

Determinants of the Savings of Households in Vietnam

Tan Nghiem Le^{1,*}, Ngoc Lan Anh Ho², Viet Thanh Truc Tran³

¹ Ph.D., Department of Business Administration, School of Economics, Can Tho University, Can Tho, Vietnam

² Vietnam Bank for Agriculture and Rural Development, Can Tho Branch, Can Tho, Vietnam

³ Lecturer, Department of Finance and Banking, School of Economics, Can Tho University, Can Tho, Vietnam

*Corresponding Author. [Postal Address: School of Economics, Can Tho University, Campus II, 3/2 Street, Can Tho City, 900000, Vietnam]

Abstract: The aim of this study is to analyze the determinant factors of household savings in Vietnam. Based on the permanent income hypothesis formulated by Milton Friedman in 1957 and the life cycle hypothesis of saving developed by Ando and Modigliani in 1963, factors affecting household savings are proposed in this paper. The study uses data collected from 257 randomly selected households through a survey questionnaire. The Tobit regression model is employed to test the hypotheses. The research results show that the square of the age of the householder, the education level of the household head, the household debt, and the number of household members negatively influence household savings. Meanwhile, the age, the income of the household head, the proportion of dependents, and living area have positive and statistically significant effects on household savings. The study also finds an inverted U-shaped nonlinear relationship between the age squared of the household head and the savings-to-income ratio of the household. Based on the research results, several recommendations are suggested, focusing on two dimensions: promoting the role of associations and encouraging forms of official savings in order to raise the effective savings rate as well as to contribute to the development and general economic growth of the locality in the upcoming time.

Keywords: Savings, Household, Individual Factors, Tobit Regression, Vietnam

JEL Classification Code: D14, D15, G51, O12, O16

I. Introduction

In the macro analysis, individual or household saving is an integral part of national saving and plays an important role in economic growth (Nguyen et al., 2013). In addition to providing a large amount of capital for investment and economic development, household saving also helps the householder be able to adapt to difficult times such as diseases, natural disasters, job loss, or when there is a shortage of capital for production and business (Chamon and Prasad, 2010). In order for savings to fully benefit the economy, these savings must exist in form of formal savings such as assets which are kept in bank accounts, and which have a potential to become profitable investments. However, for a developing country like Vietnam, due to psychological factors and long-standing habits of people, they prefer to keep cash, gold, and jewelry at home instead of depositing money into a bank. This leads to the problem that a large amount of idle cash is not circulating in the capital market while the economy needs capital to grow. Therefore, examining the factors affecting household savings is necessary, which may help people improve their living standards. In addition, this study also provides an insight into people's savings levels and common saving forms for financial institutions and management agencies, which can be the basis for setting appropriate policies to make good use of idle capital. Recently, Hua and Erreygers (2020) conducted a study to analyze the decisive factors of the saving behavior of Vietnamese households and explore the possible heterogeneity of the saving trends of households. However, not all aspects of household saving in Vietnam have been fully explored, particularly locally.

Can Tho city is known as the Western Capital with a history of over 270 years. Can Tho City is not only a first-class city but also one of five municipalities under the command of the central government of Vietnam. Can Tho city is a large city located in the center of the Mekong Delta region. It fully converges factors of economy, culture, education, nature and people to develop the economy and attract domestic and foreign investment. Can Tho city is a promising land for the development in all fields and a potential market for credit institutions to expand their operations. Since then, credit institutions are convenient in mobilizing and using temporary capital from households to develop the local economy.

In the context of the global and domestic economy being increasingly seriously affected by the Covid-19 epidemic, production and business activities have been delayed, the socio-economic situation in Can Tho city is also dramatically impacted. In addition to the negative effect on the macroeconomy, the Covid-19 pandemic

also greatly influences the daily life of workers and households. Identifying the current level of household savings and determining the decisive factors of household savings are very essential. Thus, this study aims to investigate the determinants of household savings, thereby making some recommendations for households to improve the effective saving rate, thus contributing to the country's economic growth.

II. Literature and Hypotheses Development

2.1. Literature Review

Personal and household savings have become a topic of broad public interest for many years (Friedman, 1957; Ando and Modigliani, 1963; Attanasio and Szekely, 2000; Lusardi, 2008; Kumarasinghe and Jayasinghe, 2016; Newman et al., 2014; Nguyen et al., 2013; Nguyen et al., 2015; Hua and Erreygers, 2020). Researchers have applied different estimation methods and datasets in order to clarify many aspects related to this topic. In terms of databases, some studies used cross-national data, others used country-specific time series data, or used data obtained from household income and expenditure surveys.

