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The Impact of Mobile Payment on the Financial Inclusion Rates

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Abstract: In this paper, we discuss the impact of the mobile payment system on increasing financial inclusion ratios. We have followed the quantitative and analytical approach to test the study's hypotheses. A questionnaire was designed to consist of two dimensions and (22) questions. The study sample consisted of the Arab Bank and the Housing Bank and the multiple regression is used to test the collected data. The result of the regression equation showed a statistically significant effect of service price, the quality of the service, the ease of using service, and the security of the service provided through the mobile payment system, on the financial inclusion. It is shown that the mobile payment system plays an important role on increasing the financial inclusion rates and is recommended to be included in all banks operating in Jordan. Mobile money adoption, financial inclusion, and the substitutability of mobile money for traditional finance are among the challenges that need additional examination. Regulatory arrangements for institutions offering mobile money services are also highlighted.

Keywords: Service price, service quality, ease of use the service, service security, financial inclusion.

JEL Classification: G1, G4, A10

1. Introduction

In an environment of continuous development and permanent economic conflict between countries [1], businesses seeking to survive the current business environment may need to establish functions that will assume market research responsibilities [2], and it is necessary to capitalize on available opportunities and create favorable conditions for individuals and institutions, including providing banking services and facilities. Financial inclusion is "one of the most important economic indicators," as it refers to the financial system's inclusion of the largest number of social groups and ensuring that all individuals have access to financial services [7]. As a result,

banks improve their performance through the use of technological tools in their banking operations [8–10].

Financing, payment, credit, and insurance are all examples of financial services that are critical for all people and organizations to have a higher quality of life when they achieve financial inclusion [11]. According to the Central Bank's 2017 summary of the national strategy for financial inclusion, one of the reasons for the decline in financial inclusion rates in Jordan is an increase in the number of financially excluded individuals, defined as those who are not eligible for banking services due to their geographic location and the lack of banking channels in these areas, or due to their limited and insignificant financial resources,

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which prevent them from operating. The mobile payment service is an electronic system that is administered by the Jordanian Central Bank. It is registered with banks. Additionally, because this system introduces a new and secure method of immediate electronic payment, it enables the user to use his mobile phone to conduct payment and financing operations involving small amounts, such as paying bills, transferring funds between individuals, and paying for purchases [12]. We will collect data on four key aspects of mobile payment services for this study via mobile payment services: service price, ease of use, service quality, and service security. The term "service price" refers to the monetary value that a client is willing to pay and bear in exchange for a benefit [13, 14]. Ease of use refers to the client's ability to interact with the service delivery system in a simple and straightforward manner, whether in terms of language or the simplicity of the main screen, and to perform operations quickly. The more control the client has over the system, the more convenient it is to use [15].

The appropriateness of what clients expect from the service and what they receive determines the service's quality [16]. From the client's perspective, good service is that which meets their expectations [9, 17-19]. And service security refers to the clients' assurance that the service they are receiving is free of errors, danger, or doubt, and includes both psychological and material reassurance [20, 21]. The mobile payment system is currently one of the most critical tools for integrating the poor or financially excluded into the financial system. By utilizing the mobile phone, this system enables clients to open an account without a minimum balance and for a low fee [12].

The researchers in this study discuss numerous recent studies that are critical in encouraging many segments of society, particularly the poor, to open accounts and use electronic financial services. [22]. Banks employ financial technology in the provision of financial services, assisting in the integration of a broader segment of society into the financial

system. [23] As a result, increasing financial inclusion rates has a positive effect on the state's economic growth.

Mobile Payment System:

The world has become a connected village as a result of the development of information and communication technology over the last few decades [24]. Data and information are "exchanged in a variety of ways, depending on the individual's desire and need [24]. The mobile phone is one of the most significant of these modern technologies. This device has grown in importance for inter-person communication and distance bridging [25]. Today, the mobile phone has become an integral part of many people's lives, prompting many countries and institutions to adopt it as a means of bill payment and money transfer. Thus, the mobile phone has become a critical component of many individuals' integration into the financial and banking sectors, a process known as "financial inclusion." [12] Mobile payment technology defines a mobile phone as a channel for clients to conduct banking transactions with their bank. To provide these banking services via a mobile phone, the user must first be a "client" who complies with all banking requirements and controls, most notably "know your client," before being linked to the services available via the mobile phone [12].

