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Demand side factors affecting financial inclusion in Vietnam

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Abstract: This study aims to identify the determinants influencing financial inclusion in Vietnam and to propose relevant policy recommendations aligned with Vietnam's National Financial Strategy on financial inclusion. Using quantitative analysis methods, the study employs data from the 2022 Vietnam Household Living Standards Survey (VHLSS), conducted by Vietnam's General Statistics Office (GSO). The results of the model of factors affecting financial inclusion in Vietnam indicate that gender has a negative impact on account ownership, access to savings services, use of ATM cards, use of credit cards, and access to investment and insurance services. The variables Age and Age^2 exhibit positive and negative correlations, respectively, confirming a non-linear relationship between age and financial inclusion measures. Additionally, marital status, education, income, and internet access show positive and statistically significant impacts. These findings highlight the necessity of targeted financial literacy programs, gender-sensitive policy interventions, and enhanced digital infrastructure. Practically, these implications assist policymakers in designing effective strategies to foster comprehensive financial inclusion, thereby contributing to Vietnam's sustainable economic growth and financial stability.

Keywords: *Financial inclusion, Factors affecting financial inclusion.*

1. Background

The influence of financial inclusion on socio-economic development, contributing to hunger eradication and poverty reduction, and reduction of inequality has been recognized by the researchers, international financial organizations as well as national governments. Therefore, many programs have been implemented by the international organizations in order to promote financial inclusion development, specifically: the United Nations (UN) has implemented the programs through the UN Development Investment Fund; G20 countries have agreed on a set of principles for financial inclusion and these are also the focus of the G20 Group action plan. ASEAN considers financial inclusion as one of the three pillars of the ASEAN Economic Community (AEC) Vision in 2030 on financial integration and has established the Working Group on Financial Inclusion to promote this field in the region; The World Bank (WB) and Asian Development Bank (ADB) have developed the programs, projects to promote the financial inclusion in many countries. There are many countries, especially developing countries, that have been building national frameworks and strategies for financial inclusion such as India, Thailand, and Malaysia and have initially achieved positive results.

Vietnam, a country with a developing economy with a population of more than 100 million people, is no exception to the above trend. In that context, it is essential to determine what factors impact financial inclusion in Vietnam and then make appropriate recommendations. The goal of the article is to identify demand-side factors - consumer characteristics that impact the financial inclusion in Vietnam. The article will include the following 4 parts: part 1: background, then the article provides an overall analysis, study methods as well as study data, using the VHLSS data set. After that, the author has discussed the study results, based on this, and made appropriate recommendations for Vietnam.

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2. Overview of Study on Demand-Side Factors Affecting Financial Inclusion

The consumers' own internal factors directly affect the development of financial inclusion through the personal characteristics of people and households. The studies show that factors affecting the financial inclusion include: gender, age, marital status, education level, income, internet use, saving ability, level of vulnerability of household or living location (rural, urban). Some typical studies can be mentioned as follows:

2.1. For Gender, Age, Marital Status, Education Level, Income

Pena, et al. [1] study conducted a case study in Mexico. The author used the national financial inclusion survey data set conducted in 2012 for 7,000 households in urban and rural areas of Mexico. Collected data were analyzed through a linear regression model for the independent variables: gender, age, household size, marital status, position in the family, education level, title, salary, saving ability, level of vulnerability (likelihood of problems), support from remittances, whether employed or unemployed. The study results show that age, position in the family, marital status, education, saving ability, level of vulnerability and job are meaningful factors in the model.

The study of Tuesta, et al. [2] was conducted based on a survey data set by the World Bank for 147 countries, each country had at least 1,000 people at age of 15 and older participating in the survey. The author analyzed the influence of the variables such as gender, age, education level and income on the use of financial inclusion based on the Probit regression model. The study results obtained in Argentina completely coincide with the study of Pena, et al. [1] in Mexico. Specifically, age, education level and income are important variables that affect the use of financial inclusion products, whereas gender is an insignificant variable in the model. This result contributes to confirming that consumers' personal characteristics are factors that have an important influence on their use of financial inclusion products.

