

Mobile Money to achieve Financial Inclusion
-An Analytical View of Algerian Case and Leading International Experiences-

الأموال عبر الهاتف المحمول لتحقيق الشمول المالي
-رؤية تحليلية لحالة الجزائر وتجارب دولية رائدة-

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Abstract:

The research aimed to investigate the potential of mobile money to expand financial access in Algeria, drawing inspiration from the successful implementation in Sub-Saharan African countries. A descriptive approach was employed to establish theoretical frameworks for the study variables. Subsequently, an analytical approach examined the experiences of some Southern African Nations and Egypt with mobile money, as well as the current state of mobile phone companies and financial inclusion criteria in Algeria. The findings reveal that while mobile money could be beneficial in certain regions of Algeria, particularly, the south where traditional banking infrastructure is limited, their immediate implementation may not be necessary due to the paucity of mobile internet coverage. To effectively enhance financial inclusion, the study suggest prioritizing the development of mobile banking services and expanding mobile network coverage as a more suitable and targeted strategy for Algeria's specific context.

Keywords: Mobile Money; Financial inclusion; Mobile Network Operators; Mobile Banking; Mobile Internet Coverage.

Jel Classification Codes: E42 ; G21 ; E50.

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Abstract in Arabic:

هدفت هذه الورقة البحثية إلى دراسة إمكانية تطبيق خدمة النقود عبر الهاتف المحمول لتحقيق الشمول المالي في الجزائر، بالنظر إلى النجاح الذي حققته دول جنوب إفريقيا في هذا المجال. تم استعمال المنهج الوصفي من أجل تقديم التأسيس النظري لمتغيرات الدراسة، ثم اعتماد المنهج التحليلي من خلال دراسة تجربة بعض دول جنوب إفريقيا ومصر في مجال النقود عبر الهاتف المحمول، بالإضافة إلى دراسة واقع شبكات الهاتف المحمول في الجزائر وبعض معايير الشمول المالي فيها. كشفت نتائج الدراسة أنه على الرغم من الإمكانيات التي تتيحها خدمة النقود عبر الهاتف المحمول في تعزيز الشمول المالي، خاصة في المناطق الجنوبية من الجزائر التي تعاني من محدودية البنية التحتية المصرفية التقليدية، فإن سوء تغطية شبكة الانترنت عبر الهاتف المحمول في هذه المناطق تحد من جدوى تطبيق هذه الخدمات. ولتعزيز الشمول المالي، تقترح الدراسة منح الأولوية لتطوير الخدمات المصرفية عبر الهاتف المحمول مع ضرورة توسيع تغطية شبكة الهاتف المحمول كاستراتيجية أكثر ملاءمة لحالة الجزائر.

Keywords (in Arabic): نقود عبر الهاتف المحمول; شمول مالي; موزعي شبكات الهاتف المحمول;

خدمات مصرفية عبر الهاتف المحمول; تغطية الانترنت عبر الهاتف المحمول.

Jel Classification Codes: E42 ; G21 ; E50.

Introduction:

Financial authorities seek to ensure the provision of appropriate financial services to facilitate transactions for citizens in their daily and professional lives. However, there are segments of society and remote areas that suffer from the scarcity of these services. The World Bank reports that over 1.4 billion adults lack a bank account. This category usually represents low-income people and women. Therefore various countries seek to achieve what is called financial inclusion, by providing electronic financial services, which rely mainly on bank cards and various electronic payment devices, including mobile phones.

The remarkable development in the use of mobile phones has led to increased interest in it as a means of electronic financial device, especially in areas that suffer from difficulty in dealing with banking institutions. Therefore, the opportunity was exploited by Mobile Network Operators (MNOs), which received wide popularity, especially in Southern African countries, in light of the lack of a sufficient number of bank branches, means of bank payment and the resulting difficulties when dealing with the banking system of these countries.

Given the limited access to financial products, particularly in rural and remote regions of Algeria, we sought to assess the viability of implementing mobile financial services. Especially since Algeria has the potential with a growing mobile phone market and a need for more inclusive financial solutions.

This analysis led us to the following primary research question:

How crucial is mobile money adoption to achieve financial inclusion in Algeria?

Considering the previous question, the following hypotheses can be formulated:

First Hypothesis: The effectiveness of services related to mobile money is primarily determined by the robustness and advancement of MNOs.

