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The role of financial technology in supporting access to financial inclusion in Algeria

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Abstract--This study aims to measure the role of Financial Technology (FinTech) in supporting access to financial inclusion in Algeria through a statistical analysis of a sample consisting of 131 individuals who are clients of financial institutions in Algeria. The study relied on an electronic questionnaire and found that FinTech is applied in the financial services provided, and that these services are characterized by financial inclusion from the perspective of the sample participants. The study also found that FinTech contributes to supporting access to financial inclusion by 49%. At the level of its dimensions, FinTech contributes to access to financial services by 42.6%, increases the use of financial services by 40.2%, and helps improve the quality of financial services by 27.5%.

Keywords--FinTech, financial inclusion, access to financial services, use of financial services, quality of financial services.

1. INTRODUCTION

The financial sector is considered the vital backbone of any economy due to its importance in financing and stimulating economic activity. However, this can only be achieved if the sector provides accessible financial services and products to all actors in the economy—whether institutions or individuals—across different social levels and at affordable prices. This is what is known as financial inclusion. Financial inclusion ensures that all stakeholders have access to financial services, and it guarantees their use and exploitation in a way that meets their objectives. It also aims to provide quality services and products that meet the expectations of these stakeholders.

Given that information technology has touched all sectors, the financial sector has not been an exception. Strong financial sectors rely heavily on FinTech, which ensures that services are delivered faster, more securely, and at lower costs

compared to traditional financial services.

Accordingly, for any sector to be distinguished by financial inclusion, several factors are required—chief among them being FinTech, which is seen as the key to spreading and expanding the financial services and products offered by financial institutions.

Based on the above, this research paper seeks to study the role of FinTech in supporting access to financial inclusion in Algeria.

1.1 Problem Statement

Given that financial inclusion requires a set of fundamental prerequisites—most notably FinTech—in order to broaden the financial system's base to include all stakeholders, both individuals and institutions, in a way that achieves macroeconomic objectives, the following research question arises:

To what extent does FinTech contribute to supporting access to financial inclusion in Algeria?

1.2 Study Hypothesis

This study proceeds from the following main hypotheses:

FinTech has a statistically significant impact on the financial inclusion of financial institutions in Algeria

The following sub- hypotheses fall under this main hypothesis:

- The financial services and products provided by Algerian institutions are characterized by financial inclusion.
- FinTech is applied in the provision of financial products and services by financial institutions in Algeria.
- FinTech has a statistically significant impact on access to financial services.
- FinTech has a statistically significant impact on the use of financial services.
- FinTech has a statistically significant impact on the quality of financial services.

1.3 Study importance

The importance of this study lies in the relevance of the topic it addresses, as financial inclusion has become a necessary requirement for any financial sector to achieve its goals of economic growth and social welfare. Considering that FinTech has recently come to dominate the financial system, modern technological tools and techniques in the financial field will ensure the widespread distribution of financial products and services, thus achieving a comprehensive financial sector.

1.4 Study Objectives

The study aims to achieve the following objectives:

- To determine the extent of FinTech implementation in financial institutions in Algeria.

- To identify the level of financial inclusion in Algerian financial institutions.
- To measure the impact of technology application in supporting financial inclusion in Algeria.

2. Study Theoretical Framework

This section of the study will address the operational definitions of all the research terms and their related aspects.

2.1 FinTech

2.1.1 Definition of FinTech

FinTech is a compound term formed from *Financial* and *Technology*. It refers to industrial changes resulting from the convergence of financial services and information technology. Financial services refer to any innovative financial service delivered using modern technologies such as mobile phones, social media, and mobile-based payment and settlement systems. Meanwhile, information technology refers to the innovative technology used to provide services such as financial transfers, payments, settlements, and investments (Kim , Young, Jeongil , & Jiyoung, 2015, p. 137).

FinTech can also be defined as a form of applying information technology in the financial sector. It first appeared in 2004 in the United Kingdom through the company Zopa, a firm that manages money lending services. Later, Bitcoin emerged in 2008, operating on blockchain technology (Jamei & Allache, 2021, p. 457).