Similar to the study of Tuesta, et al. [2] and Clamara, et al. [3] also applied the Probit model to find variables affecting the use of financial inclusion. Although in two different countries, the study results are relatively consistent. Specifically, age, income level, job, and education are variables that greatly influence the use of financial inclusion. The results clearly show that people with lower qualifications lack the confidence and skills necessary to use financial services and products. Like Pena et al's study in Mexico, access to financial inclusion will be higher for older people, but it only stops at age 53 instead of age 57.46 like in Mexico. However, unlike the above two studies, the study of Clamara, et al. [3] in Peru shows that gender is a meaningful variable in the use of financial inclusion products and services. For women, living in rural areas with low income and education levels tend not to want to access formal financial resources.

The influence of personal characteristics is again shared in the study of Demirgüç-Kunt, et al. [4] based on Global Financial Inclusion data of 140 developing countries. The study results also confirm: income, education, employment, age, marital status and gender are factors that affect people's use of financial services and products.

2.2. For Place of Residence (Urban/Rural), Religion, Level of Vulnerability of the Household

Vulnerable groups, including women, youth and those living in rural areas, often have difficulty accessing financial and banking services. Using micro data to examine demand-side factors, Kuri and Laha [5] applied a binary probit regression model to evaluate the financial inclusion in rural West Bengal. They concluded that awareness levels about basic banking services, diversification into non-agricultural sectors, and literacy were some of the important factors that enabled the expansion of financial inclusion. Similarly, Clamara, et al. [3] used a probit model to explore individual characteristics that influence the choice to use formal financial services. Their study shows that vulnerable groups, including women, youth and those living in rural areas, often have difficulty accessing financial and banking services. For small enterprises, the type of business as well as the education level of the leader are factors that affect access to financial services. In addition, Carpenter and

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Petersen [6] link the use of financial services with the growth of enterprises and show that the enterprises with strong growth, especially small enterprises, will use more loans.

At the household level, several studies of formal banking services in Mexico and transition countries have shown how household characteristics influence formal financial access. Beck, et al. [7] use data from the European Bank for Reconstruction and Development (EBRD) to assess factors affecting access to formal banking services at the household level. The author also shows that there is a significant influence of factors such as religion and ethnicity as well as whether living is urban or rural.

2.3. For Internet Access

In particular, internet access is a notable factor in the demand side factor. A growing Internet network can significantly reduce transaction costs, through mobile phones and ATMs. Furthermore, the internet has increased the potential for credit activities in rural and remote areas. Okoroafor, et al. [8] study examined the determinants of financial inclusion in Nigeria using time series data from 1990 to 2016. The study used Error Correction Model (ECM) after performing unit root testing and cointegration testing. The estimated results show a positive and significant relationship between the financial inclusion and the proposed variables. Notably, the variable of internet users over 100 people has a positive and significant impact on financial inclusion. This result is similar to Sarma and Pais [9] and Allen, et al. [10] who pointed out that internet access is an essential factor in the digital and fast-moving economy. This is demonstrated in the case of Kenya, where M-Pesa has transformed many banking and financial services sectors.

2.4. For level of Trust in Formal Credit

Turvey and Kong [11] used a survey data set from more than 1,500 farming households to compare the decision to choose between formal and informal loans. The results show that there is a positive relationship between trust and informal credit, and distrust and choosing to use formal credit. It shows that more than 67% of farming households borrow from their friends and relatives, it is clear that the importance of informal loan in credit sources for farming households cannot be ignored. Similarly, Karlan and Zinman [12] find that trust can be an important indicator for informal loan between friends and relatives in Peru. Hoff, et al. [13] suggest that information asymmetry among the members of the community is much less than information asymmetry between the official lender and the community and this can also be explained the power of informal loan; but this also suggests that credit allocation will persist and that this will result in informal loan remaining highly influential.

Thus, the studies were conducted in different countries, but the study results show that although in different countries, the development conditions of the financial market are different, the personal characteristics of consumers greatly affect whether they access and use financial products and services or not.

3. Study Selection and Data

3.1. Study Models

To evaluate the impact of demand-side factors - personal characteristics on financial inclusion in Vietnam, based on the study overview in section 2, the author makes the hypotheses about demand-side factors – personal characteristics impacting each component of the financial inclusion and the aggregate financial inclusion is as follows:

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Table 1.
Study hypotheses.

