

The role of E-banking in financial inclusion at public banks a case study of the Algerian Popular Loan Sidi Bel Abbes

GHORAF Zohra *, BENSaid Mohamed **

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Abstract : *The study aims to analyse the relationship between e-banking and financial inclusion in the Algerian Popular Loan Agency - Sidi Bel Abbes, using SPSS version 25, by distributing a questionnaire to a sample of the agency's customers. The study found a strong significant relationship estimated at 62% between financial inclusion in its three dimensions (use of financial services, access to financial services and quality of financial services) and e-banking, but the existing issue in the agency is the difficulty of accessing e-banking for customers who live in the countryside.*

Keywords: E-banking, financial inclusion, service utilization, service quality, customers

JEL Classification

المخلص: تهدف الدراسة الى تحليل العلاقة بين الصيرفة الالكترونية و الشمول المالي في وكالة القرض الشعبي الجزائري- سيدي بلعباس، بالاعتماد على برنامج SPSS نسخة 25 ، بتوزيع استبانة على عينة من عملاء الوكالة ، وقد توصلت الدراسة الى وجود علاقة معنوية قوية تقدر ب 62% بين الشمول المالي بابعاده الثلاثة(استخدام الخدمات المالية، الوصول الى الخدمات المالية ، جودة الخدمات المالية) والصيرفة الالكترونية ، إلا أن الاشكال القائم في الوكالة هو صعوبة وصول الصيرفة الالكترونية الى المتعاملين الذين يقطنون في الريف .

الكلمات المفتاحية: الصيرفة الالكترونية، الشمول المالي ، استخدام الخدمات ، جودة الخدمات ، المتعاملين

* Faculty of Economic Sciences, Business and Management SciencesSidi Bel Abbes, Algeria
Zohra.ghoraf@univ-sba.dz, **(Corresponding author)**

** Faculty of Economic Sciences, Business and Management SciencesSidi Bel Abbes, Algeria,
bensaidmed1978@gmail.com

1.Introduction

Banks play a significant role in the state's economic development since they are regarded as one of the main components in supplying the local economy with different financial and banking services required for growth and advancement. However, in recent years, banks have increasingly depended on electronic-age factors in the move from conventional to contemporary banking systems, posing a significant challenge for individuals working in the banking and financial sectors in particular. These institutions must cope with new conceptions and visions while using cutting-edge technology and instruments, including ATMs, bank payment cards, and mobile banking...

In light of these developments in information and communication technology, and in order to keep up with development and prosperity, Algeria has recently attempted to reform its banking and financial system through the implementation of laws and government programs, with the goal of adopting electronic banking as a new direction for the development and modernisation of Algerian banks. This is built on new pillars and principles in bank operations to maximise earnings and achieve leadership in recruiting new clients and capital, while preserving a strong competitive edge in the banking industry.

I.1 Study's Problem:The study's problem is summarised in the following key question: **To what extent does the use of electronic banking services effect financial inclusion at the Algerian Popular Loan Agency in Sidi Bel Abbes Province?**

On the basis of the main question, we can ask the following sub-questions:

- What are the types and requirements for electronic banking in public banks?
- What financial inclusion benefits does the bank provide to individuals when it implements electronic banking?
- What is the link between electronic banking and financial inclusion at Algeria's Popular Loan Agency in Sidi Bel Abbes?

I.2 Study hypotheses:To answer this issue, a main hypothesis and a set of sub-hypotheses were relied upon as follows:

Main hypothesis: There is a statistically significant effect between electronic banking and financial inclusion at the Algerian Popular Loan Agency.

Sub-hypotheses

1- There is a statistically significant effect between electronic banking and the use of financial services at the Algerian Popular Loan Agency.

2- There is a statistically significant effect between electronic banking and the accessibility of financial services at the Algerian Popular Loan Agency.

3- There is a statistically significant effect between electronic banking and the quality of financial services at the Algerian Popular Loan Agency.

I.3 Importance and Objectives of the Study: The importance of the study lies in the significance of its subject, which highlights the role of applying electronic banking services in enhancing financial inclusion in Algeria. This latter has garnered global attention, and we can outline its objectives as follows:

- The theoretical foundation of electronic banking services and financial inclusion in general.
- Demonstrating the role of electronic banking services in expanding the bank's customer base.
- Study of the impact of electronic banking service characteristics (cost, quality, time-saving) on financial inclusion.
- Applying the theoretical study and transferring it to reality through field research.

I.4 Study methodology: The descriptive analytical method was used to study the theoretical concepts related to the research variables, and the statistical method using the SPSS v (25) program to study and analyse the research sample at the level of the Algerian Popular Loan Agency in Sidi Bel Abbès.

I.5 Previous studies

I.5.1 Study: (Qasi Yassmine, Mziyan Toufik. 2022). Title: The Role and Importance of Financial Inclusion in Achieving Financial Stability and Sustainable Development – An Analytical Study of Financial Inclusion Indicators in Algeria and Arab Countries. Article from the Journal of Economic Insight, Volume 05, Issue 01. The study aimed to highlight the role and importance of financial inclusion in achieving financial stability and supporting opportunities for sustainable development, and to study and analyse financial inclusion indicators in Arab countries and Algeria, comparing them while considering (savings index, borrowing index, and the index of account usage in official financial institutions). The study concluded that the level of financial inclusion in Arab countries has recorded the lowest levels in the world, with only 20% of adults having accounts with financial institutions, which is a lower percentage compared to other developing countries. Additionally, the lack of competition among financial institutions has led them to resort to imitating digital financial services, especially in Algeria, where public banks dominate the banking sector.