Saving is an important variable in economic growth theory. Most of previous studies analyzed general saving behavior across countries and then divided it into the rural and urban levels. Domestic and foreign empirical studies on household saving are primarily based on the life-cycle hypothesis developed by Ando and Modigliani (1963) and the permanent income hypothesis formulated by Friedman (1957). According to Ando and Modigliani (1963), a person saves money for two main reasons: the incentive to accumulate and the incentive to protect themselves from future income declines. At the same time, both of these incentives serve the ultimate objective of maximizing the people's well-being regarding current and future income. In order to achieve this goal, at some point in the life cycle, individual need to make two major decisions: the first decision is to choose to save, and the second decision is to identify how much to save. More specifically, the life-cycle hypothesis of Ando and Modigliani (1963) stated that individuals seek to smooth consumption throughout their lifetime by borrowing when their income is low and saving when their income is high. Each person goes through three stages in their lifetime. At the first stage of the life cycle, people have not yet reached the working age or the first stage of the working age, at this time people cannot generate income or generate income lower than the consumption demand. Therefore, individuals have to borrow to pay for their consumption. At this phase, these individuals are the standard consumers. Then, when people enters the second stage that is the later stage of the working age, individuals are able to generate income higher than their consumption needs. The residual income after being used to repay borrowed debt will be saved. At this time, people who have the ability to save money are called net saver. At the end of their life cycle, when people retire, they are no longer able to generate income, but thanks to their positive aggregate savings, they will have enough money to consume without borrowing. Depending on the individual's position in the life cycle, they will adjust their saving-consumption behavior to match the individual's position in the life cycle as measured by the individual's age.

Although the hypothesis of permanent income formulated by Friedman (1957) is also based on the objective of maximizing people's utility like the life-cycle hypothesis, permanent income hypothesis takes a different approach. Friedman (1957) suggested that people change their consumption behaviour only when their future earnings change with certainty. When a person's income increases, the household will perceive the increase as temporary or long-term. If the household considers this increase in income to be long-term, this person will increase his or her consumption to maximize their utility. However, if the household considers that the increase in income is merely temporary, this person will make the decision to save a certain amount of money in order to protect themselves against an unexpected decline in future income. Hence, these two theories play a role as a foundation in analyzing the determinant factors of household savings.

The research conducted by Nguyen et al. (2015) showed that the age of the household head affects the savings rate of the household, as the household heads get older, they tend to consume less and save more. The study of Kumarasinghe and Jayasinghe (2016) found that age positively affects saving, however when age exceeds a certain limit, saving tends to decline. As the household heads get older, people gain more experience, have stable jobs, and earn more income, thereby saving more. However, after the age of 60, most household heads retire. Household savings will decrease due to a decrease in the economic participation of a family member. However, several previous studies go against the life cycle theory of Ando and Modigliani (1963) when considering the effect of the age of the household head on saving. Specifically, the articles of Attanasio and Szekely (2000) pointed out that young household heads or household heads in the early working age or elderly household heads tend to save more than household heads in the later stage of working age. Nguyen et al. (2013) suggested that consumption or saving depends mostly on the need of the whole household and not the gender of the head. Only among households that have a female head, who is likely to take care of the household consumption, the household head's age may have an effect on consumption as well as saving.

In addition, many prior studies stressed that the saving behavior of men and women is heterogeneous (Schunk, 2009; Abdelkhalek et al., 2010; Nguyen et al., 2013; Gries and Dung, 2014; Hua and Erreygers, 2020). Previous studies have shown that there are big differences between men and women in the implementation of

financial plans, and current income and savings behavior. Specifically, women have higher positive saving behavior than men. Women tend to save for short-term needs while mixed-race men tend to save for medium and long-term needs. Besides that, the effect of education on household saving behavior is complex. Well-educated householders are wiser to make choices about current and future spending and choose effective methods of saving and investing. As a result, they can save more (Nguyen et al., 2013). In other words, the higher the education level of the household head, the greater the savings. This can be explained by the fact that the heads of households with a high level of education will have more information and the ability to manage their finances, which makes them more efficient in saving (Lusardi, 2008; Chowa et al., 2012). In contrast, in the studies of Morisset and Revoredo (1995), higher education also creates an incentive for households to spend more, especially for their children's education, which in turn limits their savings. It is easier for households with higher education to get stable job and to find effective financial and insurance products to protect themselves and their families from unexpected shocks. Besides that, the negative impact of education level on household savings can be explained by parents' preferences for their children's education. In particular, more educated householders are willing to sacrifice all their savings for their children's education. The study conducted by Nguyen et al. (2015) also found the negative relationship between the number of dependent members such as children or elderly parents and household savings. Households in Eastern countries are mostly multi-generational families, they have no incentive to borrow or save to balance their income, but they will self-regulate income among household members, which means that they will transfer income from members of working age to the dependents. This result suggested that saving behavior is influenced by household size, number of dependents, and number of people of working age in the household. Thus, an increase in the number of dependent members can lead to the possibility of income shortfall in households, thereby reducing the ability of households to save.