The Basel Committee on Banking Supervision characterizes FinTech as: Any technological or financial innovation that produces a novel business model, process, or product that influences financial markets and institutions (Harfoush, 2019, p. 727).

FinTech, which is the common abbreviation for FinTech, refers to innovations aimed at competing with traditional financial methods in providing financial services. It involves offering products and services that rely on technology to improve the quality of traditional financial services. This technology is typically faster, cheaper, easier, and more accessible to a larger number of people. In most cases, these services and products are developed by startups (Marzouq & Zian, 2021, p. 636).

FinTech is described by the Financial Stability Board (FSB) as technologically driven innovation in financial services that might result in new business models, apps, processes, or products, so profoundly changing the delivery of financial services.(Al Ajlouni & Alaagam, 2019, p. 439).

From the above definitions, it can be concluded that FinTech refers to the collection of technological inventions and innovations used in the financial sector. It is the point where technology intersects with finance, employing these technologies to provide financial services to individuals and institutions in a faster and more secure manner compared to traditional financial services.

2.1.2 FinTech Development

FinTech is not a new or recent phenomenon. Banking services and financial service institutions have a long history of adopting technology. This evolution can be summarized in the following three main stages (Bates, 2017, p. 5):

- **First Stage (1866–1967):** During this period, the first transatlantic cable was laid, and the automated teller machine (ATM) was invented. This stage marked the initial convergence of technology and finance, which led to the first wave of financial globalization.
- **Second Stage (1967–2008):** In this phase, FinTech remained largely under the control of the traditional financial services industry, which used fintech to offer financial products and services. This period witnessed the introduction of electronic payments, clearing systems, ATMs, and online banking services.
- **Third Stage (2008–Present):** Since the global financial crisis, new startups have emerged offering financial products and services directly to businesses and the general public.

2.1.3 Areas of FinTech

The fields or sectors of FinTech refer to the various services offered within fintech. These are diverse, but can be categorized into the following main areas:

A. Digital Lending

Digital lending refers to non-bank, technology-based lending. Algorithms and high computing power have enabled new companies to access advanced and extensive data, allowing them to compete with traditional banks by offering new and attractive options to potential borrowers.

These companies typically operate digital platforms to facilitate financing. Borrowers include consumers and small businesses, while individual and institutional investors provide the capital. Offerings range from consumer loans to small business loans, equipment financing, auto loans, and other emerging areas. These companies leverage technology to attract platform participants and streamline lending processes, with a focus on communication to enhance operational efficiency (Bennett, 2016).

B. Payment Services

These are among the most dynamic and adaptable banking activities fintech presents to a broad spectrum of clients using different payment systems (Zaikh & Yunusi, 2022, p. 751):

- Mobile payments;
- Low-cost international money transfers (e.g., TransferWise, which reduces international exchange costs);
- Currency exchange without fees (e.g., Kantox);
- Management of payment flows for e-commerce, facilitating online transactions using innovative payment methods;
- Simplification of peer-to-peer payments.

C. Digital Insurance

This refers to the digital transformation of insurance services—turning all insurance operations offered to clients into digital services. It involves automating processes to enhance efficiency and speed. More precisely, it is the use of software and emerging user interfaces to address inefficiencies in the insurance value chain and improve the interaction between insurers and their clients (Zaikh & Yunusi, 2022, p. 751).

D. Digital Finance

Digital finance means enabling every citizen to access financial services through modern technologies. It is a crucial tool for financial inclusion programs, as it offers significant opportunities to expand basic services, especially with the widespread use of mobile phones (Zaikh & Yunusi, 2022, p. 751).

E. Asset and Wealth Management

Using artificial intelligence and machine learning, investment management services are provided to individuals through platforms with user-friendly interfaces. These platforms also offer advisory services, investment recommendations, and portfolio management (Joanie & Maryamt, 2021).