I.5.2 Study: Fahad Matar Al-Mutairi. (2022). Title: The Impact of Electronic Banking Service Quality on Customer Satisfaction in Saudi Islamic Banks. Article

from the **Journal of North African Economies, Volume 18, Issue 29**. The study aimed to measure the impact of electronic banking service quality dimensions on customer satisfaction in Saudi Islamic banks. The study results showed a statistically significant impact of electronic banking service quality dimensions (ease of use, time-saving, confidentiality, security) on customer satisfaction in Saudi Islamic banks. Additionally, the level of customer satisfaction in Saudi Islamic banks regarding electronic banking services was high, with mean scores ranging between 4.33 and 3.82, and an overall mean of 4.05.

I.5.3 Study: Ben Moussa Omar. (2020). Titled: Electronic Banking Services and the Requirements for Their Development in Algeria. PhD thesis, the study aimed to understand the reality of electronic banking services in Algeria and to identify the most important requirements necessary for the development of electronic banking transactions in Algerian banks from the perspective of their employees and to determine the prospects for their success. The study concluded that adhering to the regulations and instructions related to money transfer operations through electronic payment methods is essential for ensuring the development of electronic banking services. This includes, for example, maintaining the activation of electronic cards and not repeating the PIN more than once if it is forgotten on the ATM. It has also been shown that providing a suitable legal environment to protect customer rights and combat cybercrime increases customer trust in electronic banking services, thereby increasing their use at all times and for all financial transactions, whether for individuals or institutions.

II.Generalities about electronic banking and financial inclusion

Given the importance of this axis, we decided to present some basic concepts.

II.1 Concepts about electronic banking

II.1.1 Definition: Electronic banking services are secure services provided through bank websites. These websites allow customers to request services through the communication methods used by banks to deliver these services to the customer, without the latter needing to visit the bank's headquarters or branch. Therefore, these services are remote banking services or branchless banking services. (Hajra, 2022, p. 24) They also involve conducting banking operations in innovative ways through the electronic communication network, whether related to traditional or modern banking, without the need for the customer to visit the bank. Access to these services is limited to participants only. (MUTAIRI, 2022, p. 227)

From the above, a definition of electronic banking services can be inferred: they are innovative financial services offered outside the traditional framework using information and communication technology, which can be utilized remotely and without tangibility.

II.1.2 Forms of electronic banking services

First. Electronic distribution channels

- a) **ATM:** It is a device that operates automatically to serve customers without human intervention through pre-programmed software to meet their banking needs 24/7. It

relies on an ATM card, which is a plastic card issued by the bank and placed at the customer's disposal. This card contains information specific to the customer and their bank account, and it also has a secret number known only to the cardholder.

- b) **Point of Sale:** These are points available through machines distributed among various types of commercial and service companies, where the customer can perform various payment transactions using plastic cards or smart cards by deducting from their electronic account. (Al-Abdalat, 2018, p. 28)
- c) **Television banking:** Television is considered one of the latest invented means as it provides banks with good interaction with their customers inside their homes, especially with housewives. This becomes even more important in the absence of a computer. This technology has faced exceptional popularity in Britain, Sweden, and France.
- d) **Mobile banking:** It is a service provided by financial companies, allowing customers to use mobile devices to conduct banking transactions such as transferring money, saving money, and paying bills.
- ✓ **Online banking:** Banks provide an internet system based on home banking, which is of great importance to them and their customers, especially those who have internet access. It also supplies customers with information about their balances. (Mansour., 2010, p. 40)
- e) **Internet banks:** With the increasing use of the internet by banks and individuals, and by improving their skills, internet banks have become known in their own right as a banking distribution channel. They represent a modern and advanced processing system capable of meeting the needs of a comprehensive market segment of internet users. (Mezrif, 2018, p. 03)

Secondly. Electronic payment methods

- a) **Bank payment card:** It is a small-sized, personalized plastic card issued by banks and financial institutions. It contains an encoded digital memory that allows for the storage of a specific amount of money agreed upon between the bank and the client. This card includes the client's name, address, and the name of the issuing bank. It has gained widespread popularity worldwide, such as MasterCard, Visa Card, American Express, etc., because it saves effort and time for its holders. Additionally, it represents a source of income for the bank due to the fees it charges in return. (Wahiba, 2016, p. 50)
- b) **The electronic check:** It resembles traditional paper checks, but it differs in the way it is sent, as it is sent electronically... It contains a secure electronic file that includes information specific to the check issuer, the check's payee, as well as other information such as the check's issue date, its value, the beneficiary, and also the account number and the mobile number to which it is sent.