The research result of Nguyen et al. (2015) suggested that households who have just experienced an income shock will want to save more to prepare for similar income shocks in the future. However, if the income shock is too large, they will not be able to save more immediately. This finding supported for the hypothesis of permanent income formulated by Friedman (1957). Newman et al. (2014) argued that a major problem for low-income farming households is the barriers that prevent households' access to financial products, especially formal deposits. Households face a lack of accurate information that leads to ignorance and mistrust about the safety of savings of financial institutions. The role of unions and associations is seen as an important channel in transmitting information about the benefits of savings, thereby encouraging households to practice formal savings. The lack of basic financial information and incentives will limit the households' ability to plan for retirement. Educational programs on financial incentives will improve saving behavior in households, especially low-income households (Lusardi, 2008). Moreover, the research results of Newman et al. (2014) also discovered differences in saving behavior among different regions.

Through the comprehensive review of prior studies related to the research topic, it is important to address that most of the previous studies are based on the hypothesis of permanent income and the life cycle theory. Besides, most studies use multivariable regression model to estimate the determinants of household savings. In addition, these studies have found multiple factors influencing savings such as income, interest rates, inflation, age, education, employment status, occupation, foreign aid, bank credit, employee remittances, private capital flows, development of financial institutions, location of residence, gender, consumption habits,.... However, many studies found completely opposite findings and suggested different recommendations. Therefore, previous studies on household savings remain open to additional research and debate. Through reviewing domestic and foreign studies related to household savings, the authors found that there is no research topic on factors affecting household savings conducted in Can Tho city. Therefore, this study aims to investigate the decisive factors of household savings and examine the degree of the influence of these factors on the savings of households in Can Tho city.

2.2. Hypotheses Development

Householder age

According to the life cycle theory of Ando and Modigliani (1963), young and old people tend to save less than middle-aged people. Similarly, the study of Kumarasinghe and Jayasinghe (2016) showed that age has a significant and positive impact on saving but saving tends to decrease when age exceeds a certain limit. As householders get older, they gain more experience and earn more income so they can save more. This result supports the following hypothesis:

H1: Householder age has a positive effect on household savings.

Householder age squared

The relationship between the age squared of the household head and the savings rate is inverted-U, meaning that household savings increase with the age of the household head and then decrease when householder reaches a certain age (Kumarasinghe and Jayasinghe, 2016). Thus, the study puts forward the second hypothesis:

H2: Householder age squared has a negative effect on household savings.

Householder gender

There are big differences between men and women in terms of financial planning implementation, current income, and saving behavior. Males have a lower probability of positive saving behavior than females. Due to women's lower retirement age, more unstable income, and greater responsibility to take care of children, female household heads have a higher propensity and more motivation to save than males (Abdelkhalek et al., 2010). Therefore, male household heads will save less than females. From the above arguments, the study proposes the following hypothesis:

H3: Householder gender has a negative effect on household savings.

Householder education level

The influence of educational level on household saving behavior is complicated. Well-educated householders are wiser in making current and future spending choices and in choosing efficient savings and investment methods that help them be able to save more (Nguyen et al., 2013). Householders with a high level of education will have more information and financial management capabilities making them more efficient in saving (Lusardi, 2008; Chowa et al., 2012). On the other hand, Morisset and Revoredo (1995) pointed out that higher education also creates an incentive for households to spend more, especially for their children's education, thereby reducing their savings. Therefore, the study proposes the fourth hypothesis:

H4: Householder education level has a positive effect on household savings.

Household income

Income is one of the important factors affecting the saving behavior of households, according to the life cycle theory of Ando and Modigliani (1963) and the theory of regular income of Friedman (1957). Most empirical studies stressed that an increase in household income will lead to an increase in the household savings (Qian, 1988; Harris et al., 2002; Pan, 2016; Szopinski, 2017). In Vietnam, Nguyen et al. (2013) also pointed out that the difference in the proportion of saving to income among household groups with different income levels is quite large. Hence, the study proposes the following hypothesis:

H5: Household income has a positive effect on household savings.

