


Article

Does Financial Knowledge Matter in Using Fintech Services? Evidence from an Emerging Economy

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Abstract: Financial technology (FinTech) is one of the most important contributors applying technological applications to access financial products in financial markets. This research analyzes the determinants of financial knowledge and its impact on using FinTech services by employing survey data from a sample of 527 individuals in the southeast region of Vietnam, an emerging economy. The results indicate that women have a lower level of both actual financial knowledge and perceived financial knowledge than men. Moreover, men have a higher propensity to use FinTech services than women. Younger people also have higher FinTech usage compared with older people. Unlike previous studies in the financial field, an interesting finding emphasizes that actual financial knowledge does not affect the use of FinTech services but perceived financial knowledge does. To ensure the findings are robust, the research uses instrumental variable (IV) method, and 2SLS (two-stage least squares) estimation to resolve endogenous problems. Accordingly, to promote financial well-being, the findings suggest that financial institutions or FinTech firms should design and develop more user-friendly FinTech products and services so even older people can gain access to FinTech usage. Additionally, policymakers should devote attention to user protection in emerging economies where people are considered less financially literate.

Keywords: using FinTech services; financial knowledge; actual financial knowledge; perceived financial knowledge



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Citation: Nguyen, T.A.N. Does Financial Knowledge Matter in Using Fintech Services? Evidence from an Emerging Economy. *Sustainability* **2022**, *14*, 5083. <https://doi.org/10.3390/su14095083>

Academic Editor: Simon Grima

Received: 12 March 2022

Accepted: 19 April 2022

Published: 23 April 2022

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1. Introduction

Financial literacy has been considered a decisive factor contributing to financial well-being. According to Lusardi and Mitchell [1], the right financial decisions play an essential role in making financial choices efficient. As financial markets grow rapidly and considerably, it is easier for individuals and corporations to access savings and investment network funding. Financial technology (FinTech) is one of the most important contributors applying technological applications to access financial products in financial markets. FinTech, which brings emerging technologies into the financial section, is currently transforming the financial service industry [2]. Originally, FinTech was first developed by Citigroup in the early 1990s when they launched the project “Financial Services Technology Consortium” to encourage cooperation in technology. Since then, FinTech has transformed the services of financial industry at incredible speed [3]. Specifically, FinTech has exerted its considerable influence on a wide range of financial services, from daily activities, such as mobile payments, robot-advising, and investment apps, to Internet banking solutions. Developments in FinTech have also significantly affected financial planning, financial well-being, and economic inequality [4].

The literature shows that FinTech has made a dramatic impact on financial institutions and the financial industry by transforming its operation. Chen et al. [5] proved that FinTech innovations have positively valued the financial sector. These innovations open up possibilities for changing financial services completely by improving the efficiency of transactions. FinTech innovations including mobile internet, big data, blockchain, cloud

computing, and artificial intelligence have a great influence over the financial services sector, and its essential services such as banking, payment processing, brokerage, asset management and insurance. According to the World Bank and OECD, low levels of financial literacy could be an obstacle to using financial products. In order to make financial products and services become more user-friendly, FinTech could provide customers with simple financial concepts. This can accelerate the development of FinTech's potential and offer answers to major financial issues in developing countries. Accordingly, financial literacy is believed to play an important role in the development of FinTech in the financial industry. This could support individuals in maximizing the relevance and benefits of financial products and services efficiently and quickly.

While a large body of research has examined the importance of financial technology for the financial industry and businesses from macro and micro perspectives, studies on what factors influence the access to FinTech in emerging and developing economies such as Vietnam have been left open. Optimizing FinTech applications in order to enhance the access to resource allocation and investment efficiency not only produces positive effect on wealth accumulation but also ensures a sustainable economic development of a country. In this context, the study focuses on investigating whether and how financial knowledge comprising of actual financial knowledge and perceived financial knowledge affects the use of FinTech services of individuals in the southeast region of Vietnam. According to the World Bank, one problem that lower-middle income countries in Asia should improve is to facilitate access to formal financial products, such as bank accounts. Hence, financial knowledge and perceived financial knowledge are believed to encourage and push individuals to access finances through FinTech usage.

