The mediating role of digital financial inclusion in the impact of trust and demographic factors on the use of electronic payment services
Case study of Algeria

<div dir="rtl">

الدور الوسيط للشمول المالي الرقمي في تأثير عوامل الثقة والعوامل الديموغرافية على استخدام خدمات الدفع الإلكتروني

دراسة حالة الجزائر

</div>

Refice Malika

Mohamed Boudiaf University of M'sila, Laboratory of Economic Strategies and Policies in Algeria
(*Algeria*), malika.refice@univ-msila.dz

Abstract:

   The study aimed to investigate the mediating role of dimensions of digital financial inclusion in the impact of trust and demographic factors on the usage of electronic payment services in Algeria. This was achieved through analyzing the relationships using Structural Equation Modeling (SEM) with the assistance of SmartPLS4 software.

   The study affirmed the mediating role of digital financial inclusion dimensions (accessibility and use of financial products) in the influence of trust and demographic factors on the utilization of electronic payment services. However, it found no significant mediating effect for financial service quality and the impact of education level and gender. The model exhibited a high explanatory power and acceptable predictive ability, as indicated by the values of determination coefficient and predictive relevance.

Keywords: Digital Financial Inclusion, Electronic Payment Services, Trust, Demographic Factors, Structural Equation Modeling

<div dir="rtl">

ملخص:

   هدفت الدراسة إلى التعرف على الدور الوسيط لأبعاد الشمول المالي الرقمي في تأثير الثقة والعوامل الديموغرافية على استخدام خدمات الدفع الإلكتروني في الجزائر، من خلال تحليل العلاقة وفق نمذجة المعادلة الهيكلية باستخدام برنامج SmartPLS4.

   وأكدت الدراسة الدور الوسيط لبُعدي الشمول المالي الرقمي إمكانية الوصول واستخدام المنتجات المالية في تأثير الثقة والعوامل الديموغرافية على استخدام خدمات الدفع الإلكتروني، باستثناء عدم وجود دلالة لدور بعد جودة الخدمات المالية وعدم دلالة تأثير المؤهل التعليمي والجنس، تميز النموذج بقوة تفسيرية عالية وفقًا لقيمة معامل التحديد وقدرة تنبؤية مقبولة حسب قيمة ملائمة التوقع.

الكلمات المفتاحية: الشمول المالي الرقمي، خدمات الدفع الالكتروني، الثقة، العوامل الديمغرافية، نمذجة المعادلة الهيكلية

</div>

1. Introduction:

Financial services have become essential for achieving sustainable development. However, a significant number of individuals around the world still lack access to financial services or face difficulties in accessing them, negatively impacting economic growth, community development, and well-being. Therefore, governments and international financial institutions focus on enhancing dimensions of financial inclusion, especially by developing financial services tailored to the needs of all segments of society and enabling access and utilization without barriers.

Financial inclusion plays a crucial role in providing an environment for the use of electronic payment services and enabling individuals to achieve financial stability for themselves and their families. In this paper, we aim to answer the following main question: **Does digital financial inclusion act as a mediator in the impact of trust and demographic factors on the usage of electronic payment services in Algeria?**

Our study assumes that trust and demographic factors positively influence the dimensions of financial inclusion, which in turn affect the usage of electronic payment services. The objective of the study is to understand the extent to which dimensions of digital financial inclusion contribute to the impact on the usage of electronic payment services in Algeria.

2. Conceptual Framework of the Stud
2.1 Financial Inclusion

Financial inclusion refers to providing financial services to all members of society, regardless of their income and geographic location, enabling them to easily use electronic payment services. The World Bank defines financial inclusion as the access to useful and affordable financial products and services that meet the needs of individuals (Kijkasiwat and Chancharat, 2022, p. 71), It is the process through which individuals access formal financial services and utilize them to the fullest extent, while minimizing unintended barriers, The homogeneity of barriers is linked to the quality of formal financial services and the well-being gained through their utilization. (Tuesta and al, 2015, p. 3)

From the provided text, we can identify that financial inclusion consists of three dimensions. Firstly, it involves accessing traditional financial services and encompasses the necessary conditions for financial inclusion (Tuesta and al, 2015, p. 3), This aspect is measured by an individual's access to an actual service point, such as payment service providers, and credit and debit card service stations (Kijkasiwat and Chancharat, 2022, p. 72). It is indicated by the number of ATMs and bank branches owne.

Secondly, financial inclusion involves the utilization of financial services, expressed by an individual's extent of using financial products and services, such as saving money in a bank, obtaining a loan, using a bank account to pay bills, or receiving wages (Kijkasiwat and Chancharat, 2022, p. 72), This dimension is indicated by owning an account in a financial institution, a debit or credit card, or savings in financial institutions, This aspect increases consumption and facilitates income cycles (Tuesta and al, 2015, p. 3), Ownership of a bank account enhances the likelihood of demand for financial products. (Mhlanga and Denhere, 2020, p. 48)

Lastly, financial inclusion is influenced by the quality of financial services, representing the extent to which an individual confronts barriers preventing them from acquiring a bank account or financial support from banks, or due to lack of knowledge and financial behavior (Kijkasiwat and Chancharat, 2022, p. 72). Here, a distinction can be made between individuals who do not use

Algerian Business Performance Review (ABPR). Vol. 13 N°: (01)/ 2024.