	Sign	Variables	Expect direction of impact	References
Dependent variables				
1	ACC	Own account		Honohan [14]; Sarma and Pais [9]; Chakravarty and Pal [15] and Clamara, et al. [3]
2	CDC	Use credit card		Honohan [14]; Sarma and Pais [9]; Chakravarty and Pal [15] and Clamara, et al. [3]
3	ATM	Use ATM card		Beck, et al. [7]; Honohan [14]; Sarma and Pais [9]; Chakravarty and Pal [15] and Clamara, et al. [3]
4	CRE	Use loan service		Beck, et al. [7]; Nair and Tankha [16] and Clamara, et al. [3]
5	SAV	Use savings service		Beck, et al. [7]; Nair and Tankha [16] and Clamara, et al. [3]
6	INV	Use insurance, investment services		Beck, et al. [7]; Nair and Tankha [16] and Clamara, et al. [3]
7	FII	Aggregate Financial Inclusion Index		Akinci and Olmstead-Rumsey [17]
Impact variables				
1	AGE	Age	Positive impact	Demirgüç-Kunt, et al. [4]; Clamara, et al. [3]; Pena, et al. [1]; Tuesta, et al. [2]; Chu Khanh and Chu [18]; Asuming, et al. [19]
			Negative impact	Beck, et al. [7]
2	EDU	Education level	Positive impact	Allen, et al. [10]; Demirgüç-Kunt, et al. [4]; Pena, et al. [1]; Tambunlertchai [20]; Chu Khanh and Chu [18]
3	GEN	Female	Positive impact /Negative impact	Demirgüç-Kunt, et al. [4] and Clamara, et al. [3]
		Male	Positive impact	Clamara, et al. [3]
4	INC	Income	Positive impact	Allen, et al. [10]; Demirgüç-Kunt, et al. [4]; Pena, et al. [1]; Tambunlertchai [20]; Chu Khanh and Chu [18]
5	MAR	Marital status	Positive impact	Allen, et al. [10] and Pena, et al. [1]
6	SE	Internet Use	Positive impact	Andrianaivo and Kpodar [21]; Evans [22]; Olaniyi [23] and Okoroafor, et al. [8]

The study uses the models Fungáčová and Weill [24]; Zins and Weill [25] and Asuming, et al. [19] to examine the factors affecting the financial inclusion in Vietnam. In addition, the author added dependent variables of marital status Pena, et al. [1] and Allen, et al. [10] and internet use Olaniyi [23] and Okoroafor, et al. [8] is an important factor in promoting the financial inclusion. Basically, married people will tend to use financial services more due to increased demand for spending, so marital status will be one of the factors affecting the financial inclusion. In addition, the use of the internet has cut transaction costs through the use of mobile phones and ATMs. This has improved the capacity to provide the credit in remote areas of the country and can provide banking services at home where illiterate mobile phone customers have bank accounts. Internet use will be an important factor promote people's access to the financial inclusion. The model is shown as follows:

The regression model studying demand-side factors affecting the financial inclusion has the following form:

$$FII_i = \beta_0 + \beta_1 GEN_i + \beta_2 AGE_i + +\beta_3 MAR_i + \beta_4 EDU_i + \beta_5 INC_i + \beta_6 USE_i + \varepsilon_i$$

In which:

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β_0: blocking coefficient

Dependent variable, FII_i, is the financial inclusion index of Vietnam. This index is expressed in the use of diverse banking and financial services including the following indicators:

ACC_i: Own the account

CDC_i: Use a credit card

ATM_i: Use an ATM card

CRE_i: Use loan service

SAV_i: Use savings service

INV_i: Use insurance, investment services

FII_i: Aggregate financial inclusion index

Impact variables: are independent variables that impact financial inclusion in the countries, including:

AGE_i: Age

GEN_i: Gender

MAR_i: Marital status

EDU_i: Education level

USE_i: Internet use

INC_i: Income

ε_i: Residual of the model

3.2. Study Data

The study uses the 2022 Vietnam Household Living Standards Survey (VHLSS) data set conducted by the General Statistics Office of Vietnam (GSO). The scope of the survey is households across the country with a sample size of 46,995 households in 3,133 communes/wards, representing the whole country, regions, urban areas, rural areas and affiliated cities. From 46,995 households, the author filters 9,396 people to participate in the survey related to owning and using banking and financial services.
The dependent variables are measured as follows (Table 2):