Second Hypothesis: To successfully achieve financial inclusion in Algeria, mobile money services must be relied upon.

The importance of this study lies in the increasing prominence of digitalization in the contemporary technological landscape, particularly within the financial sector. The potential benefits of digitization, including the development of mobile money services, are substantial. By expanding financial services to a wider range of people, similar initiatives can contribute significantly to achieving financial inclusion.

We followed the descriptive approach by addressing the theoretical foundation of the study variables represented by financial inclusion and the mobile money, then we relied on the analytical approach by studying the experience of some Southern African countries and Egypt concerning mobile money, then we examined current state of MNOs and financial inclusion criteria in the Algerian context to assess the potential for implementing mobile money services within the Algerian context.

The study was divided into the following axes:

1. Theoretical underpinnings of "Financial inclusion" and "Mobile Money".
2. The influence of "Mobile Money" on Financial inclusion in selected Southern African countries and Egypt.
3. Potential for Mobile Money Adoption in Algeria.

1. Theoretical Underpinnings of "Financial inclusion" and "Mobile Money":

1.1.Financial inclusion:

1.1.1. Definition:

Many studies have addressed financial inclusion, which is defined as the capacity of households and business to use traditional financial services , policymakers believe that this can help people improve their lives, diminish poverty, and promote economic growth. (RatNot Av Sahay, 2015 , p. 04) However, countries often tailor their own definitions of financial inclusion so as to better fit the unique circumstances and financial needs of their population. Some definitions emphasize equal access to financial services for everyone regardless of factors like ethnicity and gender. (Lensink, Hamilton, & Adjasi, 2022 , p. 11) When measuring financial inclusion, countries often use indicators like the density of bank branches, ATMs, and microcredit institutions per given population. Additionally, they may consider factors such as the quality, suitability, availability, and the cost-effectiveness of financial services. (Simatele, 2022 , p. 31)

As a comprehensive definition, financial inclusion is achieved when relevant authorities effectively deliver accessible and appropriate financial services to all segments of society and all region within a country.

1.1.2. The Importance of Financial Inclusion and its Objectives:

Financial inclusion has become the focus of many governments and financial regulators, especially central banks. It has been proven that there is a close relationship between financial inclusion, financial stability and economic growth. It is difficult to conceive of a sustainability of financial stability while a large part of the population and businesses remain financially excluded from the economic system. Financial inclusion promotes competition between financial institutions by working on the diversity and quality of their products in order to attract the greatest number of customers and transactions, and the entry into the legality of certain informal channels. On another level, financial inclusion is reflected on the social level by paying increased attention to low-income populations, paying particular attention to women, to the accessibility of individuals, small, medium and micro enterprises and their integration into the official financial sector through the provision of financial services, making them available to marginalized categories, in the public interest of job creation, which contributes to economic growth and therefore to poverty reduction, to

improving the distribution of wealth and income, and to increasing the standard of living. (La Banque d'Algérie, 2022)

Financial inclusion aims to facilitate access, use and provision of formal financial products and services to various segments of society at reasonable, fair and transparent prices, rather than obtaining them through informal financial channels.

1.2.Mobile Money:

1.2.1. Definition:

Mobile money is a digital payment system that allows users to store and transfer money using their mobile phone. It is provided by MNOs¹ or another entity in collaboration with them, mobile money systems require users to register with a local agent, obtain a virtual account linked to their phone number, and deposit funds in cash. This digital money can then be used for various transactions like bill payments and money transfers. Unlike traditional banking, a bank account is not necessary for using mobile money. (Kazuko Shirono, 2022 , p. 04)

However, there is a difference between mobile money and mobile banking, the International Monetary Fund (IMF) states that mobile money is a digital form of currency that can be stored and exchanged using mobile money accounts. It is offered by MNOs or another entity that partners with them, independent of traditional banks. Unlike mobile banking, which requires a bank account and allows users to access banking services through a mobile app, mobile money doesn't necessitate a bank account and is primarily used for storing and transferring value. (IMF, 2019)

Even mobile wallets are different from mobile money. They are on smartphones that store information like credit/debit cards or bank accounts. Peoples can use them to make purchases in stores, online, or send money to others. (IMF, 2019)

That is, both the "mobile banking" and "mobile wallet" are linked to a bank account while mobile money is not.