190

financial services due to facing certain barriers like distance, high costs, lack of trust, or financial shortage, and those who are voluntarily excluded due to lack of financial education or religious reasons. (Tuesta and al, 2015, p. 18)

With the introduction of mobile phone technology, the dimensions of digital financial inclusion are measured through the use of digital financial services by owning a mobile account or using the internet for payments, The advancement of digital infrastructure reflects the accessibility to mobile phones and the internet, along with mobile money transfer agents and online banking services (Khera and al, 2021, p. 23), This transformation to digital enhances improved and sustainable access to appropriate and affordable financial services, digital wallet ownership and usage (Mhlanga and Denhere, 2020, p. 49), Financial innovations improve the quality of digital financial services by overcoming barriers to the spread and use of digital financial services through mobile penetration and investment in the telecommunications sector, The widespread ownership of mobile phones, even among low-income individuals, allows them to use financial services anytime, necessitating governments to enhance networks, deploy mobile broadband subscriptions, and reduce communication costs (Tuesta and al, 2015, p. 10), This aims to bring the poor into the economy by introducing new players like telecommunications operators, financial technology processors, and startups to support new technologies, in addition to mobile phone technology, thereby reengineering financial systems to reduce costs and procedures through digital platforms for all transactions instead of cash (Peric, 2015, p. 213) Mobile phones enable overcoming barriers of financial shortage and distance to financial institutions, reducing costs and the effort of mobility, especially in rural areas lacking the necessary infrastructure for financial sectors, This aligns with the new theory of poverty, suggesting that individuals with limited income are unable to open accounts or save, making them susceptible to financial exclusion. (Bekele, 2022, p. 307).

2.2 Electronic Payment Services and Their Relationship with Financial Inclusion

Electronic payment services refer to credit card payments and various money transfer options, including direct credit, debit, ATM transactions, online transfers, mobile phones, using credit cards for online purchases, and interbank or peer-to-peer transactions (Kijkasiwat and Chancharat, 2022, p. 73), Electronic payment methods are defined as mechanisms that transfer information related to financial accounts for electronic commercial transactions, enabling direct remote payment transactions via public communication networks (كاملة, 2022, ص 3), Electronic payment services are provided through several channels, including electronic bank transfers and mobile phone systems, allowing various banking transactions and account management remotely via the phone, such as balance inquiries, intra-bank transfers, and other banking services provided by the bank or account issuer (لعلاوي وخنفوسي, 2016, ص 136), he development of digital payment solutions is a result of academic research interaction, wealth generation within the industry, government policy, and societal demand for technological innovations, The successful use of any innovative payment tool requires acceptance by both companies and consumers(Niankara, 2023, p. 3).

Electronic payment methods have been introduced in line with the requirements of the digital economy, such as credit cards, digital wallets, electronic checks, and electronic cash, which convert cash into a digital chain. These are trusted and secure virtual payment methods, crucial for contractual parties, including the cardholder, the issuing institution, or even the merchant. Consumers feel secure and private, and merchants benefit from a competitive advantage, enhancing e-commerce through smart cards, which play a key role in removing barriers, The significance of

electronic payment methods lies in their international nature for settling transactions conducted across the digital space worldwide. (كاملة, 2022, ص 8)

Financial inclusion plays a vital role in promoting the usage of electronic payment services by making financial services accessible and suitable for everyone, regardless of their residence or economic status. This is achieved by increasing access to financial services, contributing to the spread and utilization of electronic, especially digital, payment methods. It provides financial services to individuals living in remote areas away from banks and financial centers, especially in remote regions. Moreover, it enhances the quality of financial services by reducing banking transaction costs, increasing proximity to bank locations, reducing paperwork, and mitigating risks, especially for individuals without bank accounts, allowing them to securely deal with non-banking financial services.

It develops the infrastructure for encrypting financial services, especially electronic payment services (Tuesta and al, 2015, p. 3), This is particularly important in low-income countries where smartphones are widely used for electronic payments, facilitating ease and convenience in various financial transactions, such as sending and receiving money transfers and conducting purchases and bill payments across all countries. This is a result of the proliferation of digital financial inclusion, leading to rapid growth in mobile money service providers over traditional methods. (Khera et al, 2021, p. 10)

In recent years, there has been a noticeable increase in the market share of mobile financial services, primarily due to improved accessibility and reduced transaction costs, this surge is attributed to major technology companies, such as Google and WhatsApp, launching payment solutions in recent months, leveraging platforms like UPI, the widespread adoption of digital financial inclusion is evident as consumers gain access to cost-effective payment methods, significantly enhancing their ability to manage their financial lives. (Patwardhan, Schmitz, and Singleton, 2018, p. 14)

3. Study Sample and Variables
### 3.1 Study population and sample

After identifying the model variables, secondary data were collected from government reports or various international organizations' publications. Additionally, primary data were collected by distributing an electronic questionnaire to the selected sample for analysis using the Structural Equation Modeling (SEM) approach with the SmartPLS4 software. The study population consisted of all financially included or excluded adult citizens who use or can use electronic payment services. This is an unlimited and heterogeneous population; hence, a suitable non-random sample was used.

According to the Financial Inclusion Database 2021 (International Bank, 2022, p. 21), ownership of accounts for individuals aged 15 and above increased from 42.8 million in 2017 to 44.1 million in 2021. Among these, 34.9 million accounts are opened to receive salaries or government payments. The total accounts are distributed based on personal characteristics, with 31.2 million for women, 31.9 million for 40% of the poorest families, 26.2 million for adults outside the workforce, and 26.7 million for youth aged 15 to 24. The report also states that the number of adults (15 years and above) making or receiving digital payments increased from 26 million in 2017 to 33.7 million in 2021. During 2021, 12.8 million individuals made digital payments, 29.6 million received digital payments, and 7.1 million received or made digital

transfers using their accounts. Additionally, 21.9 million accounts saved money, and 37.6 million borrowed money.

