challenges are relevant to ongoing conversations and country-level initiatives to promote financial inclusion in developing and emerging economies through digital finance. (Ozili, 2018) Digital financial services are used by both banks and non-banking institutions, as non-bank digital

financial services are the most cost-effective option for providing financial services to individuals previously unbanked. The growth in mobile phone usage and internet access are seen as mutually reinforcing factors that promote financial inclusion through digital financial services.

2.2 Financial Access:

Access to financial services means that the provision of these services meets the minimum requirements necessary to meet the needs of households and businesses to manage their expenses and income. These services should also enable households and businesses to cope with unexpected financial shocks. The fact that agents (individuals and businesses) lack access to financial services is a result of market failures (barriers) such as: 1) the lack (or asymmetry) of information needed to assess the financial capacity of potential users; 2) little or no interest on the part of service providers in specific market niches; and 3) the oligopolistic market structure that generates distortions in financial coverage and pricing (Raúl and Yazmín, 2016).

The reasons that lead to people's exclusion from the financial system (Evans, 2002) should also be taken into account. Socioeconomic factors (low or irregular income, lack of economic and financial education, ethnic discrimination, etc.) or geographic factors (living in rural areas or outside urban centers) are themselves sources of exclusion from financial services.

It is worth noting how enhancing financial access through non-financial information services is closely linked to the status of enterprise resource planning (ERP) systems in each country. This means that the degree and depth of technology adoption in electronic and digital payments depends on the available infrastructure and platforms, the structure of the national market, and the relationship between potential innovations and the applicable regulatory framework.

Levels of financial inclusion can influence the dependent variable, but the influencing factors vary. Financial inclusion is significantly influenced by the number of formal bank accounts and ATM ownership, rather than the status of a formal bank account.

Financial inclusion may be affected by issues related to running a business, previous uneasy experiences with banks, an unfavorable economic climate, religious and family considerations, and extensive documentation requirements for credit applications. (Kaligis, et al., 2018) The introduction of debit cards for cash transfer recipients in Mexico significantly reduced travel distances to access their bank accounts. This facilitated access to funds and led to increased financial activity, such as increased frequency of withdrawals and increased savings balances. Digital platforms for financial transactions may reduce costs and increase access to financial services for disadvantaged groups. Recipients who experienced the greatest reduction in travel distances preferred to withdraw more frequently and maintain larger balances in their savings accounts. This suggests that increased financial participation is encouraged by increased access to formal financial services. These findings highlight the potential of debit cards to improve financial inclusion by improving access to and use of formal financial services by residents of disadvantaged areas. (Bachas, et al., 2018).

2.3 Use of Payment Services:

The second dimension of financial inclusion is the use of services. Factors influencing financial service decision-making, adoption, and use include: 1) individual habits and preferences, 2) the mismatch between supply and demand due to the rapid development and adoption of new financial products, and 3) the degree of adoption and knowledge of enterprise resource planning (ERP) systems among the population, which allows them to become accustomed to and benefit from the services offered by the market.

The frequency and regularity of use of financial services is the most important dimension of financial inclusion, as it requires appropriate levels of access and financial literacy. However, access does not guarantee full use. (Bourreau and Verdier, 2013)

Through financial inclusion, individuals can save for financial stability, build a stable deposit base, invest, and access credit. Financial inclusion is achieved through digital finance, which serves both individuals and the financial system. Digital finance has

reshaped the banking sector by delivering financial services via mobile phones, personal computers, the internet, and digital payment cards. It gives users greater control over their accounts, faster decision-making, and smoother financial transactions by providing affordable, convenient, and secure banking services. (Durai, & Stella, 2019) The financial services sector has witnessed a tremendous increase in the use of technology in recent years. To assess the impact of technology on financial inclusion.

2.4 Payment Systems Infrastructure:

Payment systems contribute to economic activity by providing methods for transferring funds that facilitate transactions between economic entities. This role can be achieved through the use of information and communications technologies, which facilitate the workflow. The physical infrastructure supporting payment systems and platforms is critical. Payment systems can also become more efficient and secure if they provide standards and levels of interoperability that enhance economies of scale and scope. (Kemppainen, 2015)

Among the key payment systems and platforms for promoting financial inclusion are interbank systems for electronic money transfers to individuals, including automated clearing houses and electronic money systems (ECMs), payment card processing platforms (also known as card switches), and access and service point networks, such as automated teller machines (ATMs) and points of sale (POS), as well as real-time gross settlement systems (RTGSs), operated by central banks (Hasan, 2015).