This research makes valuable contributions by providing the empirical results from an emerging economy, particularly from Vietnam. In addition, the results are confirmed by the robustness test instrumental variables (IV). Accordingly, this research proposes that the bottom line of financial knowledge can catalyze the access to financial services in a formal way through FinTech usage.

This paper is structured as follows: Section 2 is the literature review. Methodology is presented in Section 3. Section 4 describes the results and discussions. The final section is the conclusion.

2. Literature Review

2.1. Overview of Fintech Development in Vietnam

To present a general overview of FinTech development, Vietnam is a typical case. As a result of the growth in e-commerce during the period 2021–2022, financial technology has dominated its impact and become a leading business sector over the globe. Interestingly, Vietnam is in the forefront of FinTech development. FinTech News Singapore reports that Vietnam's start-up scene has tripled in recent years based on the number of start-ups, and payments dominate the segment of FinTech. This includes more than 40 payment services providers outside the banking system, such as Zalo Pay, MoMo, Moka, etc.

Specifically, according to a report of FinTech News Singapore [6], there was a sharp increase in the number of start-ups in Vietnam over the period 2017–2019, from 44 to 124 start-ups, in which P2P Lending start-ups achieved the most impressive growth from 3 to 23. The total number of FinTech start-ups in Vietnam is 124 and these start-ups are established in all sectors of the FinTech scene. However, the existing low level of financial inclusion has caused Vietnam to remain a mainly cash-based economy. Owing to restricted access to financial information and other financial services in rural regions, over 70% of the population in this country do not engage in the banking system. Taking online shopping as an example, the vast majority of transactions (80–90%) are conducted in cash, possibly because of the culture, levels of financial literacy, or people's belief in financial institutions. Nevertheless, this potential market where about 80% of transactions are made offline and in cash could provide investors with plenty of opportunities to penetrate. In addition, the

banking system is actively developing several digital banking programs and instruments together with wide coverage of the internet and mobile.

2.2. Financial Knowledge and FinTech

Regarding FinTech, in the past, individuals could not access and use formal financial services because of several reasons such as costs, distance, and complex requirements of documentation [7]. Recently, the innovations and developments in FinTech help individuals overcome barriers to accessing such services and products by exploiting quick infiltration of portable technology [8]. However, few studies have investigated which factors drive people access FinTech usage.

At present, access to financial services is still a barrier to a large percentage of individuals in the world. Thus, they could not ensure their financial well-being, even at the lowest level. Particularly, in emerging markets many households and small firms could hardly gain access to formal financial services. According to Anarfo [9], although policymakers and researchers have made great efforts to have financial regulation observed closely and carefully, few studies into this area have been conducted.

Formal financial system provides various financial services comprising access to deposit, savings, loans and payment systems. Hence access to financial products and services plays an important role in individuals' economic security [10]. Previous research indicates that one of the ways that may be utilized to reduce the unbanked population is the usage of FinTech and it has the potential to minimize financial exclusion and improve financial inclusion [11,12].

Regarding financial literacy, in previous studies, financial knowledge is often approached in two aspects: actual financial knowledge and perceived financial knowledge. The purpose of this is to provide a comprehensive assessment of the necessary basic concepts related to knowledge of economics and finance [13,14] and the confidence and ability to apply their knowledge [15]. Accordingly, it is necessary to assess both actual and perceived financial knowledge of individuals. Additionally, Bucher-Koenen et al. [16] and Lusardi and Mitchell [1] proposed that there is a gap between respondents' self-assessed and real financial knowledge.

A comprehensive literature on the challenges of FinTech adoption has emerged as part of a wider paradigm. Financial literacy has been shown to have a positive relationship with FinTech adoption [17]. This study suggests that the level of trust with technology and financial literacy of users has effect on switching to a FinTech. Moreover, in research in Ghana, Olayinka and Adegbite [18] revealed that the primary significant factors in access to formal financial services among adults are financial literacy, low income, a lack of paperwork, and a distance from financial institutions. Earlier in Nigeria, the research result of Abdu et al. [19] found that the motivator for gaining access to formal financial services is the gender gap.

The correlation between financial literacy and other financial areas has been well established in the literature. A number of studies have examined the role of financial literacy in the access to financial products related to daily financial management skills [20] and in participation in financial market [21,22]. Recently, in developing economies many studies have explored the role of financial literacy in saving decisions, and wealth accumulation [23–25]. The nexus of financial literacy and financial inclusion has been also examined [26]. However, there is a lack of empirical research in the literature on the relationship between financial literacy and FinTech applications in developing countries, specifically in low-income economies.