- c) **Electronic money:** It is a monetary value stored on a prepaid electronic medium and not linked to a bank account, used as a payment tool for various purposes, and is widely used by individuals other than the one who issued it (Bouania, 2015, p. 73)
- d) **Electronic money transfer:** It is a process that allows the transfer of a specified amount from one account to another by recording it on the debit side of the order and the credit side of the beneficiary, whether this transfer is between two different accounts in the same bank or in different banks. ((Rahim, 2017, p. 50)

II.1.3 Requirements for implementing electronic banking services and the risks they face

- a) **Requirements for implementing electronic banking services:** The infrastructure necessary to activate electronic banking services requires the following:
 - The existence of a broad network that includes all relevant parties and is connected to the global Internet according to secure standard foundations. Developing a phased plan to start introducing electronic banking services according to priorities determined by a strategic plan at the central bank level and at the national level as a whole. (Fatina., 2020, p. 24)
 - The presence of a qualified and trained human workforce capable of managing these services, in addition to establishing an administrative structure that coordinates between the concerned parties at all levels. Starting to implement standard systems that allow for the linking and exchange of data between the participating entities, in addition to developing and unifying banking applications in banks to benefit from the accumulated expertise among bankers and technicians in the banks. (Belkhdar., 2018, p. 20)
- b) **Risks of electronic banking services**
 - **Reputational risks:** The reputation that banks acquire as trustworthy institutions contributes to the success of their operations. Reputational risks arise due to the provision of ineffective or inconsistent services, or they may occur due to weak disclosure requirements necessary for customers and also when privacy is violated. Additionally, these risks may be linked to the undisciplined actions of management, which negatively reflect on the bank's performance in all its activities (Al-Shammari., 2013, p. 59)
 - **Strategic risks:** These are the risks arising from the bank's management making incorrect decisions, implementing decisions incorrectly, or failing to make decisions in a timely manner, which may lead to losses or the loss of alternative opportunities.
 - **Legal risks:** This type of risk arises due to the lack of clarity in the legal texts related to electronic banking operations. For example, in some countries, we notice the absence of protective rules for customers or the lack of legal knowledge regarding some agreements made using electronic mediation methods.

- Operational risks: Operational risks include all types of operational risks, such as the risk of losing good human resources due to reliance on machines, litigation risks, and additionally, we mention the risks of embezzlement and money laundering crimes. (Mezriq Achour, p. 7) Other risks: The performance of electronic banking operations is associated with the risks related to traditional banking operations, such as credit risk, liquidity risk, yield rate risk, and market risk. The use of modern channels to communicate with customers and the extension of credit to customers across borders (cross-border) can increase the likelihood of some customers failing to repay their debts. (Breika, 2010/2011, p. 191)

II.2 Concepts of financial inclusion

II.2.1 Definition of Financial Inclusion: The G20 and the Alliance for Financial Inclusion (AFI) define it as: the measures taken by regulatory bodies to enhance the access and use of financial services and products by all segments of society, including marginalized and affluent groups, in a manner that meets their needs, and to provide them fairly, transparently, and at reasonable costs. (Mustafa Nizar, 2022)

- Financial inclusion means that individuals and companies have access to useful and affordable financial products and services that meet their needs (transactions, payments, savings products, credit facilities, loans, insurance services) and are provided in a responsible and sustainable manner.

II.2.2 The importance of financial inclusion: The importance of financial inclusion is as follows:

- Financial inclusion is a major reason for the country's economic growth and financial stability, as the economic condition of the country cannot improve if a large number of individuals and institutions are financially excluded from the formal financial sector.
- Financial inclusion affects the social aspect by placing greater emphasis on the poor and low-income individuals, with special attention given to women and access for individuals and small, medium, and micro enterprises.
- Providing financial services in easy and simple ways and at the lowest costs, such as mobile payments.

The Consultative Group to Assist the Poor at the World Bank believes that building an inclusive financial system is the only way to reach the poor and low-income individuals, in order to achieve the goals of financial inclusion: (Ben Tawaf Kawthar, 2023, p. 649)

II.2.3 Financial inclusion indicators: Financial inclusion indicators take two approaches as follows:

Table No. (1): Financial Inclusion Indicators

According to the World Bank methodology	According to the Arab Monetary Fund
a) Use of bank accounts: The percentage of adults who have a financial account in official institutions such as banks, post offices, and microfinance institutions. b) Savings: The percentage of adults who saved in the past 12 months using formal financial institutions such as banks, post offices, etc., as well as informal institutions or any person outside the family. c) Borrowing: The percentage of adults who borrowed in the past 12 months from a formal financial institution and from traditional informal sources, including borrowing from family and friends. d) Payments: The percentage of adults who used an official account to receive wages or government payments in the past 12 months. e) Insurance: The percentage of adults who insure themselves.	a) Deposit accounts: It represents the percentage of the number of holders of savings accounts relative to the total adult population. b) Borrowing accounts: This is represented by the ratio of the number of borrowers from commercial banks or any financial institution for the purpose of establishing new businesses or expanding existing ones to the total number of adult residents.