Financial Inclusion:

Countries worldwide are attempting to promote the concept of financial inclusion by expanding access to financial services for individuals and businesses with low financial returns as part of the country's comprehensive economic and financial development strategy. Financial inclusion is a straightforward concept that enables individuals and businesses with low financial returns to access financial products and services such as transactions, payments, credit, insurance, and savings easily and affordably. Expanding the concept of financial inclusion will improve the country's

overall quality of life [9, 17, 26, 27] and assist families and businesses in planning for the long term [27].

Modern financial inclusion "is a banking process that aims to ensure that low-income groups and segments of society have access to appropriate financial products and services at a reasonable cost and in a simple and uncomplicated manner" [28]. The preceding definition is comparable to that of the World Bank for financial inclusion. It is defined by the World Bank as "individuals and businesses' ability to access valuable and affordable financial products and services that meet their needs and are delivered responsibly and sustainably." Additionally, it is defined as facilitating the flow of banking services to various groups and segments of society in an orderly and appropriate manner [29]. In terms of a country's geographical distribution of banking services relative to its population, "financial inclusion" refers to the percentage of the population that uses financial services.

Financial Inclusion Goals:

The foundation for discovering the concept of financial inclusion, in general, is due to the improvement of the quality of banking services provided to different segments of society, as well as the goal of achieving financial inclusion by assisting community members who live in remote areas to pay bills to the state quickly by restoring the concept of long-distance transportation for these purposes [30]. Furthermore, financial inclusion contributes to the inclusion of a large social group in social and economic development after they have previously been financially excluded. The inclusion of these groups of community members contributes to their financial stability. Financial inclusion aims to improve financial flows, which leads to safer transactions between members of society [26], as well as to reduce the time and money required for community members with limited income to conduct financial transactions.

The Role of the Mobile Payment System in Increasing Financial Inclusion:

The mobile payment system helps to reduce the use of paper cash and shift to electronic cash, which reduces the risk of loss or theft as well as other risks [25, 32]. The system also provides an excellent benefit to citizens who are financially excluded from using financial services due to geographical distance or limited and small amounts of money that prevent them from opening a bank account [31,33]. And in an environment where increasing economic growth rates is the primary goal, As a result of numerous studies confirming the importance of individuals' access to financial services in improving growth opportunities and improving individuals' income, the mobile payment service is regarded as one of the most important tools currently available to either increase the number of people working in the banking sector or to reduce the number of people who are financially excluded (i.e., in both cases, the increase in financial inclusion rates).

The World Bank endorses this service because it allows individuals to open accounts with no minimum or minimal fee. We conclude from the foregoing that the mobile payment service is capable of achieving strategic goals such as increasing financial inclusion rates and decreasing the number of financially excluded individuals. Finally, increasing the amount of cash in the banking sector increases the likelihood of economic growth.

2. Literature Review and Hypotheses Development

Many researchers have discovered that financial technology plays an important role in financial inclusion through its three dimensions: access to banking services, use, and quality. [22]. Also investigated is the fact that commercial websites have the greatest impact on financial inclusion, followed by mobile phones and then e-mail [34]. As a result, the primary goal of financial inclusion is to enable all people to access financial services and to reduce the number of

people who are financially excluded. In addition to attracting and integrating financially excluded individuals into the financial system, financial technology also works to provide financing, credit, advice, and other services [35].

Service price in the mobile payment service application:

[36] discovered that lowering fees and costs for services provided via mobile phone and mobile wallets benefits financial inclusion, and that the cost reduction also contributed to the spread of credit cards. According to the study, digital finance (online and mobile banking, mobile wallets, and various types of credit cards) contributes to financial inclusion.

[7, 22, 35, and 37] discovered that financial technology has aided in the development of new financial services at a lower cost than traditional banking services provided by banks, and that financial technology has enabled banks to provide the highest possible quality of financial services to all segments of society. Additionally, the study discovered that digital finance is critical for individuals to conduct daily transactions and that the speed with which transactions can be completed via mobile phones and mobile wallets benefits financial inclusion.

Thus, based on the preceding discussion and a review of the literature, the majority of studies discovered a relationship between service price (online and mobile banking, mobile wallets, and all types of credit cards) and financial inclusion. As a result, the following hypothesis is formulated as follows:

H1: There is a relationship between the service price in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

The service quality in mobile payment service application:

[7, 22, 35, 36] found that financial technology is critical for individuals to conduct daily transactions, and that service

quality is critical for financial inclusion via mobile phones. Additionally, [7] found that financial technology has enabled banks to provide the highest-quality financial services to all segments of society.