Addressing privacy and security concerns, and striking a balance between innovation and regulation, are all critical factors for realizing the full financial inclusion potential of fintech. People with higher incomes and education levels tend to have greater access to financial services, confirming the positive relationship between income, education, and financial inclusion in this context.

2.5 Fintech and Financial Inclusion:

The theoretical basis for understanding the impact of fintech on financial inclusion and development is based on several key theories. The capability approach theory

emphasizes the importance of normative values in ensuring that technology is available and affordable, and that it promotes freedom and creativity among individuals. Schumacher's theory of appropriate technology (Pal, et al., 2021) builds on Sen's perspective, highlighting the need for technology that enhances users' existing skills and capabilities and supports sustainable, human-centered development in the field of information and communication technology for development. In developing countries, mobile phones are often viewed as technologies that enhance human freedom and capabilities (Ahamed, Mallick, 2019). Economic theories of supply and demand, along with theoretical frameworks of product, technology, and service bundling, emphasize the potential of fintech to complement technological and service innovations in the financial sector.

From an individual behavioral perspective, technology acceptance theories help explain the decision-making process when individuals adopt technology to access financial services. The theory of complex action suggests that end users rationally evaluate potential consequences before adopting a new technology. This theory explains why urban dwellers and individuals with better education, high financial literacy, and high income are more likely to access financial services through fintech. The technology acceptance model (Coffie et al. 2009), an extension of the theory of reasoned action, takes into account the functionality and ease of use of technology and has become a prominent theoretical foundation for technology diffusion research (Coffie, & Hongjiang, 2023). The theory of planned behavior suggests that the use of financial technology is influenced by an individual's intentions, which are shaped by their attitudes, norms, and perceived behavioral control.

3. Data and Methodology

3.1 Data:

The analysis relied on data obtained from the Central Bank of Iraq's website for reports and statistics on digital payments and financial inclusion for the period from 2017 to 2024.

A regression analysis methodology was adopted to determine the regression and correlation relationship between the independent variables: electronic payment services, which include three cards (credit cards X1, debit cards X2, and prepaid cards X3), electronic wallets X4, payment devices (ATMs, symbolized by X5), number of points of sale (POS), symbolized by X6, and number of consumer points of sale (POC), symbolized by X7), and the dependent variables: financial inclusion, which relied on quantitative data: number of current accounts Y1, number of savings accounts Y2, number of deposit accounts Y3, and number of corporate accounts Y4. The statistical programs Excel V.24 and SPSS V.27 were used to enter data for the analysis and test the following hypotheses: To answer the main research question: Is There is a comprehensive and clear vision for adopting digital payment services to enhance financial inclusion in Iraq.

Previous research has addressed the benefits of financial inclusion in various case studies; however, there are clear gaps that require further research and study. Regulators need to develop policies and create a supportive environment to enhance financial inclusion, encourage innovation, and protect consumer rights.

Hypothesis 1: There is a significant correlation between digital financial services and financial inclusion indicators.

Hypothesis 2: There is a significant impact of digital financial services on financial inclusion indicators.

3.2 Analyzing the Normal Distribution of Data:

Before beginning the analysis, the data must be normalized by conducting a normal analysis. Table (1-1) shows the results of the normal analysis using the Kolmogorov-Smirnov scale and the Shapiro-Wilk scale. All variables had a significant degree greater than 5% at the level of both scales. This confirms that the data are normally distributed, which confirms that parametric methods can be used in the analysis.

Table (1-1) Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
X1	.253	8	.142	.847	8	.088
X2	.233	8	.200*	.899	8	.285
X3	.219	8	.200*	.893	8	.252
XM1	.113	8	.200*	.993	8	.998
X4	.188	8	.200*	.905	8	.321
X5	.255	8	.134	.830	8	.060
X6	.183	8	.200*	.907	8	.335
X7	.194	8	.200*	.856	8	.109

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y1	.167	8	.200*	.939	8	.602
Y2	.169	8	.200*	.930	8	.520
Y3	.227	8	.200*	.861	8	.123
Y4	.229	8	.200*	.890	8	.233

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

3.3 Trend Analysis of Variables:

Table (1-2) and Figure (1-1) show the development of digital payment devices, according to data from the Central Bank of Iraq, during the study period. There is an upward trend in digital payment services over the period, representing electronic payment cards, electronic wallets, and electronic payment devices. The use of digital financial services increased from 2017 to 2023, and there appears to be a decline in 2024, as the data for this year is estimated every quarter. This reflects the understanding of users, whether individuals or companies, of the importance of these services in keeping pace with scientific developments and innovations in facilitating payment processes, reducing the use of traditional payment methods, and completing financial transactions.