The source is prepared by the researcher based on the references: (Rajab., 2018, pp. 3-4) and (Dardour, 2020, pp. 76-77)

II.2.4 Challenges and obstacles to achieving financial inclusion: Financial inclusion faces several obstacles and challenges, the most important of which are:

- Human barriers: These include financial literacy skills, individual financial problems, and also those related to age and gender of clients.
- Institutional barriers: These include the failure to adapt to new changes imposed by the financial and banking environment, limited understanding of customer needs, poor quality or lack of services provided, and an inadequate regulatory framework.
- Infrastructure barriers: They include geographical location, high cost, lack of knowledge about technology usage, lack of ICT-based transactions, in addition to the lack of incentives for banks. (Dgaouida., 2022)

III. Case Study

III.1 Introduction of the institution and presentation of its services: The Algerian Popular Credit Agency (CPA) was established in 1994 in Sidi Bel Abbès and began its operations in 1995 after fulfilling all the conditions stipulated for establishing an agency, including obtaining a license from the Bank of Algeria to enter the banking market. It was named the Algerian Popular Credit Agency, Al-Amarna Branch, listed under reference number 438. This allowed for the strengthening of the presence of the Algerian Popular Credit Bank at the state level, which operates under the umbrella of the Algerian Popular Credit Bank.

- **Agency services:** The Algerian Popular Credit Agency offers various and diverse services, including traditional banking services and electronic banking services, which include:

Table No. (2): The services provided by the Algerian Popular Loan Agency, Sidi Bel Abbès

Traditional banking services	Electronic banking
Providing bank advances	Issuing electronic bank payment cards such as: regular CIB card and CIB gold card, gold and regular Visa card, MasterCard.
Opening bank accounts within the bank by receiving deposits such as current accounts and foreign currency accounts.	Providing electronic payment devices and ATMs DAP
Providing bank guarantees	Providing various financial services through the bank's applications, such as check deposits and bill payments...
Issuing commercial papers such as promissory notes, bills of exchange, checks...	Offering guidelines and instructions and announcing new financial services through the official website.
	Providing electronic transfer service

Source: Prepared by the researcher based on documents from the agency.

III.2 Study of the characteristics of the research community and the study sample

- **Study population:** Our study population includes all clients of the Algerian Popular Credit Bank – Al-Amarna Agency, listed under the reference code 438 for the Wilaya of Sidi Bel Abbès. This is due to the nature of the study, and since it is difficult to study all members of the population, we have drawn a representative sample from the population.
- **Study Sample:** A random sample was taken, estimated at 60 clients of the agency, with the aim of determining their opinions on the questionnaire questions. The forms were

distributed, and 59 valid questionnaires for analysis were retrieved, with a loss of one questionnaire, as follows:

Table No. (3): Distribution of the questionnaires

The statement	Repetition	The ratio
The overall forms	60	100%
The missing forms	01	01%
Cancelled forms	00	00%
The forms eligible for review	59	98%

Source: Prepared by the researcher based on the sorting of the questionnaire forms.

• **Study tools and measuring their variables:**

A. The Questionnaire: The questionnaire presented for the study topic and its introduction included a mention that all the information obtained from the respondents will be used solely for scientific purposes, ensuring its confidentiality. Accordingly, the form was divided into 36 questions, covering the following axes in its final form:

The first part included: personal data (gender, age, education level, profession, and region).

As for **the second part:** it included two axes, which are as follows:

Table No. (04): Questionnaire Sections

The axis	Number of paragraphs
Axis One: Electronic Banking Services	14 paragraphs
The second axis: financial inclusion	22 paragraphs
• Use of financial services	06 paragraphs
• Access to financial services	05 paragraphs
• Quality of financial services	11 paragraphs

Source: Prepared by the researcher based on the survey axes.

B. Testing the reliability of the study tool: What we mean by the reliability of the study tool (the questionnaire) is that even if it is applied repeatedly to the same individuals and under similar conditions, we will inevitably obtain the same answer. A quantitative estimate of the reliability coefficient was reached using the "Cronbach's Alpha" equation, which is illustrated in the following table:

Table No. (5): Cronbach's Alpha values for the axes used in the questionnaire

The axis	Number of paragraphs	Cronbach alpha coefficient
Axis One: Electronic Banking Services	14	0.721
The second axis: financial inclusion	22	0.842
Total	36	0.875

Source: Prepared by the two students based on the outputs (SPSS V25)

We notice from the table that the Cronbach's alpha reliability coefficient for the axes of the questionnaire, using the SPSS statistical package for social sciences, was estimated at 0.875, which is considered very good and indicates the reliability of the scale. Additionally, the reliability coefficients for the study variables are acceptable and ranged between (0.721) and (0.842). This indicates that all study variables have an acceptable degree of reliability, confirming the validity of the measurement tool (the questionnaire) in the analysis and the trustworthiness of the results that will be reached later in this field study.

III.3 Presentation and analysis of the sections of the form and testing the validity of the hypotheses

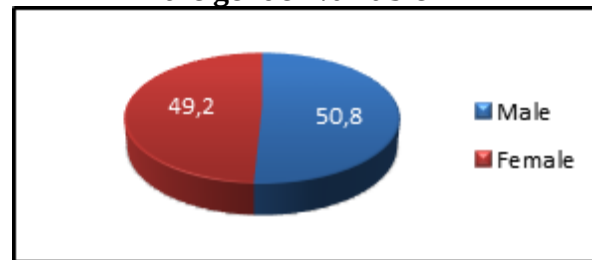
III.3.1 Presentation and analysis of the results related to personal data

- Gender distribution according to the sample members

Table No. (6): Study Sample by Variable Members by The gender variable

Gender	repetition	percentage
Female	30	50.8%
Male	29	49.2%
Total	59	100%

Figure No. (1): Distribution of Sample the gender variable



Source: Prepared by the researcher based on the outputs of the SPSS program.