To summarize, the majority of studies discovered a link between service quality and financial inclusion; therefore, the following hypothesis is proposed:

H2: There is a relationship between the service quality in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

The ease of using of the service in the mobile payment service application:

[7, 22] found that the ease of utilizing and spreading service-providing agents is the most significant independent variable affecting financial inclusion, and [38] stated that there is an apparent weakness in the number of banks providing the service, which currently accounts for 14% of all banks operating in Sudan, and that obstacles are impeding the service's spread. Additionally, [39] demonstrated the impact of the mobile phone on financial inclusion in terms of families' ability to absorb substantial credit. The researcher continued with a series of findings, including that mobile phones are likely to make credit available to families through microfinance institutions easier and more motivating.

As a result of the above literature review, the majority of studies discovered a relationship between the ease of using a service and financial inclusion; thus, the following hypothesis is formulated:

H3: There is a relationship between the ease of the use of the service in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

The security of the service:

Most studies examine the effect of financial technology on financial inclusion through three dimensions (mobile service

price, service quality, and ease of use), but this study examines financial technology through four dimensions (mobile service price, service quality, ease of use, and security of service), with the exception of the [40] study, which examined security service and discovered that it had no effect on financial inclusion.

As a result of the foregoing as a literature review, the study [40] concluded that service security in financial technology has no effect on financial inclusion; thus, the following hypothesis is formulated:

H4: There is a relationship between the security of the service in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

3. Methodology of The Study

This study employed both descriptive and analytical methods. Because the descriptive analytical approach is deemed most appropriate for the current study's nature, it enables the development of multiple questions and hypotheses that describe the nature of the relationship between the study variables.

The descriptive-analytic method was used in this study, which is a method that is primarily based on scientific analysis of scientific sources from research, applied studies, reports, and statistics about the effect of using mobile payment services on increasing financial inclusion rates in Jordan. As a result, it is critical to analyses some prior studies that addressed the study variables and some of the study's findings.

Study Population and Sample:

The study population consisted of five Jordanian commercial banks that track payment via mobile, namely the Housing Bank, the Arab Bank, the Commercial Bank, Cairo Amman Bank, and the Bank of Jordan. (360) questionnaires were retrieved from Arab Bank and Housing Bank clients, and

(39) were excluded because they were unsuitable for analysis, resulting in (321) for analysis. Which, according to [41], is acceptable.

Study Tool:

The study of [7, 38] was used to create a questionnaire with two main parts: demographic characteristics and study variables.

The Study Sample:

Table (1) represents the distribution of the study sample members, clients of the Arab Bank and the Housing Bank by gender, age, educational qualification, and occupation

4. Data Analysis:

Table (1): The distribution of the study sample members

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	252	78.5	78.5	78.5
	Female	69	21.5	21.5	100.0
	Total	321	100.0	100.0	
Age	Less than 40	132	41.1	41.1	41.1
	Less than 30	75	23.4	23.4	64.5
	Less than 20	114	35.5	35.5	100.0
	Total	321	100.0	100.0	
Educational	Bachelors	204	63.6	63.6	63.6

Qualification	Master's	45	14.0	14.0	77.6
	PhD	42	13.1	13.1	90.7
	Diploma	30	9.3	9.3	100.0
	Total	321	100.0	100.0	
Occupation	Student	102	31.8	31.8	31.8
	private sector employee	135	42.1	42.1	73.8
	government employee	48	15.0	15.0	88.8
	Other	30	9.3	9.3	98.1
	Other business	6	1.9	1.9	100.0
	Total	321	100.0	100.0	

The following appears in Table No. 1:

-The highest percentage of the sample was (78.5 percent) males, according to the gender variable.

In comparison, the percentage of female clients was 21.5 percent, indicating that the majority of clients are male.

-The group age (less than 40 years) had the highest percentage of the sample (41.1%), while the group age (less than 30 years) had the lowest percentage (23.4%). By comparison, the group age (less than 20 years) came in second place with a percentage of 35.5%, indicating that the majority of sample members are in their middle years.

-The highest percentage of sample members with a bachelor's degree (63.6 percent) and the lowest percentage with a diploma (9.3 percent), indicating that the majority of sample members have a bachelor's degree.

-According to the occupation variable, the highest percentage of the sample was (42.1 percent) for private-sector employees, (31.8 percent) for students, and (15.0 percent) for public sector employees (9.3 percent).