According to the statistics from the Bank of Algeria on its official website, the financial inclusion data were as follows:

Fig.1. Number of active accounts in the Algerian dinar currency during 2021-2022
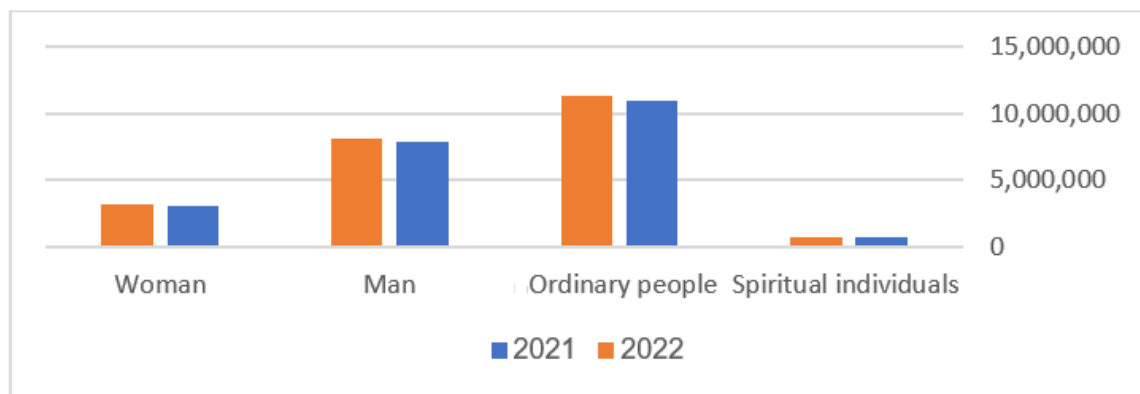
Source: Statistics from the Bank of Algeria, accessed on: 02/08/2023 at 15:00, at the following link: https://www.bank-of-algeria.dz/statistiques/

We observe a slight increase in account ownership during the year 2022 across all categories. Account ownership is primarily attributed to regular individuals, mostly men.

Table 1. Number of institutions providing financial services and depositors in them during the years 2021 and 2022.

	2021	**2022**
Number of Bank Depositors	11,549,361	11,966,891
Number of Treasury Depositors	91,052	93,058
Number of Postal Savings Account Depositors	24,714,867	27,039,740
Number of Postal Financial Service Institutions	4055	4143
Number of Bank Branches	1574	1592

Source: Statistics from the Bank of Algeria, previous reference

From the table, it appears that more than two-thirds of the deposits are attributed to postal accounts, followed by deposits in banks, while deposits in the treasury are relatively marginal. This is because postal institutions outnumber bank branches by more than three times, possibly due to the fact that most accounts receive funds from government institutions.

The characteristics of the study sample were illustrated in the following table:

Table 2. Demographic Characteristics of the Sample

Variable	Count	Percentage	Variable	Count	Percentage
Gender			Educational Level		
Male	246	49.5	Secondary or less	22	4.4
Female	251	50.5	Bachelor's	118	23.7
Age			Master's	214	43.1
Up to 30 years	232	46.7	Doctorate	17	3.4
31 to 40 years	183	36.8	Account Tenure		

41 to 50 years	58	11.7	Less than 3 years	158	31.8
Over 50 years	24	4.8	3 years or less	169	34.0
Income			6 to 10 years	90	18.1
Less than 20,000 DZD	16	3.2	Over 10 years	80	16.1
20,000 to less than 60,000 DZD	219	44.1			
60,000 to 100,000 DZD	147	29.6			
More than 100,000 DZD	115	23.1			

Source: Prepared by the researcher based on the study sample.

It is evident from the table that, in terms of gender, the sample has a nearly equal percentage of males and females. Regarding age, the majority of the sample (46.7%) falls within the age group of 30 years or less. In terms of educational qualifications, more than half of the sample are Master's and Bachelor's degree holders. As for account tenure, approximately two-thirds of the sample have accounts for less than 3 years or between 3 and less than 6 years. Regarding the type of account ownership, over 95% of the sample own a postal account, about 11% own a bank account, and approximately 17% own an electronic wallet or use digital cash.

3.2 Study model and variables

The study model could be first influenced by external variables, as studies (Tuesta et al, 2015, p. 22) and (Kijkasiwat and Chancharat, 2022, p. 73) considered that demographic factors such as gender, educational level, age, and income level impact financial inclusion. The study added the factor of trust in using online payment systems, which either supports or hinders the use of electronic payments. Additionally, the study included the variable of account tenure to investigate whether it has an indirect role in using electronic payment services.

Secondly, there is an intermediate variable representing the dimensions of financial inclusion, which are still under study, making it challenging to use a standardized scale to measure associated factors. These dimensions vary from one organization to another due to different institutional configurations and variations in studies and research, especially with the inclusion of mobile phone technology and the emergence of the concept of digital financial inclusion. However, they usually encompass three dimensions: accessibility to financial services, usage of financial services, and this dimension is further divided into ownership of a postal, bank account, or electronic wallet on one hand (Anyangwe, Vanroose, and Fanta 2022, p. 10), and the usage of financial products on the other hand, in addition to the quality dimension of financial services. Each was evaluated according to Likert's seven-point scale from strongly disagree to strongly agree.

Finally, the dependent variable represents the use of electronic payment services, for which several types of electronic payments were proposed and measured using six Paymenti items. Each was evaluated according to Likert's seven-point scale from never use to always use.

4. Applied study of the model
4.1 Evaluation of the Standard Model

The standard model was evaluated at this stage by identifying the relationship of the latent variable with its measured indicators. The results of reliability and validity for the study's items are as follows:

Algerian Business Performance Review (ABPR). Vol. 13 N°: (01)/ 2024.

194

Table 3. Internal Consistency, Composite Reliability, and Convergent Validity

| Construct	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability	Average Variance Extracted (AVE)
Usage of Financial Products	0.783	0.785	0.902	0.822
Usage of Electronic Payment Services	0.874	0.892	0.904	0.613
Trust	0.902	0.903	0.928	0.719
Accessibility	0.830	0.838	0.874	0.538
Quality of Financial Services	0.738	0.765	0.834	0.517

Source: Prepared by the researcher based on the outputs of SmartPLS4 software.