In the context of developed countries, Calvo-Porrall and Pesqueira-Sanchez [27] believe that age is a decisive factor that impacts the level of involvement in technology. Nevertheless, other studies argue that Gen X, Gen Y, and Gen Z follow the same pattern in changing digital adoption. To evaluate the level of digital adoption in these generations in the U.S, the research implementing a Pew Research Center survey concludes that age has a positive association with technology adoption. Specifically, Amily [28] proved that

approximately 90% in Gen X participate in technology adoption. Furthermore, according to Global Webindex, a severe and busy lifestyle in 2019 has made digital services become an efficient instrument for individuals to undertake everyday tasks in their work and business. Cuevas-Vargas et al. [29] also suggested that the role of the adoption of information technologies in marketing activities could improve business performance. However, regarding FinTech service adoption, financial literacy is considered a major factor for Gen X. Anastasia et al. [30] revealed that both Gen X and Gen Y gain a high level of financial literacy, whereas Baby Boomers have a low level. This is possibly because these two generations experienced mostly the same technological developments and the majority of them received good education. In fact, this is a result of circumstances, but it is probably more convincing if financial literacy could support individuals in making wise financial decisions that accumulate their wealth.

3. Methodology

3.1. Empirical Analysis

The research aims to explore the determinants of financial knowledge which consists of actual financial knowledge and perceived financial knowledge and the role of financial knowledge in using FinTech services. In addition, the research also analyzes social and demographic characteristic factors that could affect financial knowledge. Accordingly, this research first examines the determinants of financial knowledge of individuals in Equation (1). Then, the effect of financial knowledge on using FinTech services is estimated in Equation (2).

To quantify the determinants of financial knowledge, Equation (1) is estimated:

$$FK_i = \alpha_0 + X_i\alpha_1 + \varepsilon_i \quad (1)$$

where:

FK_i : financial knowledge (actual financial knowledge and perceived financial knowledge)

X_i : represents a vector of variables (gender, age groups, education levels, labor force, marital status, and income levels); α_1 is the coefficients and ε_i is error term.

To explore the role of financial knowledge in using FinTech services, the correlation between financial knowledge and using FinTech services is estimated by Equation (2).

$$Ft_i = \beta_0 + \beta_1AFK_i + \beta_2PFK_i + X_i\beta_3 + \delta_i \quad (2)$$

where:

Ft_i : using FinTech services is a dummy variable, taking the value of one if individual use any types of FinTech services or products through mobile, tablet, or laptop, and zero otherwise.

AFK_i : actual financial knowledge; PFK_i : perceived financial knowledge (self-assessed financial knowledge).

β_1 , β_2 measure the effect of actual financial knowledge and perceived financial knowledge on using FinTech services and δ_i is the error term.

3.2. Data

The questionnaire is comprised of three main parts. The first part includes questions about individuals' financial knowledge and perceived financial knowledge. In the second part, respondents are asked questions related to using FinTech services. The questions in part 3 are about the personal information on demographic characteristics such as gender, age, education, marital status, and labor force as well as individuals' income levels.

Data collection was conducted at the beginning of January 2022 in the Southeast region of Vietnam including Ho Chi Minh city (the biggest city in Vietnam and considered as an economic hub), Bien Hoa city (representing Dong Nai Province), Thu Dau Mot city (representing Binh Duong Province), Vung Tau (representing Ba Ria Vung Tau), and Dong Xoai (representing Binh Phuoc Province). A total of 527 valid samples were collected from 700 questionnaires after the data were processed. The invalid questionnaires were

removed because respondents did not complete questionnaires or refused to answer the key questions related to financial knowledge and using FinTech services.

3.3. Measurement Variables

Using FinTech services is a dependent variable which is measured by a binary variable and coded 1 if respondents use digital financial services and 0 for those who do not use FinTech services. FinTech mentioned in this research refers to digital financial technology which applies mobile or tablet applications to facilitate individuals' transactions, such as savings, deposits, money transfers, bill payments, or investment of individuals who live in emerging countries, specifically the southeast region of Vietnam.

