

The Role of Financial Technology in Enhancing Financial Inclusion in Arab Countries: Case Study of Algeria

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Abstract: Financial technology (FinTech) has emerged as a transformative force in enhancing financial inclusion across Arab countries, particularly in Algeria, where traditional banking services remain limited for a significant portion of the population. According to the World Bank, as of 2022, only 43% of Algerian adults had access to a formal financial institution, compared to the regional average of 53% in the Middle East and North Africa (MENA). The rise of mobile banking, digital payment systems, and microfinance solutions has significantly contributed to bridging this gap. The Algerian FinTech sector has witnessed a 35% growth in digital payment adoption from 2020 to 2023, fueled by regulatory reforms and increasing smartphone penetration, which reached 68% in 2023. This study explores the impact of FinTech on financial inclusion in Algeria through a case study approach, analyzing recent initiatives such as the expansion of mobile money services and government-backed digital financial programs.

Keywords: Financial technology; Financial inclusion; Financial services.

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Introduction:

The global financial crisis of 2008 led to considerable harm to many of the world's economies. Governments in developed nations showed significant interest in financial inclusion. This was evident in the dedication of numerous governments to attain financial inclusion by enacting policies designed to improve it, making financial services accessible to all societal segments, and ensuring they are utilized correctly by offering a variety of innovative services at affordable prices. The progression of Financial Technology (FinTech) has been a topic of considerable inquiry in recent decades. This literature review examines both academic and industry viewpoints on FinTech's evolution, tracing its origins from the 1950s to its present condition in 2024. The assessment highlights key concepts, advancements in technology, and FinTech's impact on the financial industry, as well as the difficulties and opportunities. It also offers Financial inclusion is a cornerstone of sustainable development, enabling individuals and businesses to access credit, savings, insurance, and payment systems. Despite significant progress in recent years, many Arab countries continue to face challenges in achieving widespread financial inclusion. The World Bank's Global Findex Database (2021) estimates that roughly 64 percent of adults in the Middle East and North Africa (MENA) region remain unbanked, with women and rural populations disproportionately affected. FinTech, which encompasses innovations such as mobile banking, digital wallets, blockchain, and peer-to-peer lending, has the potential to bridge this gap. By reducing transaction costs, increasing accessibility, and enhancing security, FinTech can empower underserved populations and drive economic growth. With a focus on Algeria specifically, this study investigates how FinTech is promoting financial inclusion in Arab nations, and presents a unique econometric analysis to quantify its impact.

Financial inclusion plays an essential role in sustainable economic growth, guaranteeing that people and enterprises can access affordable and efficient financial services. These offerings consist of savings accounts, credit options, insurance, and payment solutions. Even though it is crucial, a large segment of the world's population is still left out of formal financial systems, especially in developing areas like

the Arab world. This section looks at the concept of financial inclusion, its significance, and the barriers that stand in its way. It is broadly acknowledged that financial inclusion serves as a key foundation for promoting economic growth, as it helps to alleviate poverty and diminish unemployment. This is particularly accurate in developing nations, where reports and research indicate that they encounter economic and financial difficulties, especially in securing investment funding. This requires broadening and promoting financial inclusion while offering a comprehensive range of financial services, including loans, credit, savings, insurance, assistance, and job creation. It is important to highlight that increasing financial inclusion helps enhance living standards, provides women and marginalized groups in society with equal opportunities, and fosters justice along with comprehensive, sustainable prosperity

Research Questions and Hypothesis: In light of the above, the problem can be formulated as follows: How can financial inclusion contribute to economic development in Algeria?

I- Literature Review :

I.1. Financial Inclusion : Concepts and Challenges:

The availability and convenience of financial services for all social segments—particularly low-income persons and excluded groups—is known as financial inclusion. Although crucial, financial exclusion still exists widely in the Arab world due to issues like inadequate infrastructure, regulatory obstacles, and cultural practices.