It is evident from the figure that prepaid cards rank highest, as do savings accounts in terms of financial inclusion indicators.

Table (1-2) Digital Financial Services

	cards				Electronic wallets	Payment devices			
	credit card	City card	prepaid	TOTAL		N.ATM	N.POS	N. POC	TOTAL
السنة	X1	X2	X3	XM1	X4	X5	X6	X7	XM2
2017	15158	127594	6234553	6377305	222442	656	918	5143	6717
2018	22067	872894	7915069	8810030	271906	865	2200	6625	9690
2019	38883	1460891	9006951	10506725	403797	1014	2226	11677	14917
2020	46469	2811503	8891436	11749408	1226235	1340	7540	13796	22676
2021	50927	5083997	9771370	14906294	2107265	1566	8329	14704	24599
2022	61320	5430434	10711017	16202771	2970390	2223	10718	17610	30551
2023	126491	6484402	13143336	19754229	4980427	4021	23066	17610	44697
2024	231574	1360052	645320	2350880	3352694	5277	16592	17610	39479
m	74111.125	2953971	8289882	11332205	1941895	2120	8949	13096.9	24166

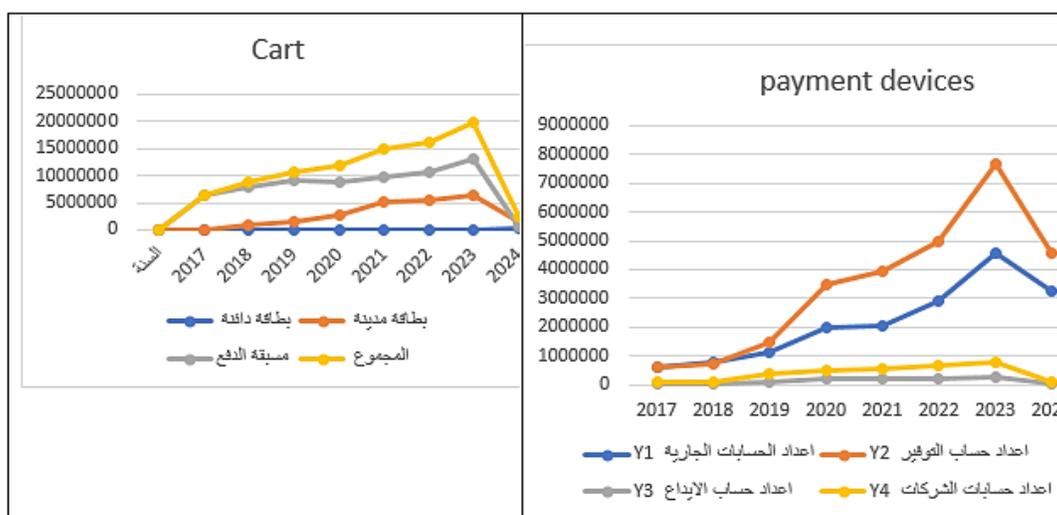


Table (1-3) also shows the development of financial inclusion indicators in Iraq according to data from the Central Bank during the study period. It shows an upward trend over the period, reflecting an increase in comprehensive financial services, increased accessibility to a wide range of regions, and a diversification of services to become more inclusive. The figure shows the number of savings and current accounts with the highest number of these indicators, while current accounts come in second place.

year	Number of current accounts	Number of savings accounts	Deposit account number	Number of corporate accounts	total
	Y1	Y2	Y3	Y4	YM
2017	614483	634280	20811	91460	1361034
2018	773759	731835	23202	101881	1630677
2019	1153037	1446969	83612	355904	3039522
2020	1981826	3489040	186036	470074	6126976
2021	2016322	3915175	191955	573205	6696657
2022	2914652	4999188	226223	655828	8795891
2023	4578151	7699596	253413	758172	1.6E+07
2024	3235344	4576040	35220	107232	7953836
m	2158446.8	3436515	127559	389219.5	6447101

3.4 Descriptive Analysis of Variables:

Table (1-4) shows the descriptive analysis of the data for the research variables, using the mean and standard deviation, as well as the highest and lowest values, as well as the skewness and kurtosis values, which reflect the normality of the data distribution over the research period. These values indicate that the variables were unstable, but rather variable, reflecting the growth in these indicators and their expansion into many and varied categories. It is noted that variable X1, representing credit cards, reached 74,111.125, with a standard deviation of 67,480.085. Variable X2, representing debit cards, reached 2,953,970.875, with a standard deviation of 2,242,857.386. The remaining variables are as shown in the table.