We should mention that mobile money is used for the same function as financial apps or other financial instruments; it can be used for shopping, personal savings, remittances, microloans, managing business funds...

1.2.2. Mobile Money System:

¹MNO "Mobile Network Operators": are telecommunication companies that deliver wireless voice and services to mobile phone users.

To understand the process of electronic money transactions, we outline the following stages based on Madise study (Madise, 2019, p. 79): An agent initially deposits cash with a mobile network operator (MNO) into a consolidated bank account. The MNO subsequently establishes a digital money account for the agent, equivalent to their share of the consolidated funds, accessible via their mobile device. When a customer desires to remit funds to another individual, they present cash to the agent, who transfers a portion of their electronic money to the customer's mobile device. The MNO records this electronic money transfer. The agent can then deposit the received cash into their personal bank account, replenishing their supply of MNO-issued electronic credits.

Given the connection between mobile money and financial inclusion, it is crucial to examine how and when mobile money services can benefit underprivileged individuals. (Donovan, 2012)

2. The influence of "Mobile Money" on Financial inclusion in selected Southern African countries and Egypt:

2.1. Mobile Money's Practical Implementations in Select African Countries:

To examine the determinants of success related to mobile money, we selected a group of countries similar to Kenya, where this service has particularly flourished, such as Ghana and Zimbabwe. Additionally, we included Nigeria, despite its more developed banking sector, to assess the impact of economic and financial factors on mobile money adoption. To explore the potential for mobile money in different context, we also included Egypt, an Arab country with a large population and a banking system striving to keep pace with digital advancements.

Table number (01): Some African Countries Using Mobile Money (2018-2022)

Country	Indicators	2018	2019	2020	2021	2022
K e n y a	Availability of ATMs "per 100,000 adults"	9,46	7,98	7,60	7,02	6,85
	Availability of bank branches " per 100,000 adults"	5,17	4,97	4,86	4,59	4,39
	Availability of bank account " per 1000 adults"	1846,42	2012,89	2205,86	2030,85	1905,49
	Subscribed mobile money accounts "per 1,000 adults"	1 593,34	1 928,99	2 080,54	2 083,36	2 176,26
	Mobile money transaction value "% of GDP"	42,66	42,45	48,66	57,11	
G h a n a	Availability of ATMs "per 100,000 adults"	11,20	10,84	11,14	11,06	10,69
	Availability of bank branches " per 100,000 adults"	8,31	8,08	5,97	5,91	5,75
	Availability of bank account " per 1000 adults"	705,56	746,06	741,45	697,94	830,49
	Subscribed mobile money accounts "per 1,000 adults"	1 705,02	1 658,41	1 915,40	2 344,53	2 619,52
	Mobile money transaction value "% of GDP"	72,33	86,76	143,94	179,56	174,55
Zimbabwe	Availability of ATMs "per 100,000 adults"	6,29	6,03	5,77	5,67	3,86
	Availability of bank branches " per 100,000 adults"	5,21	3,54	3,90	5,82	5,54
	Availability of bank account " per 1000 adults"	490,92	604,21	469,84	478,60	759,26
	Subscribed mobile money accounts "per 1,000 adults"	1 566,38	1 732,13	1 498,67	1 368,28	2 191,25
	Mobile money transaction value "% of GDP"	63,41	54,14	25,05	20,36	18,77
Nigeria	Availability of ATMs "per 100,000 adults"	16,72	17,00	15,98	15,99	14,12
	Availability of bank branches " per 100,000 adults"	4,25	4,73	4,40	4,24	4,36

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	Availability of bank account " per 1000 adults"	1 001,35	1 115,10	1 296,96	1 444,15	1 797,09
	Subscribed mobile money accounts "per 1,000 adults"	76,26	133,32	60,29	191,00	225,87
	Mobile money transaction value "% of GDP"	1,53	3,04	9,72	8,74	16,11
E g y p t	Availability of ATMs "per 1 0 0 , 0 0 0 a d u l t s "	17,67	18,94	20,78	25,99	29,49
	Availability of bank branches " per 100,000 adults"	4,71	6,27	6,37	6,40	6,26
	Availability of bank account " per 1000 adults"	369,83	388,59	452,08	363,52	378,37
	Subscribed mobile money accounts "per 1,000 adults"	176,68	211,79	275,20	344,89	407,61
	Mobile money transaction value "% of GDP "	0,26	0,42	1,43	4,02	7,81

Source: elaborated by the author based on IMF website,

<https://data.imf.org/?sk=e5dcab7e-a5ca-4892-a6ea-598b5463a34c&sid=1460043522778> , consulted 01/09/2024.