It is observed that Cronbach's Alpha coefficient is consistently greater than 0.738, and all values of the Composite Reliability coefficient, which provides the best estimate of the shared variance of the constructs, are greater than 0.834. This indicates the stability of all latent variables (Albayati, Alistarbadi, and Rho, 2023, p. 7), Moreover convergent validity was measured through Average Variance Extracted (AVE), and all AVE values are greater than or equal to 0.50, which is less than the Composite Reliability, confirming the availability of convergent validity. AVE is calculated by summing the squares of the loadings and dividing by the number of items in the model. An AVE exceeding 0.5 indicates that the concept explains more than half of the variance of its items, and vice versa, implying errors in the items are greater than the variance explained by the concept.

As for discriminant validity, it refers to the cross-loadings when each variable's loading on its concept should be greater than its loading on other concepts. It is calculated by taking the square root of the AVE for each concept according to the Fornell-Larcker criterion. The Appendix 1 illustrates the results of the studied sample. And we observe that all diagonal values are greater, indicating the discriminant validity for various concepts. As for the item loadings on their respective constructs, whenever the correlations between item scores and the total scores of the concept they belong to exceed 0.70, it signifies the internal consistency of the items within the studied concept.

The following figure illustrates the loadings of all items.

Fig.2. External Loadings
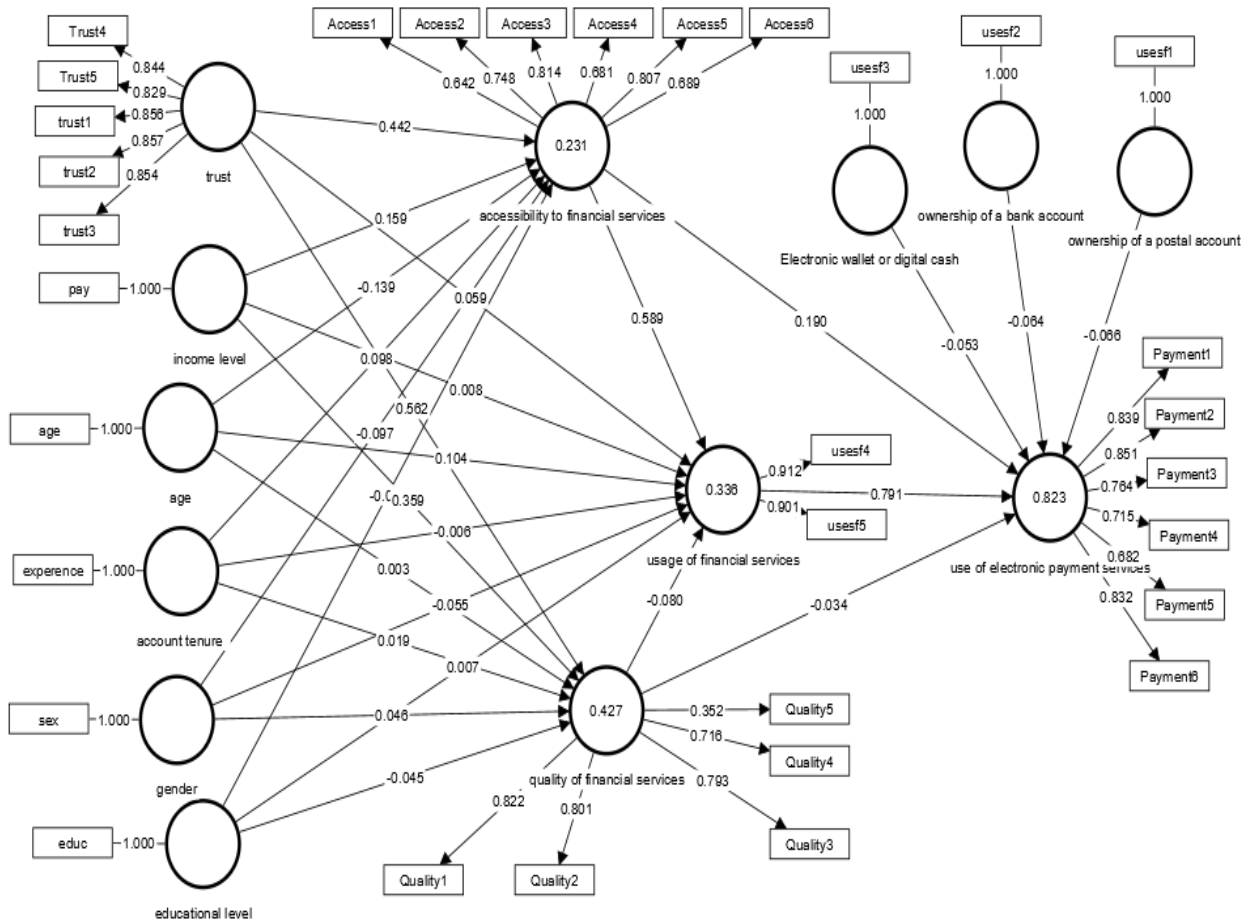
Source: Prepared by the researcher based on the outputs of SmartPLS4.

To enhance the model, we removed the items Quality5, Payment5, and Access1 because their loadings on the variables Quality of Financial Services, Electronic Payment Services, and Access were weak, respectively.