V	S	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
credit cards	X1	15158	231574	74111.125	67480.085	1.895	3.75
Debit cards	X2	127594	6484402	2953970.875	2242857.386	0.426	-1.316
prepaid cards	X3	64532	13143336	8217283	3613652.101	-1.397	3.388
total	XM1	2350880	19754229	11332205.25	5242364.551	-0.116	0.006
Electronic wallets	X4	222442	4980427	1941894.5	1617539.656	0.691	-0.162
N/ ATM	X5	656	5277	2120.25	1559.164	1.323	0.931
N/POS	X6	918	23066	8948.625	7232.296	0.906	0.463
N/POC	X7	5143	17610	13096.875	4627.930	-0.806	-0.477
total	XM2	6717	44697	24165.75	12741.428	0.262	-0.727
N/Current accounts	Y1	614483	4578151	2158446.75	1272298.611	0.662	0.165
N/Savings account	Y2	634280	7699596	3436515.375	2271351.640	0.456	0.147
N/Deposit account	Y3	20811	253413	127559	90749.358	0.042	-1.809
Corporate Accounts	Y4	91460	758172	389219.5	249861.252	0.034	-1.426
total	YM2	1361034	15972212	6447100.625	4463143.160	1.08	1.915

3.5 Correlation Analysis:

To test the first hypothesis of the research, we present in Table (1-5) the Pearson correlation coefficient values for the independent and dependent variables and the degree of significance of these relationships. The table shows that the correlation of X1 with X2 was 0.152, which is insignificant. The correlation coefficient for X3, which refers to prepaid cards, was -0.52 with X1 and 0.69* with X3, which is significant at 5%. The correlation coefficient for X4, which refers to electronic wallets, was significant at 5% with both X1 and X2.

Regarding the variable X5, which represents the number of ATMs, the correlation values with X1 were 0.975**, and with X4 was 0.848**, which is a strong relationship with a significant degree of 1%. Variable X6, representing the number of points of sale only, was significantly associated with all independent variables except for variable X3, with a significant degree ranging between 1% and 5%. Finally, variable X7, representing the number of customer points, was significantly associated with a degree ranging between 1% and 5%, except for variable X3. The dependent variable Y1, which refers to the number of current accounts only, was significantly associated with all independent variables, except variable X3, which represents prepaid cards. The second dependent variable, Y2, which refers to the number of savings accounts as an indicator of financial inclusion, was significantly associated with all variables except for variable X3, with a significant degree ranging between 1% and 5%. The variable Y3, which represents the number of deposit accounts, also achieved a significant correlation with all variables except X5 and X6, which were insignificant. Finally, the dependent variable X4, which represents the number of corporate accounts as a financial inclusion variable, showed significant correlations ranging between 1% and 5%, except X1, X2, and X3. Based on this, the first main hypothesis was proven, which states that there is a significant correlation between the independent variables, digital financial services, and financial inclusion indicators, using data from the Central Bank of Iraq.

Table (1-5): measures the correlation between the variables

		Correlations													
		X1	X2	X3	XM1	X4	X5	X6	X7	XM2	Y1	Y2	Y3	Y4	
X1	Pearson Correlation	1													
X2	Pearson Correlation	0.152	1												
X3	Pearson Correlation	-0.52	.691*	1											
XM1	Pearson Correlation	-0.24	.895**	.941**	1										
X4	Pearson Correlation	.718*	.762*	0.182	0.475	1									
X5	Pearson Correlation	.975**	0.33	-0.34	-0.04	.848**	1								
X6	Pearson Correlation	.777*	.676*	0.107	0.39	.981**	.890**	1							
X7	Pearson Correlation	.676*	.738*	0.122	0.425	.854**	.748*	.827**	1						
XM2	Pearson Correlation	.806**	.692*	0.064	0.371	.971**	.899**	.977**	.924**	1					
Y1	Pearson Correlation	.718*	.752*	0.2	0.483	.988**	.845**	.986**	.881**	.983**	1				
Y2	Pearson Correlation	0.609	.850**	0.323	0.602	.973**	.750*	.954**	.890**	.957**	.983**	1			
Y3	Pearson Correlation	0.019	.951**	.750*	.907**	0.64	0.19	0.57	.693*	0.6	0.66	.781*	1		
Y4	Pearson Correlation	-0.01	.955**	.799**	.941**	0.62	0.16	0.54	.673*	0.57	0.65	.757*	.985**	1	
YM2	Pearson Correlation	0.573	.838**	0.384	0.636	.966**	.727*	.955**	.829**	.932**	.978**	.988**	.767*	.756*	