The growth rate of Automated teller Machines (ATMs) density in Kenya, Ghana, Zimbabwe, and Nigeria during the period 2018-2022 is: (-27.58%), (-4.55%), (-38.63%), (-15.55%), i.e. it has been decreasing throughout the period studied. This is due to the increase in population density in those countries and the insufficient expansion of the ATM network. For example, in Kenya, the population density growth rate increased by 8.15% during the period 2018-2022 according to IMF statistics data.

In Egypt, growth rate of ATMs during the period 2018-2022 reached 66.89, which is evidence of the interest of the concerned authorities in providing these machines at the national level.

The Availability of bank branches in Kenya and Ghana has been declining steadily during the period 2018-2022, because no new bank branches were established commensurate with the population density, and thus the inability to provide adequate and necessary financial and banking services to citizens.

Zimbabwe and Nigeria experienced a fluctuation in term of availability of banks in proportion to the population density during the studied period. In contrast, Egypt witnessed a remarkable development in this aspect.

According to the statistics related to the subscribed mobile money accounts, we find that these services are developed in countries that suffer from a lack of ATMs and bank branches in addition to number of depositors available in the country.

Regarding mobile money, Kenya, Ghana and Zimbabwe have been highly successful in implementing this system, they are considered as leaders in this field with them strong MNOs, among those we mention:

- **Kenya:** Safaricom or known by M-Pesa platform.
- **GhaNot Av:** MTN Mobile Money and Vodafone Cash.
- **Zimbabwe's MNO:** Econet Wireless Zimbabwe known by EcoCash.

Ghana and Zimbabwe have seen a significant preference for mobile money system, with the number of accounts opened remotely surpassing those established in physical bank branches by a factor of three.

Among the Sub-Saharan Africa countries mentioned, Nigeria has an advanced banking system, characterized by its profitability, national availability, regulatory reforms and technological advancement in its financial services, the reason why it has the lowest usage of mobile money. This doesn't means that mobile money didn't made progress in Nigeria, but it has a slow development compared to the other sub-Saharan Africa countries we've studied.

In the case of Egypt, The use of mobile money is developing significantly and continuously during 2018-2022, it's worth noting that Egypt's banking system has partnered with MNOs to introduce mobile money services through the provision of "mobile wallets". This strategic move is intended to promote financial inclusion and provide practical ways to facilitate financial transactions and reducing the reliance on cash for the country's large population of 65.4 million citizens.

The significance of mobile money in the economies of the aforementioned countries is underscored by its contribution to GDP. Ghana stands out a prime example, with mobile money transactions accounting for a remarkable 174.55% of its total economic activity in 2022. This means that this ratio includes the indirect economic effects of mobile money transactions. According to the Bank of Ghana, the total volume of mobile money transactions is 5.07 billion in 2022. (Bank of GhaNot Av, 2023)

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While other countries exhibit lower percentages, but they are increasing during the studied period, making mobile money an effective tool for facilitating daily transactions and a flexible means of supporting investor activity.

2.2.Mobile Money Success Factors in "Sub-Saharan African Countries":

The prominence related to mobile money in "Sub-Saharan African countries" has been linked to the following factors:

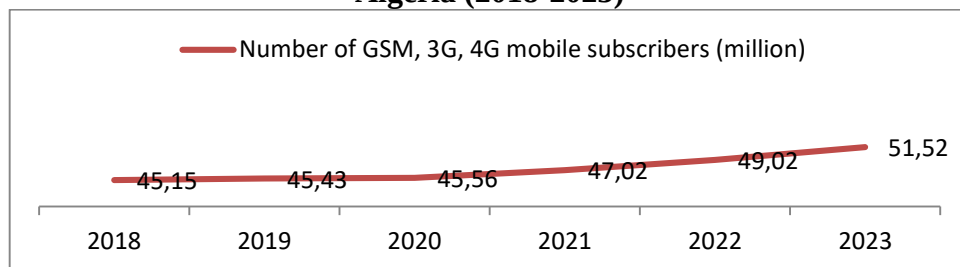
- **Accessibility:** The widespread availability of MNO agents, compared to the limited distribution of banks, particularly in rural areas, has made financial services more accessible to the population.
- **Simplicity:** The simplicity of mobile money usage, requiring only a mobile phone, SIM card, and identity card, stands in stark contrast to the complex procedures involved in opening and using bank accounts.
- **Cost Efficiency:** Mobile money typically offers lower transaction fees compared to traditional banks, who charge high commissions even for account opening and various financial transactions resulting from it.
- **Instantaneity:** The speed and convenience of mobile money transfers, often completed instantaneously, are significant advantages over the potentially lengthily processing times associated with bank transfers, which may take some time, up to 48 hours, to reach the other party.
- **Flexibility:** The flexibility of mobile money transactions, eliminating the need for physical visits to bank branches and reducing the potential for errors or delays, has contributed to its popularity.

3. Potential for Mobile Money Adoption in Algeria:

3.1.The State of Mobile Internet Infrastructure in Algeria:

Before studying the possibility of adopting mobile money in Algeria, it is necessary to know the extent of Algerians' use of the internet via mobile phone networks and the extent of internet coverage and flow via MNOs operating in Algeria at the national level.

Figure number (01): Number of GSM, 3G, 4G mobile subscribers in Algeria (2018-2023)



Source: elaborated by the author based on:

- Rapport annuel de "l'autorité de régulation de la poste et des communications électroniques" –ARPCE,2023, P12.
- ARPCE website, <https://www.arpce.dz/fr/indic/mobile>, consulted 10/09/2024.

According to ARPCE, Out of a total mobile telephony subscriber base of 49.02 million, 44.76 million are active 3G and 4G subscribers, i.e. 91.31% of the total. While the GSM² network has 4.26 million active subscribers, or 8.69% of the total. This represents a decrease of 18.63% compared with 2021, mainly due to the migration of subscribers to 3G^{**} and 4G^{***} networks for better connectivity. (ARPCE, 2023) This demonstrates the widespread use of mobile internet.

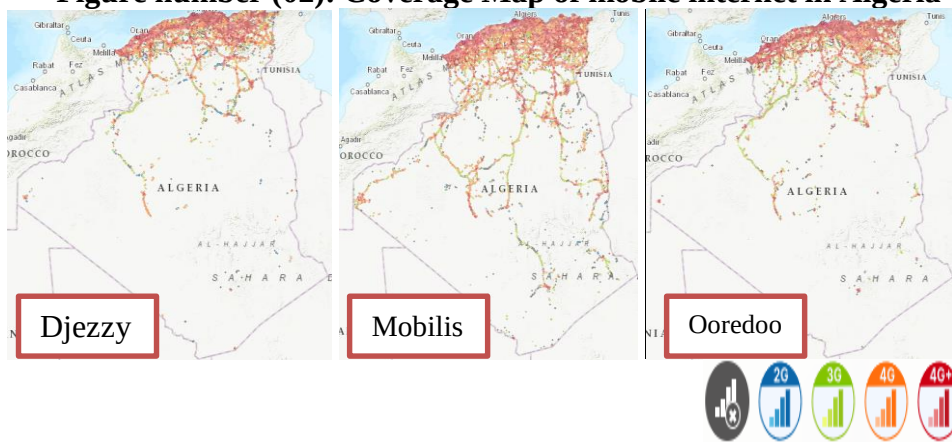
We observe during the period 2018-2023 that there is an increase in the number of GSM, 3G, 4G mobile subscribers in Algeria beginning in 2020. This surge can be attributed to the accelerated adoption of technology and internet usage during the COVID-19 pandemic. The crisis catalysed a shift towards digital solutions across various domains, including economic activities.

²GSM: Global System for Mobile communication, which is a technical system for mobile phones used in many countries.

^{**} 3G: The Third Generation of the mobile telephony network, which succeed the GSM network.

^{***} 4G: The Fourth Generation of mobile wireless technologies, it represents an evolution in high speed-mobile communications and is the logical successor to the third generation.