Household debt

Debt has a negative impact on the behavior and savings rate of households. According to the finding of Barba and Pivetti (2009), household debt has increased significantly in many developed countries in recent years, thereby sustaining consumption growth and contributing to a decline in the household saving rate. Therefore, the study proposes the sixth hypothesis:

H6: Household debt has a negative impact on household savings.

Household size

The studies conducted by Abdelkhalek et al. (2010); Hua and Erreygers (2020) found a significant negative influence of household size on the saving behavior of households. Households with more members will consume more and therefore their savings will be lower than households with few members (Abdelkhalek et al., 2010; Hua and Erreygers, 2020). Therefore, the following hypothesis is proposed:

H7: Household size has a negative impact on household savings.

The number of dependents in a household

The number of dependents in the household significantly creates more incentives for prevention and savings for households (Curtis et al., 2015; Horioka and Watanabe, 1997; Schunk, 2009). Some elderly members can be considered as a part of the household labor force (Nguyen et al., 2015). This may be the case of Vietnam, an agricultural country with a middle-income level. Regardless of age, household members are involved in all economic activities of the household, so households with many dependent members can still have relatively high savings levels (Hua and Erreygers, 2020). From the above results, the study proposes the following hypothesis:

H8: The number of dependents in a household has a positive effect on household savings.

Household living place

Many empirical studies have found evidence of differences in savings behavior and saving rates among urban and rural households due to differences in income stability and social benefits (Friedman, 1957; Horioka and Wan, 2007; Abdelkhalek et al., 2010). Hua and Erreygers (2020) also claimed that farm households tend to save more than city families in Vietnam. Therefore, the following hypothesis is proposed:

H9: Household living place has a positive effect on household savings.

III. Research Methodology

3.1. Sample Selection

To test the proposed hypotheses, the article collects primary data by randomly interviewing households in Can Tho city through a survey questionnaire. Through the data collection and screening process, the number

of valid observations in this study is 257. Based on the socio-economic characteristics of Can Tho city and ensuring the representativeness of the research sample, the sample is structured by district-level administrative units in Table 1 as follows:

Table 1: Survey sample structured by district-level administrative unit

Area	District	Population (people)	Number of Observations	Proportion (%)
Urban	Ninh Kieu	284,729	58	22.57
	O Mon	128,579	27	10.51
	Binh Thuy	144,735	30	11.67
	Cai Rang	107,500	22	8.56
	Thot Not	154,986	32	12.45
Rural	Vinh Thanh	97,394	20	7.78
	CoDo	115,870	24	9.34
	Phong Dien	98,333	21	8.17
	Thoi Lai	108,605	23	8.95
Total		1,240,731	257	100.00

Source: The 2020 Vietnam Population and Housing Census

3.2. Definition and Measurement of Variables

3.2.1. Dependent Variable

Household saving, defined as the household's behavior of saving money, is measured by the ratio of savings to household income (Attanasio and Szekely, 2000; Nguyen et al., 2015; Hua and Erreygers, 2020). Household saving is the quantitative variable, which has a value ranging from 0 to 1.

3.2.2. Independent Variables

Householder age is defined as the age of the household head (Nguyen et al., 2015; Kumarasinghe and Jayasinghe, 2016; Hua and Erreygers, 2020).

Householder age squared is measured by the square of the age of the household head (Nguyen et al., 2015; Kumarasinghe and Jayasinghe, 2016; Hua and Erreygers, 2020).

Householder gender is represented by a dummy variable which has the value of 1 when the householder is male and the value of 0 when the householder is female (Schunk, 2009; Abdelkhalek et al., 2010; Nguyen et al., 2013; Hua and Erreygers, 2020).

Householder education level is measured by the number of schooling years of the household head (Morisset and Revoredo, 1995; Schunk, 2009; Nguyen et al., 2013).

Household income is measured by the logarithm of total household income in one year (Qian, 1988; Harris et al., 2002; Newman et al., 2014; Nguyen et al., 2013; Pan, 2016; Szopinski, 2017).

Household debt is expressed as a dummy variable with the value 1 if the household has debt and the value of 0 if the household has no debt (Barba and Pivetti, 2009; Mengesha et al., 2015).