As for the statistical significance of the paths, it was as follows:

Table 4. Statistical Significance of Paths

Path Description	Sample Mean	Standard Deviation	T Statistics	Significance (P Value)
Usage of Financial Products -> Usage of Electronic Payment Services	0.863	0.015	57.985	0.000
Account Seniority -> Access Possibility	0.086	0.043	2.019	0.043
Trust -> Usage of Financial Products	0.122	0.048	2.592	0.010
Trust -> Access Possibility	0.442	0.042	10.459	0.000
Trust -> Quality of Financial Services	0.603	0.031	19.670	0.000
Age -> Access Possibility	-0.145	0.046	3.172	0.002
Access Possibility -> Usage of Financial Products	0.364	0.044	8.219	0.000

Access Possibility -> Usage of Electronic	0.088	0.028	3.187	0.001
Quality of Financial Services -> Usage of Electronic Payment Services	-0.007	0.025	0.255	0.799
Postal Account with Card -> Usage of Electronic Payment Services	-0.025	0.019	1.303	0.193
Bank Account with Card -> Usage of Electronic Payment Services	-0.017	0.020	0.881	0.378
Electronic Wallet or Digital Cash -> Usage of Electronic Payment Services	-0.028	0.019	1.478	0.140
Income Level -> Access Possibility	0.113	0.042	2.728	0.006
Income Level -> Quality of Financial Services	0.135	0.035	3.799	0.000

Source: Prepared by the researcher based on the outputs of SmartPLS4.

The model recorded several non-statistically significant paths at a significance level of 0.05. Therefore, these paths were deleted, including all paths related to gender and educational qualification variables. Additionally, the paths from income level and quality of financial services towards the usage of financial services were removed. Furthermore, paths from age and account seniority towards both quality and usage of financial services were eliminated, On the other hand, paths from quality of financial services and different types of account ownership towards the usage of electronic payment services were retained despite being non-significant. This was due to their theoretical importance in the study of digital financial inclusion. A previous study (Kijkasiwat and Chancharat, 2022, p. 74) found that among the three dimensions of financial inclusion, factors related to product quality are closely linked to financial inclusion. Moreover, since both trust and income level paths towards the quality of services were statistically significant, and all other paths were statistically significant with t-values greater than 1.96, the model was modified as follows:

Fig.3. The Modified Model
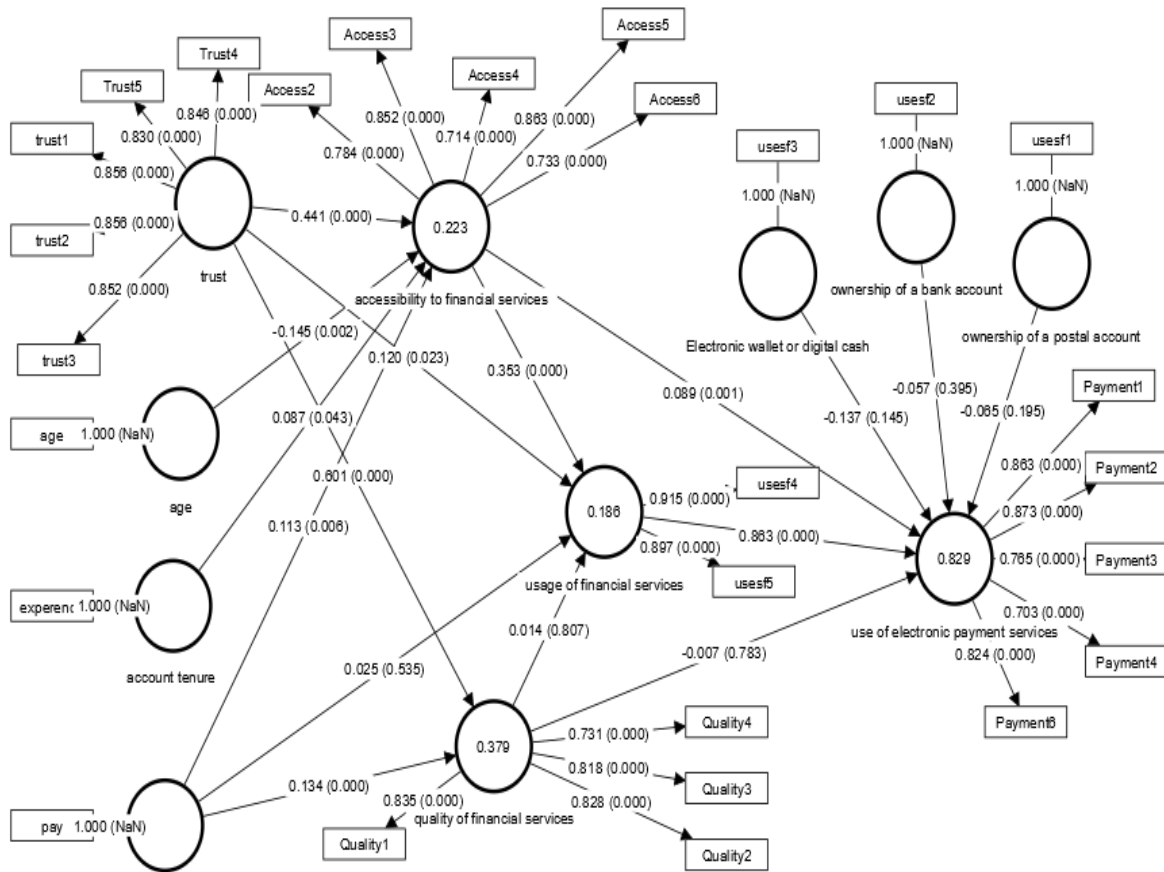
Source: Prepared by the researcher based on the outputs from SmartPLS4 software

4.2 Structural Model Evaluation

This stage is of utmost importance as it entails identifying the relationships between the latent variables themselves after removing poorly saturated items and eliminating most of the non-significant paths, as discussed earlier. To comprehend the mediating effect of financial inclusion on electronic payment services and emphasize the role of its dimensions in augmenting their utilization, we commence by examining the interrelated linear relationships between the latent variables, scrutinized through the Variance Inflation Factor (VIF) values as depicted in the table below:

Table 5. Interrelated Linear Relationships Between Latent Variables

Latent Variable	VIF Value	Latent Variable	VIF Value	Latent Variable	VIF Value
Access2	1.976	Payment1	2.900	Trust1	2.733
Access3	3.869	Payment2	3.155	Trust2	2.886
Access4	1.553	Payment3	2.094	Trust3	2.645
Access5	4.268	Payment4	1.811	Trust4	2.701
Access6	1.601	Payment6	2.135	Trust5	2.579
Age	1.000	Quality3	1.890	Quality1	1.883
Experience	1.000	Quality4	1.441	Quality2	1.828
Pay	1.000				

Source: Prepared by the researcher based on SmartPLS4 program outputs.