3.6 Analysis of the Impact of the Independent Variables on the Dependent Variable Y1:

1. Analyze the Effect of Independent Variables with the Dependent Variable Y1:

Table (1-6) shows the impact of the independent variables on the dependent variable (financial inclusion). The first of the comprehensive variables is the number of current accounts (Y1). Based on the impact coefficient R2, the impact value of the variable X1 on the dependent variable Y1 was 0.839. This means that the amount explained by the variable X1 (the number of credit cards) in the dependent variable Y1 is 84%, which is a significant percentage of the impact. The F value was 31.289, indicating the significance of the model at the 1% level. The value of the constant A was 422399.436, which indicates the value of the dependent variable Y1 when the value of the independent variable is zero. The value of the influence B was 28.177, and the

standardized beta was 0.916. The t value for the variable X1 was 5.594, which is significant at the 1% level. Regarding the independent variable X2, the number of urban areas, its explanation of the dependent variable Y1 was 57%, with an F value of 7.811, significant at a level of less than 5%. The B effect value was 0.752.

In the same context, the explanation of the independent variable X3, representing prepaid cards, in the dependent variable Y1 was 4%. This is a weak and insignificant effect, as measured by the F value, which is insignificant because it is greater than 5%.

As for the independent variable X4, representing the number of wallets, its explanation was significant, with an R2 value of 0.976, representing 98%. The F value was 285.705, with a significant degree of less than 1%. The B effect value was 0.777, and the t value was significant at a level of less than 1%. The independent variable X5, representing the number of ATMs, had a significant explanation, with an R2 value of 0.98, representing 98% of the total. The F value was 151.953, with a significance level of less than 1%. The B effect value was 0.126, and the t value was significant at a level of less than 1%.

In the same context, the independent variable X6, representing the number of points of sale, had a significant explanation, with an R2 value of 0.97, representing 97%. The F value was 206.935, with a significance level of less than 1%. The B effect value was 173.423, and the t value was significant at a level of less than 1%. Finally, the independent variable X7 represented the number of consumer points. The amount of what it explained was a large percentage, as the value of R2 reached 0.777, i.e. 78%. The value of F reached 20.858, with a significant degree of less than 5%. The value of the effect B reached 242.271, and the value of t was significant, with a level of less than 1%.

Table (1-6) Model Summary^bY1

Model	R	R Square	Adjusted R Square	F	df1	sig	(Constant)	B	Beta	t	Sig.
X1	.916 ^a	0.839	0.812	31.289	1	.001 ^b	422399.436	28.177	0.916	5.594	0.001
x2	.752 ^a	0.566	0.493	7.811	1	.031 ^b	898275.319	0.752	2.795	0.031	0.164
X3	.200 ^a	0.040	-0.120	0.251	1	.634 ^b	1578612.366	0.071	0.200	0.501	0.634
XM1	.483 ^a	0.233	0.106	1.827	1.000	.225 ^b	829621.170	0.117	0.483	1.352	0.225
X4	.988 ^a	0.976	0.973	285.705	1	0.000	649396.841	0.777	0.988	16.903	0.000
X5	.992 ^a	0.984	0.977	151.953	1.000	.000 ^b	-773161.805	0.126	0.867	15.225	0.000
X6	.986 ^a	0.972	0.967	206.935	1.000	.000 ^b	606550.735	173.423	0.986	14.385	0.000
X7	.881 ^a	0.777	0.739	20.858	1.000	.004 ^b	-1014543.968	242.271	0.881	4.567	0.004

2. Analyzing the Impact of Independent Variables on the Dependent Variable Y2:

Table (1-7) shows the relationship between the impact of the independent variables on the dependent variable (financial inclusion) and the second independent variable, the number of savings accounts (Y2). Based on the impact coefficient R², the impact of variable X1 on the dependent variable Y2 was 0.708, meaning that the amount explained by variable X1 (the number of credit cards) in the dependent variable Y1 is 70%, a significant proportion of the impact. The F value was 14.533, indicating the significance of the model at the 1% level. The value of the constant A was 590062.437, which indicates the value of the variable when the value of the independent variable is zero. The value of the influence B was 46.20, and the standardized beta was 0.84. The t value for variable X1 was 3.812, which is significant at the 1% level. Regarding the independent variable X2, the extent to which it explained the dependent variable Y2 was 0.722, with an F value of 7.811, which is significant at a level of less than 5%. The effect value B was 0.861. The t value was 15.603, which is significant at a level of less than 1%.