- Own account (ACC): This variable takes the value of 1 if the interviewee answers that he/she owns a bank account and 0 if the interviewee answers that he/she does not own a bank account.
- Use credit card (CDC): This variable takes the value of 1 if the interviewee answers that he or she uses a credit card and 0 if the interviewee answers that he or she does not use a credit card.
- Use ATM card (ATM): This variable takes the value of 1 if the interviewee answers that he or she uses an ATM card and 0 if the interviewee answers that he or she does not use an ATM card.
- Use savings service (SAV): This variable takes the value of 1 if the interviewee answers that she or he opens a savings book and 0 if the interviewee answers that she or he does not open a savings book.
- Use loan service (CRE): This variable takes the value of 1 if the interviewee answers that she or he uses loan services and 0 if the interviewee answers that she or he does not use loan services.
- Use insurance, investment services (INV): This variable takes the value of 1 if the interviewee answers that he or she uses insurance services or invests in stocks or bonds, and 0 if the interviewee answers that he or she does not use insurance and investment services.
- Aggregate Financial Inclusion Index (FII): This variable is equal to the sum of the values obtained from the above variables. This measurement method is learned from the study of Akinci and Olmstead-Rumsey [17] when measuring the impact of policies on 57 developed and developing countries. As follows:

$$FII_i = ACC_i + CDC_i + ATM_i + CRE_i + SAV_i + INV_i.$$

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The impact variables are measured as follows:

- Age (AGE): This variable is measured by the age of the interviewee
- Gender (GEN): This variable takes the value 1 if the interviewee is male and takes the value 0 if the interviewee is female.
- Marital status (MAR): This variable takes the value 1 if the interviewee is married and takes the value 0 if the interviewee is not married.
- Education level (EDU): This variable takes the value 0 when the interviewee has no degree, takes the value 1 when the education level is primary school, takes the value 2 when the interviewee has a secondary school degree, takes the value 3 when the interviewee has a high school degree and takes the value 4 when the interviewee has a college/university degree or higher.
- Income (INC): The variable measured is the total income in 12 months of the interviewee.
- Internet Use (USE): This variable takes the value 1 if the interviewee has had Internet access within the past 3 months and takes the value 0 if the interviewee has not had Internet access within the past 3 months.

Table 2.
Dependent variables.

Variables	Sign	Model
Own account	ACC	Model (1)
Use savings service	SAV	Model (2)
Use ATM card	ATM	Model (3)
Use credit card	CDC	Model (4)
Use loan service	CRE	Model (5)
Use insurance, investment services	INV	Model (6)
Aggregate Financial Inclusion Index	FII	Model (7)

4. The Model of Demand-Side Factors Affecting Financial Inclusion

4.1. Descriptive Statistics and Preliminary Tests

To gain an initial understanding of the data and variables used in the model analyzing demand-side factors influencing financial inclusion, descriptive statistics were calculated. Table 3 presents summary statistics for both the dependent and independent variables, including the number of observations, mean, standard deviation, minimum, and maximum values.

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Table 3.
Descriptive statistics of variables used in the model.

Variable Name	Observations	Mean	Standard Deviation	Min.	Max.
Dependent Variables					
FII	9,396	1.03576	1.176132	0	6
ACC	9,396	0.2762878	0.4471847	0	1
SAV	9,396	0.1306939	0.3370832	0	1
ATM	9,396	0.3670711	0.4820318	0	1
CDC	9,396	0.0304385	0.1717997	0	1
INV	9,396	0.0577905	0.2333594	0	1
CRE	9,396	0.1734781	0.3786802	0	1
Impact Variables					
GEN	9,396	0.7465943	0.4349844	0	1
AGE	9,396	52.4023	13.66847	19	101
AGE2	9,396	2932.808	1523.868	361	10201
MAR	9,396	0.3813325	0.4857398	0	1
EDU	9,396	1.635057	1.209401	0	4
INC	9,396	169250.1	677432.1	0	5.23e+07
USE	9,396	0.3813325	0.4857398	0	1

Based on the 2022 household survey data, the study collected 9,396 observations. A more detailed analysis of the descriptive statistics (as shown in the table above) reveals a notable dispersion among the observations within the research sample.