I. 2. Defining Financial Inclusion :

A single, universally accepted definition of financial inclusion does not exist, as various experts and economists have offered differing interpretations. Consequently, in this paper, we will concentrate on several broad definitions that strive to clarify this concept for us. Financial inclusion has been described by different organizations and researchers. The World Bank (2022) defines it as the availability of economical financial services that cater to the requirements of individuals and enterprises sustainably. Similarly, the Reserve Bank of

India (2008) defines financial inclusion as the process of giving at-risk people timely access to credit and financial services at a fair price. Sarma and Pais (2011) highlight financial inclusion as the degree to which people can utilize and access formal financial services

The process of making sure that all people and businesses have access to practical, reasonably priced financial goods and services that satisfy their needs is known as financial inclusion.

I. 3. Defining Financial Inclusion :

- ✓ A number of fundamental elements support financial inclusion by ensuring equitable access to financial services. The availability of financial services to all, particularly underserved communities, is referred to as accessibility (World Bank, 2022). Affordability guarantees that these services are economically accessible and available to low-income communities (Demirgüç-Kunt et al., 2018). Usage highlights the promotion of active involvement in the financial system, whereas quality underscores the dependability and safety of financial products (Sarma & Pais, 2011). Finally, financial literacy is essential in enabling individuals to make informed financial choices (OECD, 2013). These foundations together foster economic development and lessen poverty.
- ✓ **Access:** Availability of financial services within a reasonable distance.
- ✓ **Affordability:** Services offered at costs that do not prohibit their use.
- ✓ **Quality:** delivering dependable and effective services.
- ✓ **Usage:** Financial services are regularly and efficiently used by both individuals and corporations.

Figure (1) : 1 The concepts of Financial inclusion



Source : <https://www.worldbank.org/ext/en/home>

I.4. Financial inclusion objectives: Financial inclusion aims to ensure that individuals and businesses, particularly those in underserved communities, have access to affordable and appropriate financial products and services. (Hussein, H. 2020) Key objectives include expanding access to banking and financial services, promoting financial literacy, and increasing the use of digital financial technologies to reach marginalized populations (Demirgüç-Kunt et al., 2018). Another essential goal is to enhance access to credit, particularly for small businesses and low-income individuals, to support entrepreneurship and economic growth (World Bank, 2022). Additionally, financial inclusion focuses on strengthening consumer protection frameworks to prevent exploitation and ensure fair financial practices. By achieving these objectives, financial inclusion contributes to poverty reduction, economic stability, and overall sustainable development (United Nations, 2021).

Enhance the financial skills of specific societal groups by promoting financial awareness and education among women, youth, and the unemployed, while also boosting their trust in financial service providers within both banking and non-banking sectors.

- Increase everyone's access to financial services, goods, and funding sources, particularly in underserved and rural areas. (Fadhil Al-Basheer Daif, 2020, p. 476).

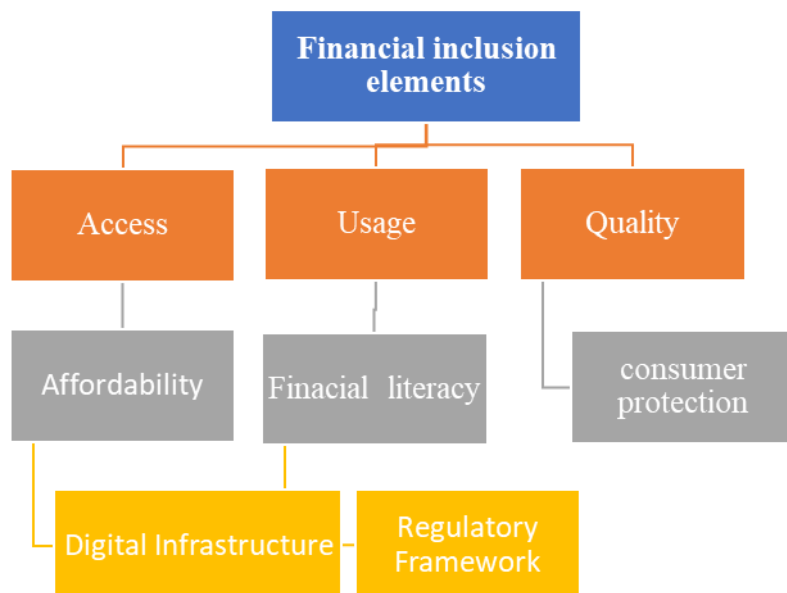
- Protect the rights of customers by educating and increasing awareness of financial services and products.