In the same context, the extent to which the independent variable X3, representing prepaid cards, explained the dependent variable Y2 was 10%. This is a weak and insignificant effect, given the low F value, which is insignificant because it is greater than 5%.

As for the independent variable X4, representing the number of wallets, the extent to which it explained the dependent variable Y2 was significant, with an R2 value of 0.947, representing a 95% probability. The F value was 107.57, with a degree of significance of less than 1%. The effect value B was 1.367, and the t value was significant at a level of less than 1%. The independent variable X5, representing the number of ATMs, had a significant explanation, with an R2 value of 0.563, representing 56%. The F value was 4.093, with a significant degree of greater than 5%. The B effect value was 2.779, and the t value was 2.779, significant but less than 5%.

In the same context, the independent variable X6, representing the number of points of sale, had a significant explanation, with an R2 value of 0.911, representing 91%. The F value was 61.271, with a significant degree of less than 1%. The B effect value was 299.724, and the t value was 7.828, significant but less than 1%. Finally, the independent variable X7 represented the number of consumer points. The amount of explained was a large percentage, as the value of R2 reached 0.792, i.e. 79%. The value of F reached 22.907, with a significant degree of less than 1%. The value of the effect B reached 436.899, and the value of t was significant, with a level of less than 1%.

Table (1-7) Model SummarybY2

ModE	R	R Square	Adjusted R Square	F	df1	sig	(Constant)	B	Beta	t	Sig.
X1	.841 ^a	0.708	0.659	14.533	1.000	.009 ^b	590062.437	46.200	0.841	3.812	0.009
x2	.850 ^a	0.722	0.676	15.603	1.000	.008 ^b	894167.335	0.861	0.850	3.950	0.008
X3	.323 ^a	0.104	-0.045	0.697	1.000	.436 ^b	1769862.729	0.203	0.323	0.835	0.436
XM1	.957 ^a	0.916	0.901	65.058	1.000	.000 ^b	-685508.590	170.573	0.957	8.066	0.000
X4	.973 ^a	0.947	0.938	107.578	1.000	.000 ^b	782706.160	1.367	0.973	10.372	0.000
X5	.750 ^a	0.563	0.490	7.723	1.000	.032 ^b	1119398.313	1092.851	0.750	2.779	0.032
X6	.954 ^a	0.911	0.896	61.271	1.000	.000 ^b	754396.007	299.724	0.954	7.828	0.000
X7	.890 ^a	0.792	0.758	22.907	1.000	.003 ^b	-2285493.255	436.899	0.890	4.786	0.003

3. Analyzing the Impact of Independent Variables on Dependent Variable Y3:

Table (1-8) shows the relationship between the impact of the independent variables on the dependent variable (financial inclusion) and the third indicator of financial inclusion, the number of deposit accounts. Based on the impact coefficient R2, the

impact value of variable X1 on the dependent variable Y3 was 0.115, which means that the amount explained by variable X1 (the number of credit cards) in the dependent variable Y1 is 12%, a low percentage of the impact. The F value was 0.780, indicating that the model is insignificant at a level greater than 5%. The value of the constant A was 81698.361, which indicates the value of the variable when the value of the independent variable is zero. The value of the impact B was 0.744, and the standardized beta was 0.339. The t value for variable X1 was 0.883, which is insignificant at a level greater than 5%. Regarding the independent variable X2, the extent to which it explained the dependent variable Y3 was 0.905, with an F value of 57.270, which is significant at a level of less than 1%. The effect value B was 0.038. The t value was 7.568, which is significant at a level of less than 1%.

In the same context, the extent to which the independent variable X3, which represents prepaid cards, explained the dependent variable Y3 was 0.7568, a strong and significant effect, with an F value of 7.700, which is significant at a level of less than 1%. The effect value B was 0.019. The t value was 2.775, which is significant at a level of less than 5%. The independent variable X4, representing the number of wallets, had a significant explanation, with the R2 value reaching 0.947, representing 95%. The F value reached 7.700, with a significant degree of less than 1%. The B effect value was 0.019, and the t value was significant at a level of less than 5%. The independent variable X5, representing the number of ATMs, had a significant explanation, with the R2 value reaching 0.406, representing 56%. The F value was 4.093, with a non-significant degree greater than 5%. The B effect value was 0.036, and the t value was 2.023, which was non-significant at a level greater than 5%. In the same context, the independent variable X6, representing the number of points of sale, had a significant explanation, with an R2 value of 0.322, representing 32%. The F value was 2.852, with a non-significant degree greater than 5%. The B effect value was 7.122, and the t value was insignificant at a level greater than 5%.