2.2 Financial Inclusion

2.2.1 Definition and Development of Financial Inclusion

A. Definition of Financial Inclusion

Financial inclusion is defined as the availability and use of all financial services by various segments of society—both institutions and individuals—through formal channels, including bank savings accounts, payment and transfer services, insurance, financing, and credit. It also involves the innovation of more suitable financial services at competitive prices (Qasimi & Mazian, 2022).

The World Bank defines financial inclusion as the percentage of individuals or institutions that use financial services (World Bank, 2014). Financial inclusion is defined by the OECD and the International Consortium on Financial Education (INFE) as the process by which access to a wide range of controlled and official financial goods and services is promoted—at an acceptable pace and price—while growing their usage by different sectors of society. With an eye toward financial well-being and social and economic inclusion, creative ideas including financial knowledge and instruction help to accomplish this (Sayed Amar & Ben Abdel Fattah, 2020, p. 65).

The G20 and the Alliance for Financial Inclusion (AFI) define financial inclusion as:

Promoting access to and usage of financial services and products by all segments of society, including marginalized and poor groups, in a way that meets their needs, and is provided fairly, transparently, and at affordable prices (Bahnas, Rasool, & Basisa, 2019, p. 2014).

B. The Emergence and Development of Financial Inclusion

The term *financial inclusion* first appeared in 1993 in a study by Leyshon on financial services in Southeast England, which examined the impact of a bank branch closure on residents' actual access to banking services. Throughout the 1990s, several studies addressed the difficulties certain segments of society faced in accessing banking and financial services. In 1999, the term *financial inclusion* was used more broadly for the first time to describe the determinants of individuals' access to available financial services.

Initially, interest in financial inclusion focused on targeting those who were forcibly excluded from the financial system and identifying ways to overcome the causes and factors behind this exclusion. Over time, international concern grew, with policies being implemented to promote and facilitate access to financial services for all segments of society and to enable their proper use. This also included urging financial service providers to offer diverse, innovative, and low-cost services.

The G20 adopted financial inclusion as one of the main pillars of its economic and financial development agenda. The World Bank regarded the universal provision of financial services and ensuring access for all segments of society as a fundamental pillar in combating extreme poverty and promoting shared prosperity.

In 2013, the World Bank Group launched a program aimed at leveraging innovation to expand financial services, with an added focus on payment systems and innovative retail payments. Many global institutions, such as the Consultative Group to Assist the Poor (CGAP) and the International Finance Corporation (IFC), also launched programs aimed at achieving financial inclusion (Azawi & Riffa, 2021, p. 104).

2.2.2 Indicators for Measuring Financial Inclusion

Financial inclusion indicators show the extent to which the financial sector in a given economy is active and dynamic, and how resistant it is to any form of bias favoring one social group over another. At the macro level, three main indicators are commonly used to assess the state of financial and banking inclusion. These indicators are (Naimi & Ben Sassi, 2021, p. 236):

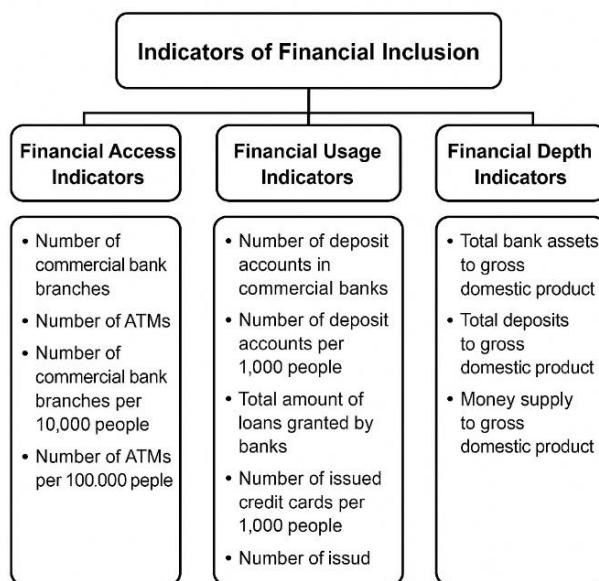
- **Financial Access Indicator:** This indicator measures the financial sector's ability to reach beneficiaries (clients) by facilitating smooth access for all segments of society to the full range of services and products offered by the financial sector. This is typically assessed by determining the number of bank branches or ATMs per 100,000 people. From this perspective, an inclusive financial sector is one that ensures easy access to its services for the largest number of citizens.
- **Financial Depth Indicator:** This indicator measures the extent to which cash is used in the economy—known as the monetization rate. Since money is used to settle financial obligations, accumulate savings, and meet investment needs, this is evaluated by examining the ratio of narrow money supply (M1) and broad money supply (M2) to the Gross Domestic