Table (2): The independent and dependent variables' means and standard deviations

	Mean	Std. Deviation	N
Service Price	4.5210	.43454	321
Quality of Services	3.9159	.55535	321
Ease of Use of the Service	4.1121	.64027	321
Service Security	3.9776	.66917	321
Financial Inclusion	4.2318	.35411	321

The mean and standard deviation of the independent variables and the dependent variable are shown in the table above.

-The average service price was (4.5210), with a standard deviation of (0.43454).

- With a high degree, the mean for service quality was (3.9159), with a standard deviation of (0.55535).

- With a high degree, where the mean for ease of use of the service was (4.1121) and the standard deviation was (0.64027).

- With a high degree of service security, the mean was (3.9776), with a standard deviation of (0.66917).

- Where the dependent variable's mean was (4.2318), with a standard deviation of (0.35411), and a high degree of

Table (3) Normal distribution test for the data:

		service price	quality of services	ease of use of the service	service security	financial inclusion
N	Valid	321	321	321	321	321
	Missing	0	0	0	0	0
Skewness		-.682	.123	-.453	-.410	-.651
Std. Error of Skewness		.350	.350	.350	.350	.350
Kurtosis		-.637	.526	-.389	-.251	.308
Std. Error of Kurtosis		.688	.688	.688	.688	.688

The (Skewness & Kurtosis) tests are shown in Table (3). They were used to determine the normal distribution of study data, with Skewness values ranging from 0.123 to 0.123. (-0.682). According to [1,] the Kurtosis values ranged between (0.526) and (-0.637). This indicates that the data are normally distributed, which is consistent with the Skewness value of (1.96). Kurtosis values ranged between (2.58), indicating that the study variables were valid for use in the multiple regression model".

Multiple Linear Interference:

Due to the nature of the current study, which is a linear model (General Linear Model), the data were examined to determine whether a linear overlap test between the variables was available. Thus, the hypothesis of independence for each independent variable was verified using the Collinearity Statistics test, the (Tolerance) calculation, and the calculation of (VIF Variance Inflation Factor).

Where this test indicates the effect of the correlation between the variables, and "if the value of (VIF) is less than ten and

the value of (Tolerance) is greater than ten," this indicates that there is no linear overlap between the variables, and Table No. (3) contains the results of this test.

Table (4) the multiple linear interference test between the independent study variables

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Service Price	.735	1.361
	Quality of Services	.409	2.444
	Ease of Use of the Service	.388	2.576
	Service Security	.360	2.778

According to the data in the preceding table, the (VIF) values for all independent variables ranged between (2.778-1.361) and the (Tolerance) values ranged between (0.735-0.360), indicating that the study model is not affected by the problem of linear interference.

Regression Analysis Results:

Multiple regression analysis was used to examine the relationship between mobile payment usage and financial inclusion rates in Jordan. The results are presented in the section below.

Table (5) Model Summary:

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.615 ^a	.578	.554	.28464

a. Predictors: (Constant), Service price, quality of service, ease of use the service, and service security

b. Dependent Variable: financial inclusion

According to the above table, the value of (R) is (0.615), indicating the strength of the relationship between mobile payment usage and increased financial inclusion rates in Jordan. The value of (R²) was (0.578), indicating that the independent variables explained (58 percent) of the variation in the dependent variable, which is a significant percentage and indicates a strong effect of the independent variables on the dependent variable.

Multiple regression analysis was used to determine the effect of mobile payment usage on Jordan's financial inclusion rates.

Table (6) ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	5.028	12	1.257	15.515	.000 ^b
Residual	8.264	308	.081		
Total	13.292	320			

a. Dependent Variable: financial inclusion

b. Predictors: (Constant), Service price, quality of service, ease of use the service, and service security

Table (7): Coefficients:

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.579	.304		11.775	.000
	Service price	.199	.074	.244	2.676	.009
	quality of service	.157	.078	.190	1.736	.003
	ease of use the service	.378	.069	.683	5.451	.000

service security	.156	.069	.155	1.809	.020
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Hypothesis Test Results:

H1: There is a relationship between the service price in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

The R-value for the first hypothesis is (0.615), (F=15.515, Sig.0.009). The service price is statistically significant at the level of (0,009), (t) equals (2.676), and (B) equals (0.199). This means that any increase in the price of a service by one unit will increase financial inclusion by (0.199). As a result, we accept the first hypothesis, which states that there is a statistically significant relationship between service price in the mobile payment service application and financial inclusion enhancement in the Arab Bank and Housing Bank.

The current study's findings are consistent with those of previous studies [1-4], which demonstrated an effect of mobile service prices, financial technology, and digital finance on enhancing financial inclusion. However, the current study's findings contradict those of a previous study [5], which concluded that access to banking services by the population in West Africa is limited due to the population's demographic structure.