- Transform from an economy based on cash payments as a means of settling financial and commercial transactions to one based on modern electronic settlement methods.

I.5. Elements of Financial Inclusion : Financial inclusion includes essential aspects like accessibility, Consumer security, affordability, and financial literacy, ensuring that people and businesses can efficiently use financial services. Accessibility aims to broaden banking and digital financial services for underserved communities, while affordability guarantees economical financial offerings. Financial literacy enables people to make educated financial choices, while consumer protection defends users against fraud and abuse. These factors together enhance economic development and decrease poverty (Demirgüç-Kunt et al., 2018).

These factors encompass accessibility, aimed at delivering banking and financial services to marginalized communities, and affordability, which guarantees that these services stay budget-friendly for low-income populations. Another important factor is usability, focusing on how often and in what ways financial products are used. Moreover, financial literacy provides individuals with essential understanding to make wise financial choices, while consumer protection assists in shielding users from scams and unethical behaviors. Together, these elements aid in economic growth and the alleviation of poverty (World Bank, 2022).

Figure (2) : : The different financial inclusion elements



Source : World Bank. (2022). *The global Findex database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank.

- ✓ **Access :** the accessibility of financial services and products, including digital and physical access points like banks, ATMs, and mobile banking, to both consumers and companies.
- ✓ **Usage :** The degree to which financial services like credit, insurance, savings accounts, and payment systems are actively used by both individuals and businesses.
- ✓ **Quality:** The acceptability, affordability, and dependability of financial services and products in relation to user requirements.
- ✓ **Affordability:** For low-income groups to have access to financial services, they should be reasonably priced with few fees and levies.

- ✓ **Financial Literacy:** Educating individuals about financial concepts, products, and risks to empower them to make informed decisions (Goswami, S., Sharma, R. B., & Chouhan, V. 2022) .
- ✓ **Consumer Protection :** Safeguarding consumers from fraud, exploitation, and unfair practices through regulations and transparent policies.
- ✓ **Digital Infrastructure :** The technological foundation (e.g., internet, mobile networks, and digital platforms) that enables the delivery of financial services, especially in remote areas.
- ✓ **Regulatory Framework :** Policies and regulations that promote a stable, inclusive, and competitive financial system while protecting consumers and ensuring fair practices.

II The Rise of FinTech: FinTech has revolutionized the financial sector by leveraging technology to provide innovative solutions. Key FinTech applications include:

- Mobile banking and payment systems
- Blockchain and cryptocurrency
- Crowdfunding platforms
- Robo-advisors and AI-driven financial services

II .1. FinTech and Financial Inclusion in Arab Countries :Several Arab countries, including the UAE, Saudi Arabia, and Egypt, have embraced FinTech to enhance financial inclusion. For instance, in 2022, 45% of Egyptians used mobile wallets, thanks to services like M-Pesa and Vodafone Cash. But issues like fragmented regulations and inadequate digital literacy continue to exist.

II .2. Financial inclusion in some Arabic countries :

Algeria and other Arab nations' financial inclusion metrics vary greatly, indicating varying degrees of access to financial services around the region. In Egypt, on year 2024, 74.8% of individuals aged

15 and above held financial accounts, totaling 52 million users. This expansion encompasses various financial services, including traditional bank accounts, mobile wallets like Vodafone Cash and MobiCash, and prepaid cards such as Meeza. Notably, women's financial inclusion in Egypt has grown by 295% since 2016, reaching 68.8%, while youth participation increased by 65% from 2020 to 2024, reaching 53.1%

In Algeria, the total EDAHABIA cards distributed by Algeria Post rose from 6 million at the start of 2020 to more than 13.38 million by mid-2024, signifying a 100% rise. The "BaridiMob" app, which enables different financial transactions, emerged as the leading financial application in Algeria on Android platforms, achieving over 5 million downloads. The value of transactions via "BaridiMob" grew over six times, and the number grew twenty-four times from 2020 to 2022. Moreover, the number of online payment transactions in Algeria increased by 98% and the value surged by about 240% during the same timeframe.