Finally, the independent variable X7 represented the number of consumer points of sale. Its explanation was significant, with an R2 value of 0.480, representing 48%. The

F value was 5.538, with a non-significant degree greater than 5%. The B effect value was 13.585, and the t value was insignificant at a level greater than 5%.

Table (1-8) Model SummarybY3

Model	R	R Square	Adjusted R Square	F	df1	sig	(Constant)	B	Beta	t	Sig.
X1	.339 ^a	0.115	-0.032	0.780	1.000	.411 ^b	81698.361	0.744	0.339	0.883	0.411
x2	.951 ^a	0.905	0.889	57.270	1.000	.000 ^b	13845.293	0.038	0.951	7.568	0.000
X3	.750 ^a	0.7568	0.489	7.700	1.000	.032 ^b	-27147.187	0.019	0.750	2.775	0.032
XM1	.907 ^a	0.823	0.794	27.905	1.000	.002 ^b	-50408.025	0.016	0.907	5.282	0.002
X4	.750 ^a	0.562	0.489	7.700	1.000	.032 ^b	-27147.187	0.019	0.750	2.775	0.032
X5	.637 ^a	0.406	0.306	4.093	1.000	.090 ^b	58179.661	0.036	0.637	2.023	0.090
X6	.568 ^a	0.322	0.209	2.852	1.000	.142 ^b	63826.629	7.122	0.568	1.689	0.142
X7	.693 ^a	0.480	0.393	5.538	1.000	.057 ^b	-50368.264	13.585	0.693	2.353	0.057

4. Analyzing the Impact of Independent Variables on Dependent Variable Y4:

Table (1-9) shows the relationship between the impact of the independent variables on the dependent variable (financial inclusion). The fourth indicator of financial inclusion is the number of corporate accounts (Y4). Based on the impact coefficient R2, the impact of variable X1 on the dependent variable Y4 was 0.106. This means that the amount explained by variable X1 (the number of credit cards) in the dependent variable Y1 is 11%, which is a low percentage of the impact. The F value was 0.710, indicating that the model is insignificant at a level greater than 5%. The value of the constant A was 268153.360, which indicates the value of the variable Y1 when the value of the independent variable is zero. The value of the influence B was 1.965, and the standardized beta was 0.325. The t value for variable X1 was 0.843, which is insignificant at a level greater than 5%. Regarding the independent variable X2, the extent to which it explained the dependent variable Y4 was 0.898, with an F value of 62.355, which is significant at a level of less than 1%. The effect B value was 0.106. The t value was 7.897, which is significant at a level of less than 1%.

In the same context, the extent to which the independent variable X3, which represents prepaid cards, explained the dependent variable Y3. The R2 value was 0.639, a strong and significant effect, with an F value of 10.606, which is significant at a level of less

than 1%. The effect B value was 0.055. The t value was 3.257, which is significant at a level of less than 5%. The independent variable X4, representing the number of wallets, had a significant explanation, with an R2 value of 0.388, representing 39%. The F value was 3.798, with a non-significant degree greater than 5%. The B effect value was 0.096, and the t value was insignificant at a level greater than 5%. The independent variable X5, representing the number of ATMs, had a significant explanation, with an R2 value of 0.026, representing 3%. The F value was 0.163, with a non-significant degree greater than 5%. The B effect value was 26.069, and the t value was 0.404, which was insignificant at a level greater than 5%. In the same context, the independent variable X6 represented the number of points of sale. The amount of what it explained was a large percentage, as the value of R2 reached 0.295, i.e. 30%. The value of F reached 2.510, with an insignificant degree greater than 5%. The value of the effect B reached 18.763, as was the value of t, which is insignificant, with a level greater than 5%.

Finally, the independent variable X7 represented the number of consumer points. The amount of what it explained was a large percentage, as the value of R2 reached 0.453, or 45%. The value of F reached 4.960, with a non-significant degree greater than 5%. The value of the effect B reached 36.320, and the value of t was non-significant, with a level greater than 5%.