We notice from the table above that the sample items by gender are distributed in similar proportions, with the percentage of male respondents to the questionnaire items being 50.8%, which corresponds to 30 clients. As for the females, their percentage was estimated at 49.2%, equivalent to 29 clients. This indicates the diversity of clients approaching the agency, both male and female.

- Age distribution by sample members:

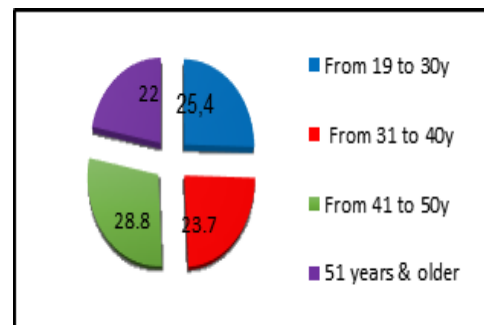
Table No. (7): Study Sample Members According to Age variable

Age	Repetition	Percentage
From 19 to 30 years	15	25.4 %
From 31 to 40 years	14	23.7 %
From 41 to 50 years	17	28.8%
51 years and older	13	22%

Figure No. (2): Distribution of Sample According

to Age Variable

Total	59	100%
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Source: Prepared by the researcher based on the outputs of the SPSS program.

It is evident from the table above that the highest percentage of clients at the agency belongs to the age group of 41 to 50 years, estimated at 28.8%. This percentage is considered very high compared to other age groups. It is followed by the age group of 19 to 30 years at 25.4%, then the age group of 31 to 40 years at 23.7%, and finally, the lowest percentage is for the age group of 51 years and older, estimated at 22%. The age group of 41 to 50 years constitutes the highest percentage among clients, indicating that this age group is the most interactive and utilizes the agency's services the most, thereby contributing to meeting their various financial needs.

- **Distribution of educational level by sample individuals:**

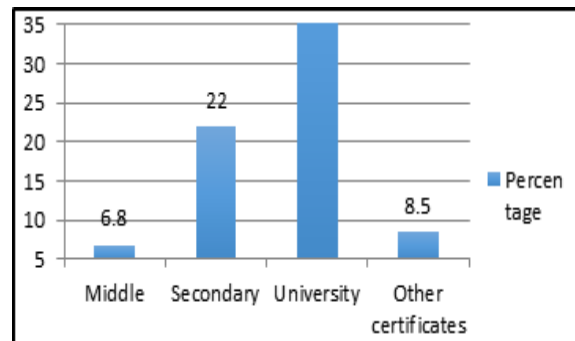
Table No. (8): Study Sample by Members by

Educational Level Variable

Educational level	Repetition	Percentage
Middle	04	6.8 %
Secondary	13	22%
University	37	62.7 %
Other certificates	05	8.5 %
Total	59	100%

Figure No. (3): Distribution of Sample

Educational Level Variable



Source: Prepared by the researcher based on the outputs of the SPSS program.

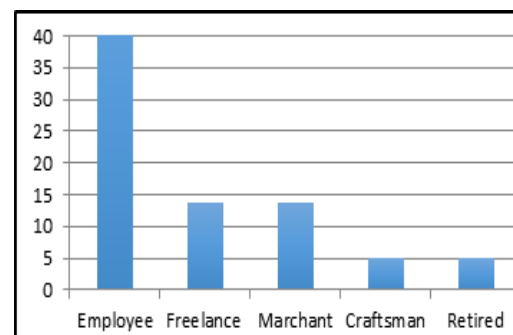
According to the classification we adopted, which includes 4 educational levels represented by intermediate, secondary, university, in addition to other certificates, we found that the majority of the sample members are at the higher education level, with an estimated percentage of 62.7%. As for the percentage of respondents at the secondary, intermediate, and other certificate levels, they were 22%, 8.5%, and 6.8% respectively. This means that most of the sample members have a university level of education, indicating that the bank offers banking services that require high skills.

- **Distribution of occupation among the sample individuals**

• **Table No. (9): Study Sample by Sample Members by Profession Variable**

Profession	Repetition	Percentage
Employee	37	62.7 %
Freelance profession	08	13.6 %
Marchant	08	13.6 %
Craftsman	03	5.1%
Retired	03	5.1 %
Total	59	100 %

Figure No. (4): Distribution of Profession Variable



- **Source:** Prepared by the researcher based on the outputs of the SPSS program.

It is clear from the table above regarding the study sample in terms of profession, that the largest percentage belongs to employees, reaching 62.7%. As for freelancers and traders, their percentages were equal at 13.6%, placing them in the second rank. Similarly, the percentage for craftsmen and retirees was estimated at 5.1%. The high percentage of employees indicates that the agency effectively meets their needs, and this relationship can be strengthened by providing customized services and additional support for this group, while also studying the needs of freelancers, traders, craftsmen, and retirees to develop services that suit them.