Household size is measured by the number of members in a household (Abdelkhalek et al., 2010; Nguyen et al., 2015; Hua and Erreygers, 2020).

The number of dependents in a household is measured by the number of children aged 15 years and under, and persons over 60 years of age in a household (Horioka and Watanabe, 1997; Schunk, 2009; Nguyen et al., 2015; Curtis et al., 2015; Hua and Erreygers, 2020).

Household living place is expressed as a dummy variable, which takes the value of 1 if the household lives in a rural area and takes the value of 0 if the household lives in urban area (Friedman, 1957; Horioka and Wan, 2007; Abdelkhalek et al., 2010; Hua and Erreygers, 2020).

3.3. Estimation Method

To measure the influence of factors on household savings in Vietnam, the study uses Tobit regression analysis. The estimation equation is shown as follows:

$$SAVE_i = \alpha + \beta_1 AGE_i + \beta_2 AGE_sq_i + \beta_3 SEX_i + \beta_4 EDU_i + \beta_5 INC_i + \beta_6 DEBT_i + \beta_7 SIZE_i + \beta_8 DEP_i + \beta_9 PLACE_i + \varepsilon_i \tag{1}$$

Where $SAVE_i$ is the savings of household i ; β are the estimated coefficients of the regression model; AGE_i , AGE_sq_i , SEX_i , and EDU_i are age, age squared, gender and education level of householder i , respectively; INC_i , $DEBT_i$, $SIZE_i$, DEP_i , and $PLACE_i$ are income, debt, number of members, number of dependents and living place of household i , respectively; ε is error term. Table 2 summarizes the characteristics of the variables in the research model and the expected signs about the impact of the independent and control variables on the dependent variable.

Table 2: Summary of variables in the research model

Variables	Measurement Method	Expected Signs
Household savings (SAVE)	The ratio of savings to household income	
Householder age (AGE)	The age of the household head	(+)
Householder age squared (AGE_sq)	The square of the age of the household head	(-)
Householder gender (SEX)	Dummy variable, 1 = male, 0 = female	(-)
Householder education level (EDU)	The number of schooling years of the household head	(+)
Household income (INC)	Logarithm of total household income in one year	(+)
Household debt (DEBT)	Dummy variable, 1 = household has debt, 0 = household has no debt	(-)
Household size (SIZE)	The number of members in a household	(-)
The number of dependents in a household (DEP)	The number of children aged 15 years and under, and persons over 60 years of age in a household	(+)
Household living place (PLACE)	Dummy variable, 1 = rural area, 0 = urban area.	(+)

IV. Results and Discussions

4.1. Empirical Results

Table 3 illustrates the descriptive statistics of the variables used in the regression model.

Table 3: Descriptive statistics of the variables in the regression model (Obs. = 257)

Panel A: Quantitative Variables				
Variables	Mean	Standard Deviation	Minimum	Maximum
SAVE	16.52	7.12	0.00	35.00
AGE	51.78	12.00	28.00	77.00
EDU	9.39	3.75	3.00	16.00
SIZE	5.49	2.41	1.00	10.00
DEP	2.05	1.48	0.00	6.00
Panel B: Dummy Variables				
Variable	Value	Number of Observations	Proportion (%)	
SEX	0 = female	103	40.08	
	1 = male	154	59.92	
DEBT	0 = household has no debt	119	46.30	
	1 = household has debt	138	53.70	
PLACE	0 = urban area	169	65.76	
	1 = rural area	88	34.24	

Based on the results of the correlation matrix in Table 4, it can be seen that all the pairs of correlation coefficients among the variables in the model are less than 0.8 (Farrar and Glauber, 1967). Hence, it can be concluded that there is no serious multicollinearity phenomenon.

Table 4: Correlation matrix among the variables in the model (Obs. = 257)

	SAVE	AGE	SEX	EDU	INC	DEBT	SIZE	DEP	PLACE
SAVE	1.0000								
AGE	0.0820	1.0000							
SEX	0.0321	0.0733	1.0000						
EDU	-0.1781	-0.0386	-0.0626	1.0000					
INC	0.6208	0.0897	0.1321	-0.0548	1.0000				
DEBT	-0.2634	0.0066	0.0686	0.1141	-0.1897	1.0000			
SIZE	-0.0782	-0.138	-0.0248	0.0831	0.0032	-0.0476	1.0000		
DEP	0.2813	0.0484	-0.0869	-0.0963	0.1853	-0.083	0.1948	1.0000	
PLACE	0.5319	0.0145	0.0547	-0.1326	0.3078	-0.1851	-0.0516	0.1645	1.0000

Table 5 illustrates variance inflation factor (VIF) and Breusch-Pagan's test results. The VIF values for all independent variables noted in the model are below 10.0. According to the White's test result, with a

significance level of 5%, the value of Prob>chi2 is 0.4456. Thereby, it can be concluded that multicollinearity is considered as not serious and our model does not have heteroskedasticity.