Product (GDP). An inclusive financial sector, from this viewpoint, is one that achieves the highest possible use of money in all its forms to contribute to GDP.

- **Financial Usage Indicator:** This indicator assesses the population's ability to utilize and benefit from the financial services and products that are already available to them through the financial sector. It is measured by the volume of bank deposits and the volume of bank financing relative to the GDP. An inclusive financial sector in this sense is one where the highest possible level of service utilization by the population is achieved.

The previous indicators can be summarized in the following diagram:

Figure 1. Indicators of Financial Inclusion



Source: (Baqbaq, 2022, p. 164)

2.2.3 Dimensions of Financial Inclusion:

Financial inclusion is built upon three fundamental dimensions, which are outlined as follows:

- **Access to Financial Services:** This refers to the ability of all segments of society to benefit from the financial services and products offered by formal institutions. Measuring access involves identifying and analyzing potential barriers to opening and using a bank account—such as cost, time, and proximity to banking service points. This is assessed through data provided by financial institutions regarding the accessibility of financial services (Shanbi & Ben Lakhdar, 2018, p. 6).
- **Usage of Financial Services:** The degree of usage refers to how frequently and regularly customers utilize the financial services provided by the banking sector. To measure this, data must be collected on the regularity and frequency of service usage over a specific period (Bahnas, Rasool, & Basisa, 2019).

- **Quality of Financial Services:** This refers to the ability of a financial product or service to meet the needs of customers. The quality metric reflects how well the financial service aligns with customer needs, the range of available options, and the level of customer awareness and understanding of financial products (Qasi & Bolsnam, 2021).

2.2.4 Objectives and Importance of Financial Inclusion

A. Objectives of Financial Inclusion:

Financial inclusion seeks to achieve several key goals, the most important of which include (Abdul-Ridha, Jawad, & Al-Karim, 2020, p. 155):

- Promoting and protecting the rights of financial service consumers by developing relevant policies and regulations, and educating both current and potential users of financial institutions about their rights and responsibilities.
- Facilitating access to financing sources with the aim of improving citizens' living conditions.
- Enhancing access to financial services and products for all segments of society, raising awareness of their importance, and guiding individuals on how to obtain and benefit from them to improve their social and economic circumstances and promote financial and social stability.
- Conducting in-depth market research and setting definitions and goals tailored to market conditions, aiming to understand optimal alignment based on the specific context of each country.
- Achieving financial system stability, financial integrity, and consumer financial protection, ensuring alignment between strategic objectives—especially ensuring access for financial service users.

B. Importance of Financial Inclusion:

The importance of financial inclusion is reflected in several key areas (Falaq, Hamdi, & Saliha, 2019, p. 1):

a. Social Dimension: It focuses on improving living conditions, particularly for low-income individuals and the poor.

b. Economic Dimension: It contributes to economic growth by increasing financial efficiency.

c. Strategic Dimension: Many countries have made financial inclusion one of their key strategic goals by aligning it with three fundamental objectives:

- **Financial Stability:** Defined by the European Central Bank as a financial system able to withstand shocks and financial imbalances comprising markets, financial intermediaries, and market infrastructure. This improves the effective distribution of savings to profitable investment possibilities and lowers the risk of disturbances in financial intermediation.
- **Financial Integrity:** International standards emphasize the importance of financial integrity by combating money laundering, terrorism financing, and crime. Proper implementation of these standards within a framework of integrity allows a large portion of low-income individuals to access formal financial services. Conversely, if data are incomplete and banks refuse to deal with certain beneficiaries, these individuals may turn to

informal financial services, hindering social and economic progress.