- **Distribution of the area according to the sample individuals**

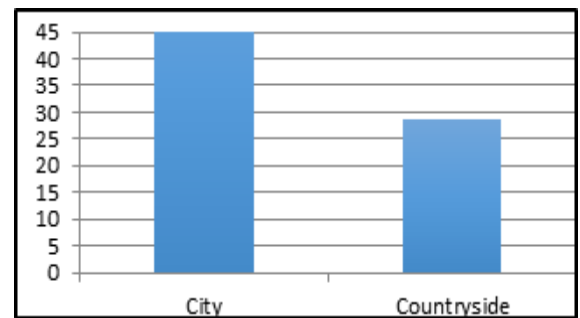
Table No. (10): Study Sample by Members by Region Variable

Region	Repetition	Percentage
The city	42	71.2 %
The countryside	17	28.8 %

Figure No. (5): Distribution of Sample

Region Variable

Total	59	100 %
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Source: Prepared by the researcher based on the outputs of the SPSS program.

We notice from the table above that city residents constitute the largest percentage among the study sample in terms of region, reaching 71.2%. As for the countryside, it records the smallest value at 28.8%. We observe that the largest percentage is made up of city residents due to the lack of agency branches in rural areas.

III.3.2 Presentation and analysis of the results related to the electronic banking axis

Through this section, we will analyse and interpret the trend of the sample members' responses to the independent variable of **electronic banking services**.

Table No. (11): The arithmetic mean, ranking by importance, and the general trend of responses from the study sample regarding the independent variable "electronic banking services."

The phrases	Arit hmet ic mea n	Stan dard devi ation	Sortin g by impor tance	The general trend	The phrases	Arit hmet ic mea n	Standa rd deviati on	Sortin g by impor tance	The general trend
1. The bank provides modern and diverse electronic banking services.	1.66	0.75	1	Strongly agree	8. Electronic payment methods provide convenience to customers.	1.62	0.80	1	Strongly agree
2. The bank Has a webpage on the internet	1.45	0.65	1	Strongly agree	9. Electronic checks contribute to reducing financial fraud.	2.11	1.16	2	Agree

3. The bank's website contains informational brochures.	1.77	0.85	1	Strongly agree	10. You often encounter technical problems when using online banking services.	2.71	1.16	3	Neutral
4. Bank applications provide convenience in managing accounts on the go.	1.93	1.01	2	Agree	11. Electronic distribution channels allow you to perform various financial transactions such as transfers, payments, and inquiries.	0.03	0.90	2	Agree
5. The bank Is diligently working to ensure the credibility of its mobile platforms.	1.94	0.65	2	Agree	12. You prefer using electronic banking services instead of traditional services.	1.88	1.13	2	Agree
6. The bank provides electronic payment services.	1.57	0.67	1	Strongly agree	13. Withdrawals and deposits through electronic banking services are better than going to bank branches.	1.77	1.06	1	Strongly agree
7. The bank offers ATM	1.67	1.53	1	Strongly agree	14. The bank fulfils its obligations.	2.03	1.08	2	Agree

services to its customers									
Total						1.87	0.46	2	Agree

Source: Prepared by the researcher based on the outputs of the SPSS program

The table shows that all indicators of the independent variable axis (electronic banking) achieved a standard deviation of (0.46) and a mean of (1.87), which falls within the second category of the five-point scale. This category leans towards the agreement option in individuals' responses.

Therefore, it can be said that this indicator has a good level of support, and consequently, electronic banking operations are available at the agency level and have received significant response and acceptance from the agency's clients.

III.3.3 Presentation and analysis of the results related to the financial inclusion axis

Through this requirement, we will analyse and interpret the trend of the sample members' responses to the dependent variable of financial inclusion.

Table No. (12): The arithmetic mean, the ranking by importance, and the general trend of the responses of the study sample regarding the dependent variable "financial inclusion"

The phrase		The degree of influence according to the five-point Likert scale					Arithmetic mean	Standard deviation	Sorting by importance	The general trend
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree				
Using financial services	%	32.2%	35.6%	18.6%	8.5%	5.1%	2.66	1.18	3	Neutral
Access to financial services	%	33.9%	44.1%	13.6%	6.8%	1.7%	2.47	1.17	2	Agree
Quality of financial services	%	44.1%	36%	6.8%	5.1%	5.1%	1.98	0.94	2	Agree
Total							2.28	0.52	2	Agree

Source: Prepared by the researcher based on the outputs of the SPSS program

The table shows that the axis of financial services usage in the dependent indicator (financial inclusion) achieved the highest standard deviation of (1.18) and a mean of (2.66), which falls into the neutral category of the five-point Likert scale. This means that there was neither support nor rejection for the use of financial services. This indicates several reasons, including: the limited use of financial services by customers, which is restricted to

lending, saving, and some remittance financial services; their lack of awareness of the bank's full services; or the lack of trust and fear of borrowing risks and saving suspicions.

III.3.4 Hypothesis testing

First: Correlation coefficient: We will attempt to test the correlation between electronic banking and financial inclusion through the following table.