The key explanatory variables are actual financial knowledge and perceived financial knowledge. In order to measure actual financial knowledge, individuals answer a set of questions on basic concepts of economics and finance topics such as time value of money, compounding interest rate, inflation, diversification, and money illusion. These questions are widely used to assess the overall financial knowledge of individuals in previous studies [23,31,32] and were drawn from [31,33]. Each question has multiple-choice answers, and the correct answer is coded 1; otherwise, it is coded 0. The measurement of this indicator ranges from 0 and 7. To assess perceived financial knowledge of individuals, this means individuals themselves assess their confidence about their overall financial knowledge, respondents state the level of their overall financial knowledge. Based on Likert-scale measurement, the levels range from very low to very high, from level 1 to level 5, respectively.

Control variables in this study are comprised of gender, age, education, marital status, and income level.

4. Results and Discussion

4.1. Data and Descriptive Statistics

Table 1 shows the sample statistics on demographics of respondents living in the southeast region of Vietnam. Women and men in this sample were around 51 percent and 49 percent, respectively. Respondents' age was divided into four groups, under 25 years old, 25 to 34 years old, 35 to 49 years old, and 50 to 60 years old. Table 1 reveals that the largest portion of respondents was found in the group from 25 to 34 years old with 43.3 percent and the group from 50 to 60 years old was the smallest with only 7.6 percent. Two-thirds of respondents have a diploma or bachelor's and master's degree, where 60 percent hold a university degree and around 8.9 percent reached the postgraduate level. However, 15.8 percent of people only finished secondary school, and the same number of respondents finished high school. With respect to respondents' monthly income, over a half of respondents earned under VND 9 million, and 29.4 percent of people earned under VND 5 million. In terms of the labor force, 43.3 percent of respondents worked in the informal sector and about 56.7 percent worked in the formal sector. This table also reports statistics on marital status of respondents in which about 30 percent of respondents were single, and the remaining were married.

Table 2 displays the average score of actual financial knowledge and perceived financial knowledge of respondents who live in the southeast region of Vietnam. In addition, the status of individuals' FinTech usage is also reported. Particularly, the average score of actual financial knowledge is 3.66 out of a total score of 7. Compared with other countries, this figure is similar to Malaysia (3.6), India (3.7), and slightly lower than Indonesia and Thailand with 3.9 [34]. Moreover, to estimate the self-assessed financial knowledge of respondents, individuals evaluated the level of financial knowledge themselves with an average of 3.34 on a five-point Likert scale from 1 to 5.

Table 1. Demographic and socioeconomic variables.

Characteristic	Frequency	%
Using FinTech services		
- Yes	321	60.91
- No	206	39.09
Gender		
- Female	270	51.23
- Male	257	48.77
Age groups		
- Under 25	104	19.73
- 25–34	228	43.26
- 35–49	155	29.42
- 50–60	40	7.59
Education levels		
- Secondary school	83	15.75
- High school	81	15.37
- Diploma/bachelor's	316	59.96
- Postgraduate	47	8.92
Marital status		
- Single	162	30.74
- Married	365	69.26
Labor force		
- Informal sector	228	43.26
- Formal sector	299	56.74
Income level		
- Under 5 million VND	141	26.76
- 5–under 9 million VND	155	29.41
- 9–15 million VND	145	27.51
- Over 15–30 million VND	52	9.87
- Over 30 million VND	34	6.45
Observations	527	

Source: author's calculations.

With regard to using FinTech services, Table 2 also indicates that 61.9 percent of respondents use FinTech services through applications on mobile phones or tablets. The highest percentage of around 40 percent of individuals use FinTech to transfer money. About 33 percent and 27 percent of individuals use FinTech for bill payments and savings or investment, respectively.

Table 2. Financial knowledge, perceived financial knowledge and using FinTech services.

Variables	Obs	Mean (SD)	Min	Max	
Actual Financial Knowledge	527	3.66 (1.78)	0	7	
Perceived Financial Knowledge	527	3.34 (1.58)	1	5	
Using FinTech services	No		Yes		
	39.09% (n = 206)	61.91% (n = 321)			
		Bill payments (n = 107)	Money transfer (n = 128)	Savings or investment (n = 86)	
		33.3%	39.9%	26.8%	

Source: author's calculations.