Figure number (02): Coverage Map of mobile internet in Algeria



Source: elaborated by the author based on Nperf website

https://www.nperf.com/fr/map/DZ/-/-/sigNot_Avl?ll=20&lg=0&zoom=3, consulted 13/09/2024.

The provided maps illustrate the geographic distribution of 2G, 3G and 4G mobile network coverage, as well as coverage of the coverage areas of the operators Djazzy, Mobilis and Ooredoo networks. Anotable trend is the extensive coverage of all mobile networks in northern Algeria, particularly for 4G and 4G+*, which offer superior data transfer rates. Moving southward, however, network speeds gradually decline, transitioning from 4G and 3G to 2G. In the Sahara region, coverage is notably sparse across all networks. It's worth noting that Mobilis generally boasts a more extensive network compared to Djazzy and Ooredoo.

3.2.The State of Banking infrastructure in Algeria:

Prior to discussing the significance of implementing mobile money in Algeria, it is essential to emphasize the banking infrastructure in the country, including its distribution and capacity to offer a range of financial services across all regions.

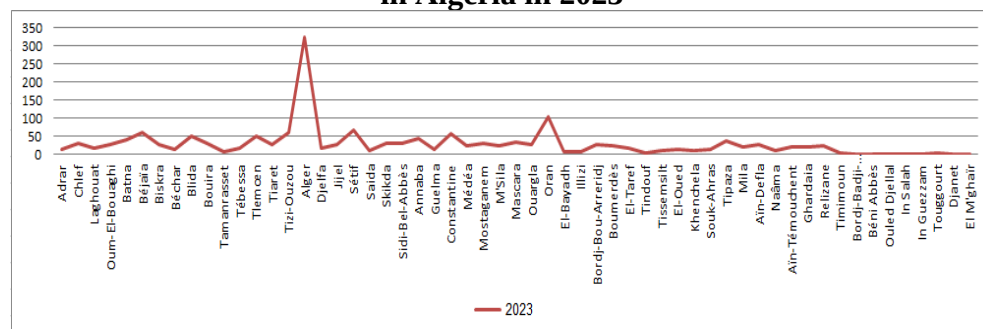
On this basis, Algeria includes: (Bank of Algeria, 2023)

* 4G*: 4G Advanced, it uses the Long Terme Evolution (LTE) with Advanced standards.4G+ is an improved version of LTE, the data rates displayed by 4G and 4G+ are to be compared by taking into account the theoretical data rates.

- 7 public banks;
- 13 private banks with foreign capital including mixed capital banks;
- 2 public financial institutions;
- 5 institutions specialised in financial leasing, of which 3 are public;
- 1 agricultural insurance cooperative authorised to carry out banking operations and which, at the end of 2009, took on the status of a financial institution.

All these financial entities have branches divided throughout the country, according to the Bank of Algeria at the end of 2023, the banking network in Algeria included 1,649 bank branches and financial institutions, of which 1,249 belonged to public banks and 400 to private banks. They are divided across the national territory as shown in the following figure:

Figure Number (03): Number of Commercial Bank Branches by Wilaya in Algeria in 2023



Source: elaborated by the author based on "Bank of Algeria" website, <https://www.bank-of-algeria.dz/nombre-agences-wilaya/>, consulted 01/09/2024.

The concentration of banking agencies in Algeria is heavily skewed towards the northern regions, with Algiers, the capital city, housing the headquarters of all major banks and financial institutions. Oran, the second largest city, follows with a significant number of bank branches, though still less than a third of Algiers. Other cities with notable banking presence include Setif, Bejaia, Tizi-Ouzou, and Constantine. In contrast, southern Algeria, particularly the Saharan regions, faces a severe shortage of bank branches due to low population density with unfavourable living conditions, and some even lack a single agency like El M'gheyyar, which is a new wilaya that was affiliated to the wilaya of El Oued as a result of the new wilaya division of 2019.