- **Consumer Financial Protection:** This aims to balance the relationship between financial service providers and consumers, ensuring fair and transparent treatment, easy access to financial products and services, affordable costs, and high quality.

From the above, it is clear that financial inclusion is a long-term strategy aimed at providing financial services that meet the needs of all segments of society, including the poor. These services should be affordable and of high quality.

2.2.5 The Role of FinTech in Supporting Access to Financial Inclusion

FinTech, with its simplified mechanisms, offers a solution to several challenges—such as the high cost of services, long distances between remote areas and financial service centers, and the complex procedures imposed by traditional institutions. Fintech offers the necessary flexibility, enabling service delivery through smart devices to even the most remote areas. It reaches various segments of society at lower costs due to its minimal reliance on the traditional infrastructure and equipment used by financial institutions. Fintech represents an entirely new business model.

Additionally, the shared customer data available to service providers allows for electronic assessment of creditworthiness when such data is accessible. A World Bank study on financial inclusion confirmed a noticeable improvement in the number of people accessing financial services globally, with 69% of adults now having access—indicating that fintech has significantly improved financial inclusion levels.

The innovations introduced by fintech in recent years, driven by technological advancement, have contributed greatly to customers' preference for digital financial services. These services are often provided by non-financial companies entering the competitive market. Among the preferred services are retail payments, credit provision, and others (Abdul-Ridha, Jawad, & Al-Karim, 2020, p. 154).

To achieve the desired financial inclusion through fintech, certain conditions must be met:

- **Coverage Scope:** Digital channels deployed by service providers—such as banks, telecom companies, and others—have enabled millions of people with mobile phones to access digital financial services in recent years. These channels are now linked not only to payment services but also to savings, insurance, and investment services.
- **Customer Information:** As part of due diligence and risk management, financial service providers require customer identity verification. This is enabled by digital IDs and data footprints generated through the use of digital financial services—including mobile services, electronic payments, and e-commerce platforms.
- **Commercial Viability:** Including marginalized and excluded groups requires offering a wide range of low-value financial products tailored to their needs, including payments, deposits, insurance, and customized credit services (Joanie & Maryamt, 2021, p. 283).

2. Applied Framework of the Study

2.1 Method and Tools Used

2.1.1 Data Collection Tool

To collect the study's data, an electronic questionnaire was used, distributed through social media and email. The questionnaire included the following sections:

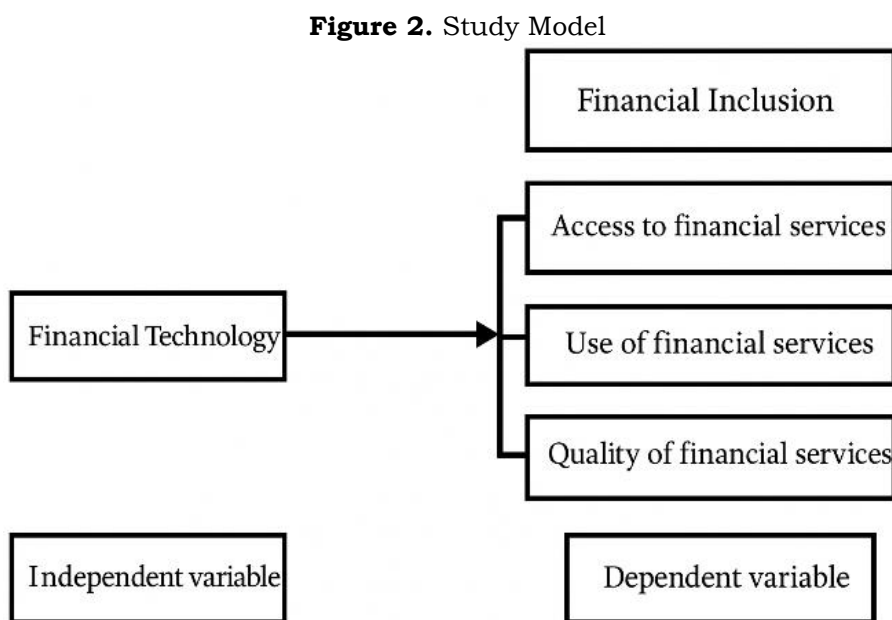
- **Section One:** Contained personal information of the study sample: gender, age group, education level, and occupation.
- **Section Two:** Addressed variables of the study, namely: FinTech; Financial Inclusion across its three dimensions (Access to financial services; Use of financial services; Quality of financial services.)