4.2. Regression Analysis

4.2.1. Determinants of Actual and Perceived Financial Knowledge

In this section, first, respondents' financial knowledge encompassing actual financial knowledge and perceived financial knowledge is evaluated to present an overview of determinants of financial knowledge of those who live in the southeast region of Vietnam. In Table 3, the results estimated by OLS regression denote that males and people with higher education levels and higher income levels have a higher score of both actual financial knowledge and perceived financial knowledge. These results also confirm the finding of a study on financial literacy and savings decisions in Zimbabwe [35]. Moreover, the results found that the major of study also impacts financial knowledge. This suggests that those who get university degree (diploma or bachelor or postgraduate) have higher levels of actual financial knowledge and perceived financial knowledge. While age has no effect on perceived financial knowledge, 35–49 age group has higher levels of actual financial knowledge than under 25 age group. The results are supported by studies in [34,35]. Furthermore, the results also denote that labor force is correlated with actual financial knowledge, but it is uncorrelated with perceived financial knowledge. Particularly, those who work in the formal sector have a higher score of actual financial knowledge than people working in the informal sector.

Particularly, when analyzing determinants of financial knowledge, this research also considers that the region where respondents live may affect their financial knowledge. The finding emphasizes that people who live in small cities, such as Thu Dau Mot and Dong Xoai in Binh Duong and Binh Phuoc provinces, respectively, have lower financial knowledge scores than those living in Ho Chi Minh city. It can be explained that Ho Chi Minh city is the biggest city in Vietnam, which has plenty of financial institutions, corporations, and mass communication, so respondents can receive more information and have opportunities to improve their perceived and actual financial knowledge.

4.2.2. Effect of Financial Knowledge on Using FinTech Services

To explore the role of financial knowledge in using FinTech services of individuals, the author employed LPM (linear probability model) and 2SLS (two-stage least squares) methods. Table 4 reports the empirical results of the association between financial knowledge and using FinTech services. The first column (1) presents the results from LPM regression while the second column (2) and the third column (3) report the findings from 2SLS estimator.

Table 3. Determinants of financial knowledge in the southeast region of Vietnam.

	(1)	(2)
	Actual Financial Knowledge	Perceived Financial Knowledge
Male	0.325 (0.14) **	0.309 (0.12) **
Age groups (reference: under 25)		
- 25–34	0.139 (0.19)	−0.073 (0.17)
- 35–49	0.544 (0.24) **	0.063 (0.19)
- 50–60	0.155 (0.26)	0.016 (0.27)
Education levels (reference: under high school)		
- High school	1.044 (0.28)	1.045 (0.22) ***
- Diploma/Bachelor	1.348 (0.22) ***	1.092 (0.18) ***
- Postgraduate	1.097 (0.21) ***	1.205 (0.27) ***
Business major	0.424 (0.15) **	0.368 (0.15) **
Formal sector	0.534 (0.17) ***	0.051 (0.14)
Married	0.380 (0.19)	0.382 (0.41)
Income level (reference: <VND 5 million)		
- VND 5–under VND 9 million	0.345 (0.21)	0.434 (0.18) *
- VND 9–VND15 million	0.773 (0.24) ***	1.121(0.19) ***
- Over VND 15–VND 30 million	1.187 (0.29) ***	1.222 (0.26) ***
- Over VND 30 million	1.112 (0.33) ***	1.580 (0.32) ***
The southeast region (reference: Ho Chi Minh)		
- Bien Hoa	0.177 (0.26)	0.168 (0.18)
- Thu Dau Mot	−0.323 (0.19) **	−0.373 (0.21)
- Vung Tau	−0.066 (0.21)	−0.101 (0.12)
- Dong Xoai	−0.132 (0.11) **	−0.214 (0.17) **
Observations	527	527
R square	0.308	0.283

Note: ***, **, and * denote coefficients significant at 1%, 5%, and 10% statistical levels, respectively. Standard deviations are in brackets. Source: author's estimation.