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Table number (02): Some measuring indicators of financial inclusion in Algeria (2018-2023)

	2018	2019	2020	2021	2022	2023
Availability of ATMs "per 100,000 adults"	9,62	9,39	9,38	9,37	8,13	11,96
Availability of bank branches " per 100,000 adults"	5,34	5,35	5,30	5,31	5,29	5,26
bank deposits "% of GDP"	44,58	42,63	47,44	46,42	43,09	43,41
Subscribed mobile money accounts "per 1,000 adults"	Not Available	NOT Av	NOT AV	NOT AV	NOT AV	NOT AV
Mobile money transaction value "% of GDP"	Not Available	NOT AV	NOT AV	NOT AV	NOT AV	NOT AV

Source: IMF website, https://data.imf.org/?sk=1fc652d5-a429-4b9f-b608-acb0f63906fb&hide_uv=1&sid=1460043522778, consulted 05/09/2024.

The growth rate of the Availability of ATMs during 2018-2022 is estimated at (-15.48%), but since data related to 2023 are available, it indicates an increase in the number of ATMs during this year, so that the growth rate during the period 2018-2023 is estimated at 24.32%, due to the country's policy of digitizing the financial system.

Figure 3 demonstrates the uneven distribution of bank branches across Algeria, with a clear concentration in the northern regions. In contrast, the southern parts of the country suffer from a dearth of such institutions. The accompanying table reveals fluctuations in the density of bank branches throughout the study. Notably, a decline in the availability of bank branches relative to the population has occurred in the last 2 years. This trend is attributed to the increasing population density during this time, as the National Statistical Office reports a rise in the working population that outpaces the growth in bank branches.

The percentage of deposits with commercial banks relative to GDP experienced fluctuations during the study period, primarily influenced by the economic downturn resulting from the "COVID-19" pandemic and rising inflation rates. The peak inflation rate "10.8%" in 2022 contributed to a decline in the deposit-to-GDP ratio. Moreover, the growing trend of e-commerce and the subsequent opening of foreign online bank accounts have impacted domestic deposit levels. Despite significant strides in digitization, the Algerian banking system remains in the early stages of offering comprehensive e-banking services.

Mobile Money services, which typically involve partnerships with Mobile Network Operators (MNO), are not currently offered by Mobilis, Djezzy, or Ooredoo in Algeria. However, this does not preclude the availability of e-money services in the country. These services are primarily linked to bank accounts and fall under the category of mobile banking. Customers can use their mobile phones to pay certain bills by entering credit card information associated with a specific bank account. Additionally, mobile applications like "Baridi Mob" facilitate bill payment and money transfers, requiring a postal current account and a credit card.

3.3. Assessing the Need for Mobile Money Services to enhance financial inclusion in Algeria:

In order to determine the extent to which the Algerian financial system needs to provide mobile money services, and the extent to which they contribute to achieving financial inclusion, we decided to study the following factors, taking into account the prominence related to mobile money in "Sub-Saharan African countries" according to the reality of the Algerian banking system and the reality of mobile operators in the area previously studied:

- **Accessibility of Financial Services:** The geographic distribution of bank branches in Algeria, coupled with the prevalence of digital infrastructure, presents distinct opportunities and challenges. In the northern region, home to a majority of the population, boasts a dense network of bank branches, accounting for 82% of the national total, where banking services are abundant and internet and mobile phone networks are widespread, leveraging digital technology to develop mobile banking application and other electronic financial services would enhance accessibility and convenience. Conversely, the southern region, characterized by scarcity of bank with only 17% of all branches. This disparity is particularly acute in rural areas and region with intermittent mobile phone coverage, where access to financial services is essential for economic development and social well-being.
- **Use of Financial Services:** A significant increase in card issuance was observed in Algeria during 2023, with the total number of cards reaching 16,509,507. This represents a 24% growth rate compared to the previous year. (Bank of Algeria, 2023) While banks accounted for a portion of these cards, Algeria Post as a major player, contributing significantly to the overall expansion. According to the annual report 2023 of Bank of Algeria, the utilization rate of issued cards reached 74.4%, indicating a growing

reference for automated cash services. This trend was further supported by a network of 3,847 ATMs and 53,191 electronic payment terminals.

Card withdrawal transactions experienced substantial growth, with 174 million operations recorded, valued at 3,262 billion dinars. This marked a notable increase of 36.2% in volume and 49.5% in value compared to 2022. Similarly, electronic payment transactions via terminals witnessed a significant surge, reaching 4 million transactions worth 31 billion dinars, representing a 47.3% increase in volume and 63% increase in value. (Bank of Algeria, 2023) This figure highlight the increasing acceptance of electronic cards and underscore the need for Algerian authorities to expand the availability of ATMs and electronic payment terminals, particularly in rural areas, to guarantee provision related to financial services in an immediate and flexible manner to enhance financial inclusion and promote cashless transactions.