We notice that all Variance Inflation Factor (VIF) values are low, all of them are less than 5, and most of them are less than 3, which confirms the absence of linear relationships between variables that may affect the results. (Hair et al, 2019, p. 11)

Secondly, when studying the predictive power indicators, we found that the model has good explanatory power as follows:

Table 6. Coefficient of Determination R^2 and Adjusted Coefficient of Determination

Variable	R^2	Significance (p value)	$AdjR^2$	Significance (p value)
Financial product usage	0.186	0.000	0.182	0.000
Electronic payment service usage	0.829	0.000	0.827	0.000
Accessibility	0.223	0.000	0.217	0.000
Quality of financial services	0.380	0.000	0.378	0.000

Source: Prepared by the researcher based on outputs from SmartPLS4 software.

It is observed that both the R^2 and the adjusted R^2 for all latent variables are highly significant with a p-value of 0.000 at a significance level of 0.05. They are 0.829 and 0.827 respectively for the last dependent variable, representing the usage of electronic payment services. These values are very good and significant for the explained variance ratio.

Regarding the mediator variable represented by the dimensions of digital financial inclusion, they also all have a p-value of 0.000 at a significance level of 0.05, although they are below the mean. The highest values are related to the quality of financial services at 0.380 and 0.378 respectively, indicating a level of explanation close to the mean that is acceptable.

When calculating the effect size for each path, the largest effect size for predictive relevance f^2 on the concept of electronic payment service usage is statistically significant at 0.000, attributed to the financial product usage variable with a value of 3.391, indicating a very high effect size. Trustachieved a moderate effect size with values of 0.247, 0.585, and 0.037 for accessibility, quality of financial services, and financial product usage respectively, at a significance level of 0.05 estimated at 0.002, 0.000, and 0.053 respectively. Accessibility recorded a moderate effect size value of 0.130 on financial product usage, which is statistically significant at 0.000.

As for the goodness of fit Q^2, it was as follows:

Table 7. Effect Size for Predictive Relevance Q^2

Variable	Predictive Relevance Q^2 Before Path Removal	Predictive Relevance Q^2 After Path Removal
Financial product usage	0.150	0.149
Electronic payment service usage	0.529	0.529
Accessibility	0.132	0.132
Quality of financial services	0.240	0.240

Source: Prepared by the researcher based on outputs from SmartPLS4 software.

We observe that all path coefficient values contributing to the prediction of electronic payment service usage are greater than 0.9 and equal 0.529, which is a good value. Following this, the path coefficients contributing to the prediction of the mediator variables are as follows: 0.240 for quality

of financial services, 0.149 for financial product usage, and 0.132 for accessibility. These values are also acceptable. Overall, we note that the predictive relevance Q^2 value for the last dependent variable, representing the usage of electronic payment services, remains unchanged at 0.529 after removing non-significant paths, indicating the model's good predictive fit.

5. Total Effects and Hypothesis Testing

We found that the total effects of all accepted paths in the model are statistically significant at a significance level of 0.05, with t-values exceeding 1.96, except for two paths related to account age, whose effects were not significant. The paths related to account ownership and the quality of financial services toward electronic payment service usage were not initially accepted in the model, but they were retained for their theoretical importance. The most significant effect on electronic payment service usage is attributed to financial product usage with a value of 0.863 at a significance level of 0.000, followed by accessibility with a value of 0.401, both of which are good values.

As for the mediating role of digital financial inclusion in the influence of trust and demographic factors on electronic payment service usage, it is examined through indirect effects that focus on evaluating the mediating effects and interpreting them through several nested models, as shown in the following table:

Table 8. Indirect Effects

Indirect Path	Original Sample	Sample Mean	Standard Deviation	T-Statistic	Significance (P-value)
Account Age -> Accessibility -> Financial Product Usage	0.032	0.032	0.017	1.896	0.048
Trust -> Accessibility -> Financial Product Usage	0.160	0.161	0.026	6.244	0.000
Age -> Accessibility -> Financial Product Usage	-0.052	-0.053	0.018	2.925	0.003
Income Level -> Accessibility -> Financial Product Usage	0.041	0.041	0.016	2.569	0.010
Trust -> Financial Product Usage -> Electronic Payment Service Usage	0.107	0.105	0.041	2.598	0.009
Account Age -> Accessibility -> Financial Product Usage -> Electronic Payment Service Usage	0.027	0.027	0.014	1.892	0.049
Trust -> Accessibility -> Financial Product Usage -> Electronic Payment Service Usage	0.138	0.139	0.022	6.260	0.000
Age -> Accessibility -> Financial Product Usage -> Electronic Payment Service Usage	-0.045	-0.046	0.015	2.926	0.003
Accessibility -> Financial Product Usage -> Electronic Payment Service Usage	0.312	0.314	0.038	8.223	0.000
Income Level -> Accessibility -> Financial Product Usage -> Electronic Payment Service Usage	0.035	0.036	0.014	2.565	0.010
Account Age -> Accessibility -> Electronic Payment Service Usage	0.008	0.008	0.005	1.704	0.088
Trust -> Accessibility -> Electronic Payment Service Usage	0.039	0.039	0.013	2.950	0.003
Age -> Accessibility -> Electronic Payment Service Usage	-0.013	-0.013	0.006	2.227	0.026

Income Level -> Accessibility -> Electronic Payment Service Usage	0.010	0.010	0.005	1.928	0.044
Trust -> Quality of Financial Services -> Electronic Payment Service Usage	0.011	0.011	0.013	0.795	0.427
Income Level -> Quality of Financial Services -> Electronic Payment Service Usage	0.002	0.002	0.003	0.711	0.441

Source: Compiled by the researcher based on SmartPLS4 software outputs.