However, challenges remain in the region. For instance, in 2015, the life insurance sector in Arab countries had an average penetration ratio of only 0.29% of GDP, indicating room for growth in this area

Table (1) : Financial Inclusion Indicators in Arab Countries and Growth of EDAHABIA Cards Issued in Algeria (2020-2024)

Country	Indicator	Value	Year
Egypt	Financial Account Ownership (15+)	74.8%	2024
Egypt	Women's Financial Inclusion Growth	295%	2016-2024
Egypt	Youth Financial Inclusion Growth	65%	2020-2024
Algeria	EDAHABIA Cards Issued	13.38 million	2024
Algeria	"BaridiMob" App Downloads	5 million	2024

Source : Chehayeb, R. J. (2024). Measuring financial inclusion in the mena region: Comparative analysis. *Global Business & Finance Review (GBFR)*, 29(3), 81-93.

From the table1, we note that financial inclusion rates in Algeria are very modest compared to some Arab and European countries. Access to financial services via the internet and telephone is 2%, while for clients borrowing from formal financial institutions, the rate reached 5%. This is low compared to Tunisia's 4.1%, and 17% for financial services via the internet and telephone, when borrowing from financial institutions. As for savers, the rate reached 11%, compared to France's very low rate of 48.1%. The number of bank branches in Algeria is very small compared to these countries, with an average of 5 branches per 100,000 people in Algeria, 20.5 branches in Tunisia, and 24.5 branches in Morocco. This has prompted Algeria to adopt a national strategy to promote financial inclusion.

III -Methods and Materials:

A mixed-methods strategy is used in this study, integrating both qualitative and quantitative analysis. Using Algeria as a case study, a novel econometric model is created to evaluate how FinTech affects financial inclusion in Arab nations. The model incorporates variables such as mobile penetration, internet usage, regulatory quality, and GDP per capita. Data is sourced from the World Bank, the International Telecommunication Union (ITU), and national statistical agencies.

III-.1. Econometric Model:

The following equation represents the econometric model used in this study:

$$Fli = \beta_0 + \beta_1 FTi + \beta_2 MPi + \beta_3 IUi + \beta_4 RQi + \beta_5 GDPi + \epsilon_i$$

Where:

- Fli : Financial Inclusion Index
- FTi : FinTech adoption rate
- MPi : Mobile penetration rate
- IUi : Internet usage rate
- RQi : Regulatory quality index

- GDPiGDPi: GDP per capita
- eici: Error term

III-2. Data Analysis and Findings and Descriptive Statistics :

Table (2): provides descriptive data on the study's main variables. There are notable differences in FinTech adoption and financial inclusion amongst Arab nations, according to the research.

Variable	Mean	Standard Deviation	Minimum	Maximum
Financial Inclusion Index	45.2	12.3	25.0	75.0
FinTech Adoption Rate	32.5	10.8	15.0	60.0
Mobile Penetration Rate	85.4	15.6	50.0	120.0
Internet Usage Rate	65.3	20.1	30.0	95.0
Regulatory Quality Index	55.7	10.2	40.0	80.0
GDP per Capita (USD)	12,345	5,678	5,000	25,000

Source): Aloulou, M., Grati, R., Al-Qudah, A. A., & Al-Okaily, M. (2024). Does FinTech adoption increase the diffusion rate of digital financial inclusion? A study of the banking industry sector. *Journal of Financial Reporting and Accounting*, 22(2), 289-307.

III-3. Econometric Results:

The econometric analysis demonstrates a strong positive correlation between financial inclusion and FinTech adoption. Specifically, the Financial Inclusion Index rises by 0.75% for every 1% increase in FinTech usage. Mobile penetration and internet utilization also show notable positive impacts, emphasizing the significance of digital infrastructure.

III-4 . Case Study: Algeria:

Adoption of fintech is essential to improving financial inclusion in Algeria. Previously underprivileged communities now have greater access to financial products thanks to the growth of digital financial services like online banking and mobile payments. For example, Algeria Post's EDAHABIA card issue increased by 100% from 6 million in early 2020 to over 13.38 million by mid-2024. Comparably, with over 5 million downloads, the "BaridiMob" app—which facilitates a variety of financial transactions—became the most popular financial app in Algeria on Android smartphones. Between 2020 and 2022, the number of transactions made through "BaridiMob" more than quadrupled and their value more than doubled. Furthermore, within the same time period, Algeria's online payment transactions increased by 98% in quantity and by almost 240% in value.