- **Quality of Financial Services:** with the aim of boosting mobile financial services adoption, Algeria's banking system has initiated the "Mobile Switch" project. This centralized platform, housed within SATIM, aims to streamline mobile payment transactions by connecting various banks payment solution. This initiative offers a more cost-effective payment method, particularly considering the ubiquity of advanced mobile network capabilities.

In parallel, the Algerian monetary system has recognized the importance of digital currency through Law 23-09, which introduces the Central Bank Digital Currency (CBDC). However, this law also impose restrictions on entities that can offer banking services. Specifically, Article 88 prohibits non-banking entities from using terms or advertising that suggest they are authorized to provide banking services. This limitation presents a hurdle for MNOs seeking to provide digital financial services to consumers in Algeria.

Conclusion:

This study demonstrates that mobile money is a valuable tool for promoting financial inclusion, particularly in countries with underdeveloped banking systems. The prominence related to mobile money in "Sub-Saharan African countries" like Kenya, Ghana, and Zimbabwe highlights its potential to reach several segments of society. Algeria, with his geographic disparities

also needs to widen access for financial services throughout the country, especially to rural and desert areas that suffer from great isolation of bank branches compared to northern Algeria, in addition to the lack of sufficient internet flow and coverage. In light of this, we propose the most significant **findings** below:

- To enhance financial inclusion, governments and financial systems should prioritize accessible, flexible, and efficient financial services.
- Mobile money services have gained significant popularity in Sub-Saharan African countries due to providing various financial services more flexible and effective and at lower cost than those offered by the banking system.
- Mobile money services often emerge in regions with limited ATM and bank branches networks.
- Despite widespread mobile internet usage in Algeria, MNOs (Mobilis, Djezzy, and Ooredoo) have not yet launched mobile money services. While 4G and 4G+ networks offer extensive coverage in northern Algeria, speeds decrease in less populated region, particularly the Sahara.
- Northern Algeria benefits from a relatively dense network of banking agencies and ATMs, reducing the immediate need for mobile money. However, the Sahara region, home to approximately 10% of the Algerian population, faces significant isolation in terms of both banking services and internet infrastructure.
- In 2023, credit card usages and electronic payment transactions experienced substantial growth in Algeria, due to the banking sector's focus on digitizing to achieve financial inclusion.

Hypothesis testing:

Hypothesis1: "The effectiveness of services related to mobile money is primarily determined by the robustness and advancement of MNOs". Which is incorrect, because the development achieved by MNOs is not based on their development alone, but rather on the appropriate climate for them to provide these financial services in light of the weakness of the banking sector and its inability to reach all segments of society?

Hypothesis2: "To successfully achieve financial inclusion in Algeria, mobile money services must be relied upon". Which is also incorrect, after presenting the reality of the coverage of MNOs in Algeria and the extent of development of the Algerian banking sector, focus must be placed on developing "mobile banking" instead of "mobile money" for achieving financial inclusion.

Mobile Money to achieve Financial Inclusion, An Analytical View of Algerian Case and Leading International Experiences. Boukhari Sabrina

Based on these findings, we suggest the following **recommendations**:

- The Algerian banking system should prioritize expanding its electronic financial services, particularly mobile banking, To cater to the country's digitally active population. This includes developing unified banking applications that facilitate seamless digital transactions across multiple banks.
- Mobile network operators in Algeria (Djezzy, Mobilis, Ooredoo) must ensure nationwide coverage especially in the southern region and adequate network performance to meet the needs of all citizens. Additionally, these operators should actively collaborate with the banking sector to integrate mobile banking services into their offerings.
- Algerian authorities should establish a clear regulatory framework that fosters innovation while safeguarding consumer interests and financial stability. Additionally, they must implement robust security measures to protect user data and funds, thereby enhancing trust in the system. As it should encourage collaboration between government agencies, financial institutions, telecommunications companies, and fintech startups to drive innovation and promote financial inclusion.

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