Table No. (13): Correlation coefficient between electronic banking and the dimensions of the financial inclusion variable

		Financial inclusion	The moderator (Dimensions of financial inclusion)		
			Using financial services	Access to financial services	Quality of financial services
Electronic banking services	Pearson correlation coefficient	**0.620	**0.488	**0.477	**0.470
	Morale	0.00	0.00	0.00	0.00
	The indication	Moral			

Source: Prepared by the researcher based on the outputs of the SPSS program

The table shows that the significance of electronic banking services is less than 0.01, i.e., $\text{sig}=0.0001 < 0.01$, with the dimensions of financial inclusion (use of financial services, access to financial services, quality of financial services), indicating **a strong significant correlation** between the dimensions of financial inclusion and electronic banking in the Algerian Popular Loan as follows:

- The correlation between electronic banking services and the use of financial services is at a coefficient of 0.488, which is 48.8%.
- The correlation between electronic banking services and access to financial services is 0.477, which is 47.7%.
- Correlation between electronic banking services and the quality of financial services with a coefficient of 0.470, which is 47%.

- There is also a correlation between electronic banking services and financial inclusion in general, with a coefficient of 0.620, which is 62%.

Secondly: Simple linear regression: The validity of the hypotheses will be tested using the results of simple linear regression according to the following table:

Table No. (14) Results of Simple Linear Regression

The variable	Electronic banking services			
	R correlation coefficient	F model quality	R ² impact rate	T-test for effect
Financial inclusion	0.620	35.57	0.384	4.402
Using financial services	0.488	17.798	0.238	3.291
Access to financial services	0.477	16.824	0.228	3.723
Quality of financial services	0.470	16.122	0.207	2.524
The indication	0.00	0.00	0.00	0.00

Source: Prepared by the researcher based on the outputs of the SPSS program

Interpretation of the results of the simple linear regression model

It is clear from the table that the significance of the model outputs (R², F, T:R) between electronic banking services and financial inclusion in general is less than 0.01 in terms of the use of financial services, access to financial services, and the quality of financial services, meaning $0.01 > \text{sig} = 0.001$, which is statistically significant. This indicates a **positive direct relationship** between electronic banking services and financial inclusion in general, and specifically between the use of financial services, access to financial services, and the quality of financial services. This can be explained as follows:

- 1) **R The correlation coefficient** between **the variable of electronic banking services** and **the variable of financial inclusion in general** is estimated at 0.620, meaning that for every one unit change in electronic banking services, financial inclusion in general changes by 62%. This correlation is distributed among the dimensions of financial inclusion as follows:
 - ✓ **The correlation coefficient (R)** between **electronic banking services** and the dimensions of financial inclusion (**use of financial services**) is estimated at 0.488, meaning that for every one unit change in electronic banking services, the use of financial services changes by 48.8%.

- ✓ **The correlation coefficient (R)** between **electronic banking services** and **access to financial services** is estimated at 0.477, meaning that for every one unit change in electronic banking services, access to financial services changes by 47.7%.
 - ✓ **The correlation coefficient** between **electronic banking services** and **the quality of financial services** is estimated at 0.470, meaning that for every one unit change in electronic banking services, the quality of financial services changes by 47%.
- 2) **R² the rate of impact** or change, is estimated at 0.384, meaning that **electronic banking services** affect **financial inclusion** by 38.4% **in general**, which is a significant percentage reflecting the impact of electronic banking services on financial inclusion. Meanwhile, we find the rate of impact of banking services on the dimensions of financial inclusion as follows:
- ✓ **The R² impact** or change rate is estimated at 0.238, meaning that **electronic banking services** affect the use of **financial services** by 23.8%. This is a significant percentage that reflects the ability of electronic banking services to influence the use of financial services.
 - ✓ **The R² impact** or change rate is estimated at 0.228, meaning that **electronic banking services** affect **access to financial services** by 22.8%. This is a significant percentage that reflects the ability of electronic banking services to influence access to financial services.
 - ✓ **R² the rate of impact** or change, is estimated at 0.207, meaning that **electronic banking services** affect **the quality of financial services** by 20.7%. This is a significant percentage that reflects the ability of electronic banking services to impact the quality of financial services.
- 3) **F The quality** of the model is a statistical function, and therefore there is a relationship between electronic banking and financial inclusion. According to an absolute rate estimated at 35.75%, the relationship between electronic banking and the dimensions of financial inclusion is estimated as follows:
- ✓ Since the quality of the model is a statistical function, there is a relationship between electronic banking and (usage financial services, access to financial services, and the quality of financial services) ranked in absolute terms at (17.798%, 16.824%, 16.122)
- 4) **T represents the impact test**, and since it is **a statistical function**, it proves to us that there is an impact between electronic banking services and financial inclusion estimated at 4.57. This means there is a statistically significant effect between electronic banking services and financial inclusion, which **confirms the validity of the main hypothesis**. The impact test also shows the results of the sub-hypotheses as follows:
- ✓ Since it is **a statistical function**, there is a statistically significant effect between electronic banking and the dimensions of financial inclusion (use financial services, access to financial services, and the quality of financial services) are ranked at (3.291, 3.723, 2.524) respectively, which **proves the validity of the first, second, and third sub-hypotheses**.