2.1.2 Study Model

The study model consisted of two main variables:

- Dependent Variable: Financial Inclusion, in its three dimensions (access, use, and quality of financial services)
- Independent Variable: FinTech

This model can be illustrated in the following diagram:



Source: Made by the researchers

2.1.3 Analytical Tools Used

To analyze the questionnaire data, a range of statistical methods available in SPSS V.24 was employed:

- Frequencies and percentages to study sample characteristics
- Cronbach's Alpha to measure the reliability of the instrument

- Normality test
- One-sample t-test
- Linear regression analysis

2.1.4 Reliability Measurement of the Instrument

In this section, Cronbach's Alpha was used as a reliability indicator. According to Table (01), the values exceeded the accepted reference threshold of 60%, both for individual sections and for the questionnaire as a whole. Thus, the instrument is considered **reliable** and suitable for use in completing the study.

Table 1. Cronbach's Alpha Coefficients for Sections and Overall Questionnaire

Dimensions	Number of Paragraphs	Reliability Index (Cronbach's Alpha)
Dimension 1: FinTech	8	0.786
Dimension 2: Financial Inclusion	13	0.871
Overall Questionnaire	21	0.903

Source: Prepared by the researchers based on SPSS V.24 outputs

2.2 Results and Discussion

2.2.1 Study Sample

Based on the administered questionnaire, a sample of 131 individuals was formed. The characteristics of this sample are presented in the table below:

Table 2. Characteristics of the Study Sample

Variable	Count	%
Gender		
Male	51	38.90%
Female	80	61.10%
Age Group		
Under 30 years	55	42.00%
30 to 40 years	47	35.90%
40 to 50 years	18	13.70%
Over 50 years	11	8.40%
Educational Level		
Secondary	9	6.90%
Bachelor's (License)	19	14.50%
Postgraduate	103	78.60%
Occupation		
Public sector employee	66	50.40%
Private sector employee	7	5.30%
Self-employed	15	11.50%

Unemployed	43	32.80%
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Source: Made by the researchers using SPSS V.24 outputs

From the above table, we observe the following:

- The majority of the sample were females, representing 61.1%.
- The predominant age group consisted of 55 individuals aged 30 years or younger.
- A large portion of respondents had postgraduate education, accounting for 78.6%.
- The sample included a wide range of social categories, ensuring a diverse perspective on financial services in the context of financial inclusion and FinTech.

Regarding employment status:

- The majority were public sector employees, constituting 50.4% of the sample.
- Unemployed individuals were also included in the study, as they are now eligible for unemployment benefits, making them active participants in financial transactions with financial institutions.

2.2.2 Normality Test

Since the study sample exceeds 30 individuals, the Central Limit Theorem applies, indicating that the data follows a normal distribution.

2.3 Hypothesis Testing

2.3.1 Sub-Hypotheses Testing

A. Sub-Hypothesis 1

The Sub-Hypothesis 1 state: Financial institutions operating in Algeria are characterized by financial inclusion.

To test this hypothesis, the One-Sample t-Test was used, and its results are presented in the following table:

Table 3. Results of Sub-Hypothesis Testing

Variable	Mean	Standard Deviation	Student's t-value	Degrees of Freedom	p-value (Significance Level)
Financial Inclusion	3.385	0.613	7.188	130	0

Source: Made by the researchers using SPSS V.24 outputs

The test results show that the p-value (0.00) was less than the critical value 0.05. Therefore, we can accept the alternative hypothesis that financial institutions are characterized by financial inclusion, or in other words, that the financial services provided by these institutions are inclusive.