H2: There is a relationship between the service quality in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

The R-value for the second hypothesis is (0.615) (F=15.515, Sig.0.003). The level of service quality is statistically significant (0,003), and the value of (t) is (1.736). The value of (B) is (0.157), which indicates that any increase in service quality by one unit results in an increase in financial inclusion (0.157). As a result, we accept the second hypothesis, which states that there is a statistically significant relationship between the quality of service in the mobile payment service application and the extent to which

financial inclusion is increased in the Arab Bank and the Housing Bank.

The present study's findings corroborate those of a previous study [1, 2]. The current study demonstrates the service quality in the mobile payment service application and financial technology and digital finance on enhancing financial inclusion, and the findings contradict those of a previous study [3], which revealed an apparent weakness in the number of banks providing the service, reaching 14% of all banks operating in Sudan, negatively affecting the rates of financial inclusion in society.

H3: There is a relationship between the ease of use of the service in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

The third hypothesis revealed an R-value of (0.615), ($F=15.515$, Sig. 0.000). The service's ease of use is statistically significant at the 5% level of significance (0.000). The value of (t) is (5.451), and the value of (B) is (0.378), which indicates that for every unit increase in the ease of using the service, financial inclusion increases by one unit (0.378). As a result, we accept the third hypothesis, which states that there is a statistically significant relationship between the ease of using the mobile payment service application and financial inclusion in the Arab Bank and Housing Bank.

The present study's findings corroborate those of a previous study [1-5]. Demonstrated the use of services in mobile payment applications, as well as financial technology and digital finance, with the goal of increasing financial inclusion.

H4: There is a relationship between the security of the service in the mobile payment service application and financial inclusion in the Arab Bank and the Housing Bank.

The fourth hypothesis revealed an R-value of (0.615) ($F=15.515$, Sig.0.020). The service security is statistically significant at the significance level of (0,020), and the value of (t) is (1.809). The value of (B) is (0.156), which indicates that any increase in service security by one unit results in an increase in financial inclusion (0.156). As a result, we accept the fourth hypothesis, which states that there is a statistically significant relationship between the level of service security in the mobile payment service application and the level of financial inclusion in the Arab Bank and the Housing Bank.

The current study's findings contradict those of a previous study [1], which revealed that there is a difficulty for a variety of reasons, including the absence of laws and instructions governing certain licenses, the fragility of capital and risks, the lack of a digital financial culture, and the inadequacy of the business environment for the launch of these companies.

5. Conclusions

By presenting the statistical analysis results and testing the study hypotheses, the following conclusions can be drawn:

There is an effect of service prices on financial inclusion in Jordan, where the value of (t) reaches statistical significance at (2.676). (0.009). In Jordan, there is an effect of service quality on financial inclusion, with the value of (t) reaching (1.736) at the 5% level of statistical significance (0.003). There is an effect of service accessibility on financial inclusion in Jordan, with the value of (t) reaching (5.451) at the statistically significant level (0.000). In Jordan, there is an effect of service security on financial inclusion, with the value of (t) reaching (1.809) at the statistically significant level (0.020). And the current study's findings corroborate those of a previous study [1-3]. demonstrated an effect of mobile payment service applications, financial technology, and digital finance on enhancing financial inclusion, and the current study's findings contrast with those of a previous study [4]. The result indicated an apparent weakness in the number of banks providing the service, which accounts for

14% of all banks operating in Sudan, adversely affecting the rate of financial inclusion in the country.

Furthermore, the researchers discovered that the value of (R²) was (0.578, which represents the percentage of the interpretation of the change in the dependent variable as a result of the independent variables combined, while the total model's (F) value reached (15.515) with statistical significance (0.000) This indicates that the independent variables have an effect on the dependent variable when they are combined. Additionally, the researchers recommended that, in light of the Corona pandemic, the number of banks using the mobile payment service be increased. They also recommended that additional research be conducted on the impact of the mobile payment system on financial inclusion dimensions. Finally, it is recommended. Cooperating and coordinating with relevant parties to improve the safety, security, efficiency, and integrity of the national payment system and its components, particularly in the fight against money laundering, terrorist financing, financial fraud, financial crime in general, and cyber security issues, and making necessary recommendations. Additionally, attempting to modernize and develop licensing, supervision, and control methods through the use of advanced technologies, tools, and curricula, as well as drawing on the experiences of relevant international institutions in accordance with international standards.

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