Conclusion

The topic of electronic banking services is considered one of the subjects of continuous theory and research that has sparked a heated debate in the banking sector, especially in recent years due to the entry of innovation and technology, in light of what was mentioned in this study is that we have focused on the role of applying electronic banking services in enhancing financial inclusion in Algeria. Electronic banking services play an important role in enhancing financial inclusion by providing banking means that are based on information and communication technology, such as mobile phones and ATMs, which provide services to all segments of society. Diverse financial services are available at low costs compared to other banking services, and since financial inclusion... It has a fundamental dimension in achieving equality among members of society, allowing these electronic banking services to be widely adopted. The bank's services for these individuals make it easier for them to obtain their needs fairly and transparently. Therefore, we can say that the most important results reached by the study are as follows:

Study results

- Diverse and modern electronic banking services contribute to improving the quality and efficiency of the provided banking services. Given the advantages that possess.
- The electronic distribution of banking services contributes to reducing the cost of using them.
- Enhancing financial inclusion requires the presence of necessary infrastructure, especially in rural areas, which plays a crucial role in enabling individuals to access all financial services.
- The Algerian Popular Loan Agency consists of a well-organized administrative apparatus and is capable of implementing electronic banking services with efficiency and effectiveness.
- Electronic banking services require a significant level of technological literacy among the public for their use, especially in rural areas that lack educational facilities.
- The study concluded that there is a direct and positive correlation and impact between electronic banking services and financial inclusion in its three dimensions as follows:

(The use of financial services is at 48.8%, access to financial services is at 47.7%, and the quality of financial services is at 47%). All of these are satisfactory and encouraging rates for the agency to continue implementing and diversifying the advantages of electronic banking.

Recommendations

In light of the results reached by this study, the following recommendations can be made:

- The joint efforts between the public and private sectors to generalize electronic banking services to all segments of society.

- Signing agreements with external parties within a legal framework aimed at increasing the diversification of electronic banking services.
- Keeping up with technology to constantly update the software for electronic banking services.
- Encouraging large companies to urge their customers to use banking apps to pay their bills and more.
- Adopting laws and regulations that encourage innovation in the banking sector while protecting consumer rights at the same time.
- Developing the regulatory framework allows for the widespread and safe use of electronic payments, contributing to reducing reliance on criticism.

References

Al-Abdalat, N. M. *E-banking (tools, applications and barriers to expansion)*. Jordan, 2018.

Ben Tawaf Kawthar, Ben Amer Abdulkarim. «The reality of financial inclusion policy in achieving financial stability with a focus on the case of Algeria.» *Journal of Economics and Management Research*, 04 (01), 2023: 649.

Breika, Al-Saeed. *The reality of E-Banking and the prospects of its development in Algeria (Thesis submitted for a PhD degree)*. Arabi Benmehidi University, Oum El Bouaghi, A, 2010/2011.

Dardour, Said Harkat Asmaa. «Measuring the impact of financial inclusion on economic growth during the period (1980-2017).» *Journal of Strategy and Development*, 04(01),, 2020: 76-77.

Dgaouida., Belaa. «The important of financial inclusion in achieving sustainable development in Arab countries.» *journal of contemporary business and economic studies*. 02 (05), 2022: 78.

Fatina., Boukhari. «Studying the reality of the application of e-banking in Algerian banksA case study of Algeria (2017/2022).» *Journal of Administrative and Financial Sciences*,, 2020.

Hajra, Hariri Abdelghani Didouche. «The reality of electronic banking services in Algerian banks.» *Journal of Economic and Financial Investigation Strategies*, 2022: 24.

Mansour., Farida Bin. *E-banking as a gateway to building a digital economy in Algeria: the case of Banque El Orajji*. Algeria, 2010.

Mezrif, M. . *Modernisation of the banking and financial sector and the reality of e-banking in Algeria* Hassiba Ben Bouali University, Chlef.. 2018.

Mohamed Belkhdar .*E-banking and the Algerian Banking System: Prospects and Challenges. Bouira, Monetary and Banking Economy, Algeria.*2018 .

Mustafa Nizar, Yas. *Financial inclusion indicators and their impact on financial performance: Banking Technology as an Interactive Variable / An Applied Study in the Iraqi Banking Sector 2015/2020, Thesis submitted for the award of Master's Degree.* 2022.

MUTAIRI, FAHAD MATAR AL. "THE IMPACT OF THE QUALITY OF E-BANKING SERVICES ON CUSTOMER SATISFACTION IN SAUDI ISLAMIC BANKS ." *NORTH AFRICAN ECONOMICS*, 2022: 227.

R. Bouania .*E-banking and the Algerian banking system* .University of Blida.2015 †.

Rahim, Al-Shahat Abdel. *Financial risks in e-commerce payment systems.* 2017.

Rajab., Jalaaliddine Ben. *Calculating a composite index of financial inclusion and estimating the relationship between financial inclusion and GDP in Arab countries.* Arab Monetary Fund Report., 2018.

Sadiq Rashid Al-Shammari .*Bank risk management strategy and its impact on the financial performance of commercial banks.* Jordan: Yazuri Scientific Publishing and Distribution.2013 .

Wahiba, A. A . *Replacing traditional payment methods with electronic ones.* University of Algiers, Department of Management Sciences - Money and Finance., 2016.