To determine which dimension of financial inclusion is most practiced from the viewpoint of the study sample, the arithmetic means of the dimensions (access to financial services, use of financial services, and quality of financial services) were calculated, along with their degree of agreement. This is illustrated in the following table:

Table 4. Mean Scores and Ranking of Financial Inclusion Dimensions

Dimension	Mean	Agreement Level	Rank
Access to Financial Services	3.3868	Neutral	2
Use of Financial Services	3.4447	Agree	1
Quality of Financial Services	3.3374	Neutral	3

Source: Made by the researchers using SPSS V.24 outputs

The results of the table above confirm the validity of our hypothesis that the financial services provided by financial institutions are inclusive. However, the dimensions that contributed to this financial inclusion vary in their degree of application, as evidenced by their means and degree of agreement by the study sample. The sample unanimously agreed that they use the financial services and products made available by financial institutions, with the dimension of use of financial services ranking first. This was followed by the dimension of access to financial services, where, according to its mean and degree of agreement, the study sample acknowledged the existence and availability of these services, although this availability is not sufficient or not fully accessible. The same applies to the quality of these services; from the participants' perspective, the financial services provided by financial institutions are of good quality but do not fully meet the aspirations of clients, and some of them fail to satisfy their expectations.

B. Second Sub-Hypothesis

The Sub-Hypothesis 2 state: There is an application of FinTech in the financial services provided by financial institutions.

To test this hypothesis, the parametric one-sample t-test was used. The test results are summarized in the following table:

Table 5. Second Sub-Hypothesis Test Findings

Variable	Mean	Standard Deviation	Student's t-value	Degrees of Freedom	p-value (Significance Level)
FinTech	3.499	0.63577	8.984	130	0

Source: Prepared by the researchers based on SPSS V. 24 outputs

The p-value of the test was less than the critical value (0.05), thus confirming that financial institutions provide services and products based on the application of FinTech.

C. Third Sub-Hypothesis Test

The Sub-Hypothesis 3 state: There is a statistically significant effect of FinTech on access to financial services. To test this hypothesis, simple regression analysis was used between the independent variable (FinTech) and the dependent variable (access to financial services). The estimation results are shown in the table below:

Table 6. Third Sub-Hypothesis Test Findings

Model	B	t-value	p-value	Correlation Coefficient (R)	Coefficient of Determination (R ²)	F-value	Model Significance (p)
Independent Variable (FinTech)	0.652	9.975	0	0.652	0.426	95.555	0.000
Constant	0.791	2.93	0.004				

Source: Made by the researchers using SPSS V.24 outputs

The estimation results indicate a strong correlation between the application of FinTech and access to financial services, as shown by a correlation coefficient of 65.2%. The coefficient of determination confirms that 42.6% of customers' ability to access financial services is due to the application of FinTech, while the remaining 57.4% is attributable to other factors not studied.

Moreover, for every 0.652 unit increase in the application of FinTech, there is a corresponding one-unit improvement in access to financial services. Given that the p-value for the model as a whole is (0.000), the model is statistically significant. Therefore, we can accept the alternative hypothesis that there is a significant effect of FinTech on access to financial services.

D. Fourth Sub-Hypothesis Test:

This hypothesis tests the existence of a statistically significant effect of FinTech on the use of financial services. To test this, simple regression was estimated between the dependent variable (use of financial services) and the independent variable (FinTech). The results are presented in the following table:

Table 7. Fourth Sub-Hypothesis Test Findings

Model	B	t-value	p-value	Correlation Coefficient (R)	Coefficient of Determination (R ²)	F-value	Model Significance (p)
Independent Variable (FinTech)	0.718	9.315	0	0.634	0.402	86.776	0.000
Constant	0.931	3.397	0.001				

Source: Made by the researchers using SPSS V.24 outputs

From the estimation of the above model, we find a positive and strong correlation between the two study variables: FinTech and the use of financial services, with a correlation rate of 63.4%. FinTech contributes 40.2% to facilitating the use of financial services.