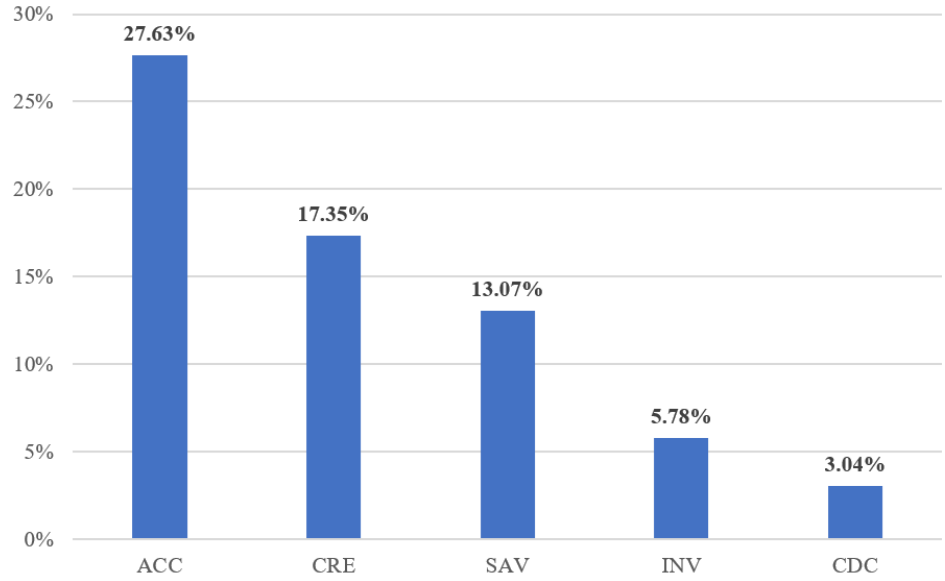

Figure 1.
Proportion of financial and banking services usage within the research sample.

The research sample comprises 9,396 individuals who participated in a survey regarding the ownership and usage of banking and financial services. Figure 1 illustrates the proportion of financial and banking service usage within the sample. Among the services, the most commonly used product is the bank account (ACC), with 27.63% of respondents reporting ownership of a bank account. Two services with relatively lower levels of usage are credit services (CRE) and savings products (SAV), with 17.35% of respondents using credit services and 13.07% utilizing savings services. The least commonly

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used services are investment and insurance, as well as credit card services. Specifically, 5.78% of individuals reported using investment and insurance services, while only 3.04% of the surveyed population reported using credit card services.

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Table 4.
Correlation matrix of variables in the model.

	FII	ACC	SAV	ATM	CDC	INV	CRE	GEN	AGE	AGE2	EDU	INC	USE	MAR
FII	1,0000													
ACC	0.8138	1,0000												
SAV	0.5327	0.3317	1,0000											
ATM	0.7958	0.7121	0.2438	1,0000										
CDC	0.4145	0.2563	0.2750	0.2095	1,0000									
INV	0.3652	0.1356	0.1083	0.1473	0.1021	1,0000								
CRE	0.2447	-0.0549	-0.1293	-0.0451	-0.0435	0.0275	1,0000							
GEN	-0.0185	-0.0269	-0.0362	-0.0213	-0.0264	-0.0004	0.0459	1,0000						
AGE	-0.1036	-0.0749	0.0497	-0.1021	-0.0197	-0.0372	-0.1157	-0.2037	1,0000					
AGE2	-0.1175	-0.0844	0.0416	-0.1156	-0.0196	-0.0422	-0.1204	-0.2078	0.9867	1,0000				
EDU	0.3877	0.3354	0.2679	0.3709	0.1851	0.1109	-0.0549	0.1117	-0.1884	-0.1971	1,0000			
INC	0.1295	0.0921	0.0505	0.0731	0.1204	0.0894	0.0457	0.0343	-0.0500	-0.0541	0.0818	1,0000		
USE	0.3679	0.3352	0.2000	0.3599	0.1492	0.1211	-0.0316	0.0927	-0.3619	-0.3553	0.4417	0.1251	1,0000	
MAR	0.0101	-0.0193	-0.0084	0.0031	-0.0141	0.0145	0.0552	0.1517	0.0552	0.0458	-0.0203	0.0173	-0.0198	1,000

Note: The correlation matrix between the dependent and independent variables shows that all correlation coefficients are below 0.8. This indicates that there is no significant multicollinearity among the variables included in the model that could potentially bias the estimation results.

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4.2. Correlation Analysis

Table 5.
Variance inflation factor (VIF).

Variable	VIF	1/VIF
USE	1.39	0.717975
EDU	1.25	0.798454
AGE	1.20	0.833883
GEN	1.08	0.925629
INC	1.02	0.982756
MAR	1.03	0.968377
Mean	1.16	

4.3. Multicollinearity Test

Multicollinearity was tested using the Variance Inflation Factor (VIF). All VIF values are below 10, with an average value of 1.16. This indicates a low level of multicollinearity in the model, suggesting that multicollinearity does not significantly affect the estimation results.