The result of the estimation by LPM regression demonstrates that actual financial knowledge is positively correlated with the access to FinTech services, but this correlation is statistical with only a 10% significance level. This finding suggests that individuals with higher levels of actual knowledge of finance have a higher propensity to use FinTech services. Individuals who are 50 to 60 years old are less likely to use FinTech services when comparing with younger people in the age group of 18–24 years old. The results also suggest that those who have a university degree, majored in business, and work in the formal sector have a higher likelihood of using FinTech services than those in the base groups (less than high school, non-business major, and informal sector). In addition, only individuals with high income from VND 15 million per month have a higher propensity to use FinTech services than those who have lower income. However, other variables, such as gender, perceived financial knowledge, marital status, and having dependent people are not statistically significant with FinTech usage.

Table 4. Effect of financial knowledge on using FinTech services.

	(1)	(2)	(3)
	LMP	2SLS	
		1st Stage	2nd Stage
AFK	0.062 (0.03) *		−0.049 (0.06)
PFK	0.017 (0.01)	0.592 (0.09)	0.165 (0.09) **
Male	0.019 (0.04)	0.340 (0.27)	0.106 (0.07) *
Age groups (reference: 18–24 age)			
- 25–34 age	0.029 (0.06)	0.011 (0.37)	0.096 (0.06) *
- 35–49 age	−0.154 (0.07)	0.538 (0.42)	−0.179 (0.07) **
- 50–60 age	−0.403 (0.08) ***	0.295 (0.54)	−0.399 (0.09) ***
Education (ref.: under high school)			
- High school	−0.375 (0.08)	0.816 (0.45) *	0.022 (0.09)
- Undergraduate	0.154 (0.07) **	1.908 (0.39) ***	0.272 (0.13) **
- Postgraduate	0.317 (0.08) ***	1.06 (0.56) **	0.392((0.12) ***
Business major	0.192 (0.06) ***	0.475 (0.40)	0.213 (0.06)
Formal sector	0.095 (0.05) *	1.186 (0.29) ***	0.165 (0.08) **
Married	0.050 (0.303)	0.907 (1.25)	0.907 (0.91)
Income (ref.: <VND 5 million)			
- From 5 to under VND 9 million	0.054 (0.06)	0.505 (0.371)	0.079 (0.06)
- Form 9 to under VND 15 million	0.042 (0.07)	0.948 (0.40) **	0.099 (0.08) **
- From 15 to under VND 30 million	0.235 (0.07) ***	1.105 (0.42) **	0.309 (0.11) ***
- Over VND 30 million	0.154 (0.09) *	1.157 (0.63) **	0.269 (0.133) **
- The regions	Yes	Yes	Yes
Training program (IV)		0.233 (0.17) **	
R-square	0.293	0.347	0.316
Weak identification test (F-statistics)		14.24	
Wu-Hausman F (1.505)		4.035 (<i>p</i> -value = 0.045)	
Observations	527	527	

Note: ***, **, and * denote coefficients significant at 1%, 5%, and 10% statistical levels, respectively. Standard deviations are in brackets. Source: author's estimation.

However, the author notes an endogenous issue that occurs in financial knowledge measurement or other reasons coming from the omitted variables or reverse causality reason in the empirical model. To overcome this issue, according to Wooldridge [36], the two-stage least squares (2SLS) regression is considered a method that could control this issue by using an instrumental variable as an endogenous variable. Based on prior literature on financial literacy [1,35,37,38], instrumental variables are proposed to use in order to solve the endogenous issue of financial knowledge. It is a challenge of finding an appropriate instrumental variable in empirical research. In this research the author follows [37,39] to use the approach that tests the potential instrumental variables by using respondents' experience in financial products and their participation in training programs related to business and finance since they may capture financial knowledge before exposing to access to FinTech usage.

Columns 2 and 3 in Table 4 present the first stage and the second stage from 2SLS estimation results, respectively. Participating in training program related to business and finance is considered an instrumental variable in the first stage in column 2, and it is significantly correlated with actual financial knowledge at 5% level of significance. Furthermore, the first stage of 2SLS method also reports F-statistics to check whether the instrumental variable applied to address the endogenous problem of the actual financial knowledge variable is appropriate. The Wu-Hausman test is also applied to check endogenous variables. Accordingly, the results verify that the instrumental variable is acceptable, and it is not weak with F-statistics in the first stage regression of 2SLS of 14.24 and this value is higher than 10.