We observe that the effect of trust on electronic payment service usage through the mediating variable of financial product usage is 0.107, significant at a 0.05 level, indicating a positive impact. This means that as trust increases, the use of electronic payment services also increases through an increase in the usage of financial products. Moreover, there is a positive effect of trust on electronic payment service usage through the mediating variables of financial product usage and accessibility, with a value of 0.138. Although this value is small, it suggests that as trust increases, the usage of electronic payment services also increases through increased accessibility, which, in turn, impacts an increase in the usage of financial products.

Age negatively impacts the use of electronic payment services through the mediating variables of accessibility and financial product usage, with a value of -0.045, albeit small in magnitude. This implies that as age increases, accessibility decreases, subsequently reducing the usage of financial products, consequently leading to a decrease in the utilization of electronic payment services. Furthermore, age has a negative effect on the use of electronic payment services through the mediator variable of accessibility, with a value of -0.013, significant at a 0.05 significance level. This indicates that as age increases, accessibility decreases, resulting in a reduction in electronic payment service usage, and vice versa. Age also negatively affects the usage of financial products through the mediator variable of accessibility, with a value of -0.052, signifying that as age increases, accessibility decreases, leading to a decreased usage of financial products.

Income level has a positive and significant effect on the utilization of electronic payment services through the mediating variables of accessibility and financial product usage, with a value of 0.035, although small. Additionally, income level positively influences the use of electronic payment services through the mediator variable of accessibility, with a value of 0.010, albeit small. This suggests that as income level increases, accessibility also increases, leading to an increase in electronic payment service usage. Similarly, income level positively impacts the usage of financial products through the mediator variable of accessibility, with a value of 0.041, albeit small. This implies that as income level increases, accessibility increases, resulting in an increased usage of financial products.

The age of account ownership has a positive effect on the use of electronic payment services through the mediating variables of accessibility and financial product usage, with a value of 0.027, although small. This indicates that as the age of account ownership increases, accessibility also increases, subsequently boosting the usage of financial products, thus increasing the usage of electronic payment services. Additionally, the age of account ownership positively influences the use of financial products through the mediator variable of accessibility, with a value of 0.032, albeit small.

The study tests its hypotheses through total effects, encompassing indirect relationships as well. The study found that trust influences the usage of financial products with a value of 0.284 and

influences accessibility with a value of 0.441, and influences the quality of financial services with a value of 0.602. Furthermore, the age of account ownership impacts the usage of financial products with a value of 0.032 and influences accessibility with a value of 0.087. Additionally, income level affects the usage of financial products with a value of 0.041, accessibility with a value of 0.113, and the quality of financial services with a value of 0.135. All of these effects are positive and significant, confirming the hypothesis in this aspect. However, the age effect was not significant, showing a negative impact on both financial product usage (value of -0.052) and accessibility (value of -0.145). The study also reveals that digital financial inclusion dimensions mediate the effects of trust and demographic factors on the usage of electronic payment services, with trust, income level, age, and account ownership affecting electronic payment service usage with values of 0.280, 0.045, -0.058, and 0.035, respectively.

Both dimensions of digital financial inclusion, accessibility, and financial product usage significantly influence the usage of electronic payment services with values of 0.401 and 0.863 respectively, accessibility also affects the use of financial products with a value of 0.362 Consequently, the study hypotheses are relatively confirmed.

6. Conclusion

Our study aimed to evaluate the mediating role of financial inclusion in the impact of trust and demographic factors on electronic payment services in Algeria. The study found that personal factors influence the usage of electronic payment services through the mediation of financial inclusion dimensions, Both income level and account ownership positively affect financial inclusion dimensions, consequently impacting the usage of electronic payment services, However, the study did not find any significant gender effect. Moreover, age has a negative impact on this relationship, suggesting the absence of financial products and services meeting the needs of specific age groups, especially older individuals, aligning with studies (Tuesta et al, 2015, p. 17) and (Mhlanga and Denhere, 2020, 49), Additionally, our study found that educational qualifications do not have a significant effect in the studied model. At the same time, our study emphasized the strong positive effect of trust on the usage of electronic payment services through financial inclusion dimensions, especially after considering the quality of financial services.

The study also found that the dimensions of digital financial inclusion, accessibility, and financial product usage have a strong and positive impact on the usage of electronic payment services. However, there was no significant impact of the quality of financial services on the usage of electronic payment services, possibly due to a misunderstanding of the scale used. A study (Bekele, 2022, p. 310) found that owning a mobile phone significantly increases digital financial inclusion, as its usage facilitates access to mobile money transfer services and reduces transaction costs for using financial services through it.

The study added that ownership of specific types of accounts has an impact on the usage of electronic payment services. It found that owning any of these accounts individually does not have a significant impact, implying that ownership alone is insufficient for using electronic payment services. The majority of the sample had at least a bank account, and this did not affect the actual usage of suggested electronic payment services like topping up phone credit and paying online bills. This aligns with another study's findings (Shahulhameedu, 2014, p. 120) that opening accounts without ensuring their usage and conducting transactions hinders the effectiveness of financial inclusion initiatives. Proper measures are needed, including suitable indicators

Algerian Business Performance Review (ABPR). Vol. 13 N°: (01)/ 2024.

202

encompassing various dimensions related to measuring account availability, actual usage, electronic payment services, and completed transactions, as well as understanding the limitations hindering financial inclusion, especially for low-income groups, as emphasized in another study (Niankara, 2023, p. 9) the marginal effect of account ownership and debit card ownership does not significantly affect the use of electronic payment services by consumers.