(1-9) Model SummarybY4

Model	R	R Square	Adjusted R Square	F	df1	sig	(Constant)	B	Beta	t	Sig.
X1	.325 ^a	0.106	-0.043	0.710	1.000	.432 ^b	268153.360	1.965	0.325	0.843	0.432
x2	.955 ^a	0.912	0.898	62.355	1.000	.000 ^b	74912.604	0.106	0.955	7.897	0.000
X3	.799 ^a	0.639	0.578	10.606	1.000	.017 ^b	-64848.258	0.055	0.799	3.257	0.017
XM1	.941 ^a	0.885	0.866	46.126	1.000	.000 ^b	-118859.992	0.045	0.941	6.792	0.000
X4	.623 ^a	0.388	0.286	3.798	1.000	.099 ^b	202457.191	0.096	0.623	1.949	0.099
X5	.163 ^a	0.026	-0.136	0.163	1.000	.700 ^b	333946.822	26.069	0.163	0.404	0.700
X6	.543 ^a	0.295	0.177	2.510	1.000	.164 ^b	221314.622	18.763	0.543	1.584	0.164
X7	.673 ^a	0.453	0.361	4.960	1.000	.068 ^b	-86463.953	36.320	0.673	2.227	0.068

Based on this, and through reviewing the analysis in the tables above, the second main hypothesis was proven. This hypothesis states that the independent variables (digital financial services) have an impact on the financial inclusion indicators that represent the dependent variable, except for a few variables whose correlation was insignificant, as mentioned. Regarding the answer to the research question, and through trend analysis, we see an evolution in the vision of the importance of digital financial services in promoting financial inclusion, and at an increasing pace in Iraq to keep pace with the growing scientific and technological developments.

3.7 Conclusions and Recommendations

First: Conclusions

1. Our current results indicate that financial inclusion increases the likelihood of using direct payment services (DPS) for in-store purchases, online purchases, and regular bill settlements, which also has important implications for the growth of the global cashless economy.
2. Digitally mediated financial payments play a fundamental role in facilitating the smooth flow of resources within the digital economy, thus contributing to the expansion of services provided to society.
3. Collaborative efforts in digital payment innovation stimulate cooperative competition, ensuring the growth of cashless platforms that achieve economies of scale and scope, as well as interoperability and open access.
4. The research hypotheses, which stipulate a correlation and influence between the independent variables representing digital financial services and the dependent variable of financial inclusion, were confirmed, except a few variables.
5. Since digital financial services systems are mostly software-based, the emergence of open banking services, the growing importance of open banking APIs, and fintech partnerships constitute the core of the open innovation dynamics required to meet financial and banking needs.

Second: Recommendations

1. Digital financial services should be directed to play a more significant role in promoting financial inclusion by increasing the capacity and ease of access to digital financial services through strategies that promote more digital financial services.
2. In addition, governments should also direct the flow of financial resources to companies with high added value, low pollution, and high efficiency, to ease financial constraints on environmentally friendly and energy-efficient companies. In this regard, the development of digital financial services can benefit by improving production efficiency and reducing energy intensity during product production.
3. The government should participate in international forums and partnerships to share best practices, mobilize resources, and address common environmental concerns related to economic development and digital financial inclusion.
4. The need to focus efforts on removing barriers to the expansion of digital financial services and electronic payments to promote financial inclusion and economic growth through support programs from the government and relevant institutions.

Ethical Statement/Approval:

Not applicable, as this study relied solely on secondary and publicly available data sources, which are properly referenced in the paper.

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The authors hereby consciously confirm that for the manuscript "The Impact of Digital Services on Promoting Financial Inclusion," the following have been met:

1. This material is the authors' original work and has not been previously published elsewhere.
2. The article has not currently been published in whole or in part elsewhere.

3. This paper reflects the research and analysis conducted by the authors in a truthful and complete manner.
4. The paper appropriately acknowledges the valuable contributions of the co-authors and co-researchers.
5. The results are appropriately placed within the context of previous and current research.
6. All sources used are properly cited. Verbatim transcriptions should be indicated using quotation marks and the appropriate reference is given.
7. All authors were personally and actively involved in the substantive work that led to this paper and bear overall responsibility for its content. I agree with the above statements and certify that this contribution complies with all author policies and guidelines.

Authority Contribution Statement:

Author 1 contributed to the theoretical aspect, Author 2 contributed to providing data and analysis, and contributed to the discussion of the findings and recommendations.

Conflict of Interest:

The authors declare that they have no conflict of interest regarding the publication of this article.

Disclosure of Conflict of Interest:

The authors declare that they have no known competing financial interests or personal relationships that could influence the work reported in this paper.

Data Availability:

Data will be made available upon reasonable request from scientists and/or interested parties.

Resources

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