The regression coefficient indicates that for every 0.718 unit increase in the application of FinTech, the use of financial services increases by one unit. Additionally, the p-value of the overall model was less than the critical value (0.05), confirming its significance. Based on this analysis, we can accept our hypothesis that there is a statistically significant effect of FinTech on the use of

financial services.

E. Fifth Sub-Hypothesis Test

This hypothesis aims to test whether there is a statistically significant effect of FinTech on the quality of financial services.

To verify the validity of this hypothesis, a simple regression model was estimated between the two variables:

- Independent variable: FinTech
- Dependent variable: Quality of financial services

The results are shown in the following table:

Table 8. Fifth Sub-Hypothesis Test Findings

Model	B	t-value	p-value	Correlation Coefficient (R)	Coefficient of Determination (R ²)	F-value	Model Significance (p)
Independent Variable (FinTech)	0.525	6.998	0	0.525	0.275	49.967	0.000
Constant	1.28	4.286	0				

Source: Made by the researchers using SPSS V.24 outputs

Table (08) shows that the model is statistically significant, as evidenced by the model's overall p-value (0.00). There is a moderate correlation between FinTech and the quality of financial services, with a correlation rate of 52.5%.

The coefficient of determination indicates that 27.5% of the improvement in service quality is attributed to the use of FinTech. Additionally, for every 0.525 unit increase in the application of FinTech, the quality of financial services improves by one unit. Based on the above, we can accept the alternative hypothesis that there is a statistically significant effect of FinTech on the quality of financial services.

F. Main Hypothesis Test

This hypothesis seeks to answer the central question of the study—to estimate the effect of applying FinTech on enhancing financial inclusion.

To do so, a simple regression model was estimated between the two variables. The results are presented in the following table:

Table 9. Main Hypothesis Test Findings

Model	B	t-value	p-value	Correlation Coefficient (R)	Coefficient of Determination (R ²)	F-value	Model Significance (p)
Independent Variable (FinTech)	0.525	6.998	0	0.7	0.49	123.75	0.000
Constant	1.28	4.286	0				

Source: Made by the researchers using SPSS V.24 outputs

Based on the estimation results in the table, there is a strong and positive correlation between FinTech and financial inclusion, with a correlation coefficient

of 70.0%. FinTech positively affects financial inclusion by 49.0%. For every 0.7 unit increase in the application of FinTech, financial inclusion improves by one unit. Given that the overall p-value is (0.000), the model is statistically significant. Therefore, we can accept the main hypothesis of our study: There is a significant effect of FinTech on financial inclusion.

3. CONCLUSION

Our study aimed to address an important topic in the financial sector—the role of FinTech in supporting access to financial inclusion in Algeria. This topic was approached through two main sections:

- A theoretical section in which we explored various operational definitions of the research terms and related aspects.
- An applied section where we conducted a statistical study using an electronic questionnaire to measure the effect of applying FinTech on financial inclusion in Algeria.

The following key results were obtained:

- There is an application of FinTech by financial institutions in Algeria.
- Financial inclusion exists in the services and products offered by these institutions.
- FinTech contributes 42.6% to enabling customers' access to financial services.
- The increased use of financial services by customers is attributed to the application of FinTech by institutions, contributing 40.2%.
- FinTech helps improve the quality of financial services by 27.5%.
- The application of FinTech supports financial inclusion at a rate of 49.00%.

Based on these findings, we recommend the following:

- Expand the application of FinTech in the services and products offered.
- Encourage fintech startups operating in the FinTech sector.
- Diversify financial services and products to suit all segments of society and their beliefs.
- Facilitate access to all financial services for all individuals by simplifying the procedures required—this is a key strength of FinTech.
- Increase the geographic reach of financial institutions to bring services closer to customers.
- Adapt the regulatory environment governing the operations of financial institutions—especially with regard to FinTech.
- Improve the quality of financial services to better meet customer needs and expectations.

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