4.4. Discussion of Study Results

Study on appropriate model selection among Ordinary Least Squared (OLS) models. The study conducted a regression on the impact of each factor on the component indexes of credit institutions specifically in Table 6 as follows:

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Table 6.
Model estimation results.

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
	ACC	SAV	ATM	CDC	CRE	INV	FII
GEN	-0,07133***	-0,03803***	-0,0846***	-0,01824***	0,01485	-0,01147**	-0,2082***
	(0,0101)	(0,0079)	(0,0106)	(0,0041)	(0,0092)	(0,0057)	(0,0257)
AGE	0,012***	0,0083***	0,01756***	-0,0002	0,00205	0,0030***	0,04287***
	(0,0120)	(0,0015)	(0,0020)	(0,0008)	(0,0017)	(0,0011)	(0,0049)
AGE2	-0,00009***	-0,0000***	-0,0001***	6,38e-06	-0,00000***	-0,0000***	-0,00037***
	(0,0000)	(0,0000)	(0,0000)	(7,01e-06)	(0,0000)	(9,66e-06)	(0,0000)
MAR	-0,01486	-0,0066	0,05837**	-0,0060	0,13229***	0,02614*	0,18925***
	(0,0270)	(0,0211)	(0,02855)	(0,0111)	(0,02467)	(0,0152)	(0,06894)
EDU	0,0866***	0,06371***	0,10499***	0,02144***	-0,01934***	0,01326***	0,27062***
	(0,0039)	(0,0031)	(0.0041)	(0,0016)	(0,0036)	(0,0022)	(0,0010)
INC	2,97e-08***	1,02e-08**	1,45e-08**	2,56e-08***	2,27e-08***	2,51e-08***	1,33e-07***
	(6.27e-09)	(4,91e-09)	(6,63e-09)	(2,57e-09)	(5,37e-09)	(3,54e-09)	(1,6e-08)
USE	0,23059***	0,10520***	0,25659***	0,0378***	-0,0498***	0,04139***	0,61568***
	(0,2306)	(0,0080)	(0,0108)	(0,0042)	(0,0094)	(0,0058)	(0,0261)
Constant	-0.24162***	-0,28655	-0,37436***	-0,0070***	0,13581***	-0,08075**	-0,85953***
	(0,0568)	(0,008)	(0,0602)	(0,0233)	(0,0520)	(0,03212)	(0,1453)
N	9396	9396	9396	9396	9396	9396	9396
Prob>F	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

Note: The number in parentheses represents the standard error of the regression coefficient. The symbols ***, **, * represent the 1%, 5% and 10% significance levels.

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The study results show that:

Gender (GEN) has a negative impact on owning accounts, using savings services, using ATM cards, using credit cards, using insurance and investment services. Interestingly, gender only has a positive impact on the use of loan services. Thus, women tend to use banking and financial services more than men. However, for loan services, the model shows the opposite result, men tend to use loan services more. This result is similar to the study of Fungáčová and Weill [24] but is contrary to the study of Chu Khanh and Chu [18] when they said that men have a higher probability than women when own and use banking and financial services. This is consistent with the personality characteristics of women in Vietnam. In fact, in Vietnam, women often play the role of "financial manager" in the family, so women will own savings accounts, own bank accounts, and use financial services such as opening ATM accounts, using credit card services or non-financial services such as insurance and stock investment. On the contrary, with loan activities, the model also shows a very interesting point when we see that men have a positive impact on loan activities. This is also completely consistent with the regulations in loan activities of the State Bank of Vietnam (for household loans, the head of the family, usually a male, will represent the legal entity to carry out the loan amount).

The impact of the variables age and age squared (Age and Age2) have positive and negative signs, respectively (with a significance level of 1%), meaning that there is a nonlinear relationship between age and banking account ownership as well as using banking and financial services. Older age means higher ability to access and use financial services, but at a certain age, older age limits access and use of financial services. Older people tend to use financial services less, including opening accounts, savings, using ATM cards, credit cards and loans. This result is similar to the studies of Allen, et al. [10] and Fungáčová and Weill [24].

Marital status (MAR) has a positive and statistically significant impact on access to financial inclusion, which means that married people have a higher need to access the financial inclusion. This result also coincides with the study of Pena, et al. [1].