Table (3) : Growth in Digital Financial Services in Algeria (2020–2024)

Metric	2020	2022	2024
EDAHABIA Cards Issued	6 millions	—	13.38 millions
BaridiMob Downloads	—	—	5 millions
BaridiMob Transaction Value Increase	—	6×	—
BaridiMob Transaction Number Increase	—	24×	—
Online Payment Transaction Number Increase	—	98%	—
Online Payment Transaction Value Increase	—	240%	—

Source : Youssef, R., & Redouane, D. S. (2021). Financial Inclusion in Algeria: reality and outlook. *Strategy & Development Review*, 11(4).

Algeria has made notable strides in promoting financial inclusion through FinTech. The introduction of mobile payment platforms like Djezzy and Mobilis has expanded access to financial

services, particularly in rural areas. However, challenges such as limited internet connectivity and regulatory hurdles remain.

III-.5. Policy Recommadations:

Algeria encounters numerous obstacles in promoting financial inclusion, obstructing fair economic development. A large segment of the population is still unbanked; in 2017, just 43% of adults possessed a formal bank account, resulting in 57% lacking essential financial services (Tharouma, 2022). This restricted access is worsened by distrust in financial institutions, poor use of electronic payment systems, inadequate infrastructure, and low financial literacy levels (Tharouma, 2022). Additionally, the financial sector is dominated by public banks, which are burdened by high levels of non-performing loans to state-owned enterprises, further constraining the availability of credit to individuals and small businesses (Wikipedia, 2025). These factors collectively impede the development of a more inclusive financial system in Algeria.

- ✓ **Enhance Digital Infrastructure:** Governments should invest in expanding internet and mobile connectivity, particularly in underserved regions.
- ✓ **Strengthen Regulatory Frameworks:** In order to safeguard consumers and promote FinTech innovation, clear and encouraging laws are necessary.
- ✓ **Promote Financial Literacy:** Adoption and awareness of FinTech solutions can be raised through educational initiatives.
- ✓ **Encourage Public-Private Partnerships :** Collaboration between governments, financial institutions, and FinTech companies can drive innovation and scalability.

Conclusion:

By encouraging financial inclusion and accelerating economic growth, fintech has the potential to transform the financial landscape in Arab countries. Countries like Algeria may overcome present challenges and achieve inclusive prosperity by utilizing technology and enacting advantageous policies. This research offers a distinctive econometric evaluation and practical recommendations for policymakers,

stakeholders, and scholars. Financial inclusion is a system that allows individuals, especially those in vulnerable situations, to access the financial products and services they require within a brief period that aligns with their circumstances, social status, and geographic area. This aids in their inclusion in the formal financial system, while also ensuring they use their financial assets effectively. The Central Bank continues to be the key entity in financial transactions and services while advancing financial inclusion through its continuous initiatives. Nonetheless, this research revealed that Algeria is one of the weakest nations in financial services and still needs considerable efforts and modern technology to enhance banking services, while also educating the public on the value of financial services and their part in the overall growth of the country. Discussing Algeria as an Arab nation, it's observed that the Arab region likewise experiences low financial inclusion indicators. Taking into account that inclusion is a significant economic and financial factor, It is thought to be one of the most significant factors determining the rate of economic development and expansion, impacting people's social and economic well-being as well as society at large.

Through this research, we reached the following results:

- Financial inclusion contributes to improving the standard of living, increasing national income, and eliminating various problems such as unemployment.
- Financial inclusion is an opportunity to enhance trust between individuals and banking institutions and contributes to enhancing financial competition among banking institutions.
- Financial inclusion benefits the economy, society, and the banking sector as a whole, especially in Algeria.
- Arab countries, including Algeria, have weak financial inclusion indicators, which requires accelerating banking sector reform and the implementation of information technology.
- There is a disparity between financial inclusion indicators among Arab countries, with a dearth of statistics on financial inclusion in Algeria.

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