With regard to the second stage in column 3, the result shows that while actual financial knowledge is not statistically significantly associated with individuals' FinTech usage, perceived financial knowledge is positively correlated with their FinTech usage and this relationship is statistically significant at 5% level. These findings suggest that the influence on access to FinTech apps is affected by individuals' self-assessed knowledge, not actual knowledge so if individuals are confident about knowledge themselves, they have a higher propensity to use FinTech applications. In other words, if FinTech applications are designed with clear and simple instructions, individuals can use them easily and confidently without actual financial knowledge. Similarly, Sedliacikova et al. [40] demonstrated other factors, such as perception, cognition, psychology, and emotion also impact the process of financial decision-making. These authors suggest that perceived utility and perceived user-friendliness are two critical predictors that could affect the users' intention of accepting technology. Additionally, perceived factor is also applied in previous research [41,42] and these researchers point out individuals' perceived usefulness plays a vital role and has a significant correlation with technology adoption.

Accordingly, the finding of this study proposes new evidence for FinTech usage and financial knowledge in the case of an emerging and developing country, specifically the Southeast region of Vietnam. Normally, customers prefer the convenience and reduce the level of sophistication from complex system in order to feel confident when they access and use it. However, the result does not prove that actual financial knowledge has a statistically significant correlation with using FinTech services. It means that actual financial knowledge does not impact FinTech usage. Hence this interesting finding provides new empirical research evidence for emerging and developing countries.

With regard to control variables, the coefficients of gender, age groups, education levels, and income levels become significant, suggesting that there is a relationship between these variables and FinTech usage. Particularly, male individuals have higher propensity to use FinTech services than females, with a statistical significance level of 10% only. This finding is not a strong correlation, but it suggests that encouraging to increase access and use of FinTech services should pay attention to women. Moreover, the results also report that older people are less likely to use FinTech services when comparing with young people. Most respondents with university degrees including undergraduate or postgraduate level are more likely to use FinTech services than people who do not finish high school. Regarding income levels, the finding is supported and in line with [43], confirming that individuals' income has a positive significant impact on FinTech usage.

5. Conclusions

This study investigates the determinants of financial knowledge and its impact on using FinTech services. The findings emphasize that males have higher levels of both actual financial knowledge and perceived financial knowledge compared with females. Individuals who work in the formal sector have higher level of actual financial knowledge than people who work in the informal sector, while this indicator is not statistically significantly associated with perceived financial knowledge. Moreover, only individuals achieving a bachelor or postgraduate level have higher actual financial knowledge scores, while individuals with education from high school level are more confident about their

perceived financial knowledge than those with under high school level. In addition to education levels, income level and major of study are also positively correlated with both actual and perceived financial knowledge. More interestingly, the results show that the region where respondents live also impacts their financial knowledge. Particularly, who live in small cities, such as Thu Dau Mot and Dong Xoai in Binh Duong and Binh Phuoc provinces, respectively, have a low level of actual financial knowledge compared with those who live in the big cities, such as Ho Chi Minh. Regarding perceived financial knowledge, only individuals living in Dong Xoai have lower perceived financial knowledge than those living in Ho Chi Minh city.

To assess the nexus of financial knowledge and using FinTech services, this research applied alternative econometric techniques to evaluate the effect of financial knowledge on the use of FinTech services. Based on the 2SLS method, the findings emphasize that while perceived financial knowledge is positively correlated with higher FinTech usage, along with the male gender, actual financial knowledge is not found to have any influence on FinTech usage. Furthermore, the use of FinTech services is negatively associated with older people, and positively associated with individuals having a university degree, working in the formal sector and earning an income of VND 9 million per month. Generally, confidence about the perceived financial knowledge, male gender, high income, and high education level will boost the use of FinTech services.

Accordingly, in order to contribute to financial well-being, the findings propose that FinTech firms or financial institutions can improve their FinTech products and services to be more user-friendly, simple, and convenient so most individuals, even older people, can get access to FinTech usage. Particularly, women should be encouraged to use FinTech products and services. Moreover, the findings also imply that policymakers should pay attention to user protection through the process and rules of institutional quality for each FinTech product and service since the results from this research reveals that FinTech usage is not affected by actual financial knowledge, but it is impacted by the self-perception of financial knowledge.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declare no conflict of interest.

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