Education (EDU) has a positive and statistically significant effect. This means that the higher an individual's education, the more likely they are to access the financial inclusion. The higher the level of education, the more knowledge and ability to save than people with low levels of education. This result is similar to the results of the study of Clamara, et al. [3] showed that people with lower qualifications lack the confidence and skills necessary to use financial services and products. However, there is a surprising thing specific to loan services: the relationship between education and the use of loan services is inversely proportional. This result does not support the view that the higher the education level, the more loan activities are used.

Like education, income (INC) has a positive and statistically significant impact on the components of financial inclusion and aggregate financial inclusion. This means that the higher the income is, the more likely people are to own and use banking and financial services. This result is also similar to the results of previous studies such as Djankov, et al. [26]; Beck, et al. [7]; Demirgüç-Kunt, et al. [4]; Allen, et al. [10] and Fungáčová and Weill [24] said that the higher the income is, the more people focus on finance and investment instead of focusing on issues such as eating or food.

According to the results of the internet access model, USE, has a positive relationship with a positive impact on each financial inclusion component as well as the aggregate financial inclusion index. People use the internet regularly, their demand for financial services increases, their access to the financial inclusion increases significantly and will bring positive impacts to the financial inclusion. This proves that internet connection has a positive impact on owning and using banking and financial services. This result also completely matches the study results of Andrianaivo and Kpodar [21] and Evans [22].

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5. Conclusions and Recommendations

By collecting demand-side data (characteristics of users of products and services), the author evaluated the model of factors affecting the financial inclusion in Vietnam. The results show that: Gender, GEN, have a negative impact on owning accounts, using savings services, using ATM cards, using credit cards, using insurance, investment services. The effects of the variables Age and Age2 have positive and negative signs, respectively (with a significance level of 1%), meaning that there is a nonlinear relationship between age and owning a bank account as well as using banking and financial services. Marital status, education, income, and level of internet access have a positive and statistically significant impact on financial inclusion.

Based on the research findings, this study proposes several solutions to promote financial inclusion in Vietnam as follows:

Firstly, enhance financial access for gender groups with lower utilization rates: Given that gender negatively affects the usage of financial services, inclusive financial policies should specifically target women through tailored financial products, targeted communication programs, and financial education initiatives, particularly for rural and low-income groups. Conducting specialized training sessions and workshops on personal financial management explicitly designed for women can effectively reduce the gender disparity in financial accessibility.

Secondly, strengthen financial literacy education tailored to specific age groups, particularly youth and older adults: Considering the nonlinear relationship between age and usage of financial services, financial literacy policies should be specifically designed for distinct age segments. Educational programs that incorporate financial management skills in schools and universities should be promoted, alongside specialized training sessions for older individuals to enhance their ability to effectively manage finances and encourage their use of banking services.

Thirdly, accelerate digital infrastructure development and improve technological competencies: Research results affirm that internet accessibility positively influences the use of financial services. Therefore, the government and financial institutions should continue investing in digital infrastructure, particularly in rural and remote areas, facilitating the use of electronic banking, digital wallets, and other digital financial services. Additionally, digital skills training programs for the population should be enhanced to increase their capability to access internet-based financial services.

Fourthly, diversify financial products and services to meet the needs of different income segments: As income positively impacts financial inclusion, it is essential to offer microfinance products, flexible savings schemes, micro-insurance, and consumer credit products with adaptable conditions suitable for low and middle-income households. Furthermore, preferential financial service packages should be provided to encourage these population groups to actively participate in the formal financial system.

Fithly, encourage participation of non-bank financial institutions and fintech companies: Financial inclusion policies in Vietnam should foster a regulatory environment that supports the development of non-bank financial institutions and fintech companies. These institutions can deliver accessible, simplified, and efficient financial solutions catering specifically to populations underserved by traditional banking channels, thus significantly broadening the scope of financial inclusion.

Finnaly, promoting public-private partnerships (PPPs) to effectively implement financial inclusion initiatives: Enhanced cooperation among government bodies, financial institutions, and private-sector enterprises should be prioritized to execute impactful communication campaigns, comprehensive financial education initiatives, and strategic investments in infrastructure and technological advancements aimed at widespread financial inclusion. Such collaborative public-private partnerships are instrumental in reducing implementation costs and substantially improving the effectiveness and reach of financial inclusion efforts.

Comprehensive and coordinated implementation of these recommendations can substantially advance financial inclusion in Vietnam, contributing to sustainable economic growth and enhanced social stability.

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Transparency:

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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