The model demonstrated a high explanatory power, with a significant adjusted determination coefficient $AdjR^2$ of 0.827 at a significance level of 0.05 for the usage of electronic payment services. This indicates that more than 82% of the observed effects are explained by the variables included in the model, consistent with a study. (Kijkasiwat and Chancharat, 2022, p. 76)

In general, financial inclusion contributes to enhancing the usage of electronic payment services through the proliferation of financial services' usage, accessibility, quality, and ease, reducing barriers. This is to provide a faster, cheaper, and safer method for individuals, enticing them into the formal financial system. Despite Algeria's accelerated steps to promote the use of electronic payment services, it is still far from the desired levels.

Bibliography & References:

Albayati, H., Alistarbadi, N., & Rho, J. J. (2023). Assessing engagement decisions in NFT Metaverse based on the Theory of Planned Behavior (TPB). Telematics and Informatics Reports, 10, 100045. https://doi.org/10.1016/j.teler.2023.100045

Anyangwe, T., Vanroose, A., & Fanta, A. (2022). Determinants of financial inclusion: does culture matter? Cogent Economics and Finance, 10(1). https://doi.org/10.1080/23322039.2022.2073656

Bekele, W. D. (2022). Determinants of Financial Inclusion: A Comparative Study of Kenya and Ethiopia. Journal of African Business. https://doi.org/10.1080/15228916.2022.2078938

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24.

International Bank. (2022). The Little Data Book on Financial Inclusion. www.worldbank.org

Khera, P., Ng, S., Ogawa, S., Sahay, R., Adrian, T., Čihák, M., Eriksson Von Allmen, U., Lahreche, A., Beaton, K., Bazarbash, M., Alonso-Gamo, P., Berkmen, P., Blancher, N., Dabla-Norris, E., Das, B., Elliot, J., Grinberg, F., Dirk, J., Grolleman, F., … Carcel Vilanova, H. (2021). Measuring Digital Financial Inclusion in Emerging Market and Developing Economies: A New Index IMF Working Paper Monetary and Capital Markets Department Measuring Digital Financial Inclusion in Emerging Market and Developing Economies: A New Index.

Kijkasiwat, P., & Chancharat, N. (2022). Financial inclusion in the industry 4.0: the effects of financial inclusion on electronic payments in Thailand. International Journal of Trade and Global Markets, 15(1), 70–78. https://doi.org/10.1504/IJTGM.2022.120884

Mhlanga, D., & Denhere, V. (2020). Determinants of Financial Inclusion in Southern Africa. Studia Universitatis Babes-Bolyai Oeconomica, 65(3), 39–52. https://doi.org/10.2478/subboec-2020-0014

Niankara, I. (2023). The impact of financial inclusion on digital payment solution uptake within the Gulf Cooperation Council Economies. International Journal of Innovation Studies, 7(1), 1–17.

Patwardhan, A., Schmitz, K., & Singleton, K. (2018). Financial Inclusion in the Digital Age. International Finance Corporation, World Bank Group.

Peric, K. (2015). Digital financial inclusion. Journal of Payments Strategy & Systems, 9(3), 212–214.

Shahulhameedu, M. (2014). Financial Inclusion - Issues in Measurement and Analysis. International Journal of Current Research and Academic Review, Volume 2 Number 2(2347–3215), 116–124.

Tuesta, D., Sorensen, G., Haring, A., & Cámara, N. (2015). Financial inclusion and its determinants: the case of Argentina Financial inclusion and its determinants: the Argentine case. www.bbvaresearch.comwww.bbvaresearch.com

كاملة, ب. (2022). النظام القانوني لوسائل الدفع الالكترونية في الجزائر. مجلة الاستاذ الباحث للدراسات القانونية والسياسة ـ المجلد07 العدد01.

لعلاوي, ع., خنفوسي, ع. ا. (2016). وسائل الدفع الإلكترونية المستحدثة في إطار تسهيل خدمات المعاملات المالية الرقمية. مجلة منازعات الأعمال, 19.

Appendices

Appendix 1. Discriminant validity

Construct	Usage of Financial Products	Usage of Electronic Payment Services	Account Tenure	Trust	Age	Educational Level	Accessibility	Quality of Financial Services	Income Level	Ownership of Postal Account with Card	Ownership of Bank Account with Card	Ownership of E-Wallet or Digital Cash	Gender
Usage of Financial Products	0.906												
Usage of Electronic Payment Services	0.895	0.783											
Account Tenure	0.104	0.101	1.000										
Trust	0.282	0.307	0.106	0.848									
Age	0.081	0.065	0.390	0.090	1.000								
Educational Level	0.054	0.064	0.177	-0.008	0.080	1.000							
Accessibility	0.566	0.623	0.111	0.440	-0.044	0.098	0.733						
Quality of Financial Services	0.308	0.324	0.109	0.564	0.075	0.247	0.585	0.719					
Income Level	0.068	0.098	0.113	-0.002	0.060	0.806	0.133	0.327	1.000				
Ownership of Postal Account with Card	-0.233	-0.230	-0.091	-0.056	-0.138	-0.061	-0.137	-0.049	0.129	1.000			
Ownership of Bank Account with Card	-0.028	-0.047	-0.070	-0.077	-0.167	0.102	-0.047	-0.064	-0.107	0.210	1.000		
Ownership of E-Wallet or Digital Cash	-0.085	-0.102	0.056	0.003	0.044	0.097	-0.114	-0.086	-0.161	0.044	0.210	1.000	
Gender	-0.059	-0.073	-0.139	-0.001	-0.183	0.169	-0.018	0.065	0.150	0.117	0.093	0.112	1.000

Source: Prepared by the researcher based on the outputs of SmartPLS4.