Table 5: Results of VIF test and White's test (Obs. = 257)

Variables	VIF	Breusch-Pagan's test
AGE	1.04	chi2(1) = 0.58
SEX	1.05	
EDU	1.05	
INC	1.18	
DEBT	1.08	
SIZE	1.08	
DEP	1.13	
PLACE	1.16	
	Mean = 1.10	Prob > chi2 = 0.4456

To determine the factors affecting household savings in Vietnam, Tobit regression model is applied with the dependent variable being the savings-to-income ratio of the household. The results of the regression analysis are presented in the table 6.

Table 6: Estimated results of the model using Robust standard errors method (Obs. = 257)

Variables	Estimated Coefficients
AGE	0.7840 ^{***} (0.2099)
AGE_sq	-0.0074 ^{***} (0.0020)
SEX	-0.4953 (0.6050)
EDU	-0.1431 [*] (0.0790)
INC	4.0360 ^{***} (0.3814)
DEBT	-1.3636 ^{**} (0.6028)
SIZE	-0.2121 [*] (0.1256)
DEP	4.7968 ^{***} (1.5114)
PLACE	4.5194 ^{***} (0.6674)
Constant	-24.9606 ^{***} (5.7087)
Pseudo R ²	0.1272
Prob > chi2	0.0000

Notes: The values in parentheses () are standard errors; *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

4.2. Discussions

The results of Table 6 show that householder age (*AGE*), householder age squared (*AGE_sq*), householder education level (*EDU*), household income (*INC*), household debt (*DEBT*), household size (*SIZE*), the number of dependents in a household (*DEP*) and household living place (*PLACE*) have a statistically significant impact on household savings. However, the study does not find a significant impact of householder gender on household savings. The effects of householder age, householder age squared, householder education level, household income, household debt, household size, the number of dependents, and household living place on household savings can be explained as follows:

Research results in Table 6 show that the age of household head (*AGE*) and the age squared of household head (*AGE_sq*) have statistical significance at the significance level of 1 percent. Specifically, the age of household head has a positive estimated coefficient ($\beta_1 = 0.7840$) and the age squared of household head has a negative estimated coefficient ($\beta_2 = -0.0074$). The results are consistent with the life cycle theory of Ando and Modigliani (1963) and the results of Nguyen et al. (2015); Kumarasinghe and Jayasinghe (2016). Besides that, the relationship between age and household saving is in an inverted U-shape, which means that saving increases when people get older; however, saving tends to decrease when age exceeds a certain limit. Hence, young and old people tend to save less than middle-aged people.

The estimated results in Table 6 point out that the educational level of household head (*EDU*) has a negative relationship with the household savings with the negative estimated coefficient ($\beta_4 = -0.1431$) at the significance level of 10 percent. This means that ceteris paribus, when the number of schooling years of the household head increases by 1 year, the savings-to-income ratio decreases by 0.1431%. This finding is in line with the study of Morisset and Revoredo (1995). Less-educated household heads tend to have higher savings rates than high-educated household heads. One possible explanation is that households with a high level of education have an incentive to spend more, especially for their children's education, which will decrease household savings. Additionally, they tend to invest more in profitable business projects and assets instead of saving money.

From the estimated results in Table 6, it can be seen that household income (*INC*) positively impacts household savings with the positive estimation coefficient ($\beta_5=4.0360$) at the 1 percent significance level. This result is consistent with the results of prior studies conducted by Harris et al. (2002); Qian (1988); Pan (2016); Nguyen et al. (2015); Szopinski (2017). In fact, when householders can generate high income, after spending on household activities, households can also use part of this income to save. When income increases, households tend to save more, so it is necessary to focus on this factor when aiming to boost household savings.

As expected, the household debt variable (*DEBT*) has a positive relationship with household savings. Debts create a debt repayment burden for households. Households who have debt will use their income to repay loans, leaving them with less money to save. This is clearly shown through the research results in Table 6 that the estimated coefficient is negative ($\beta_6 = -1.3636$) at the significance level of 5 percent. This result is similar to the empirical finding of Barba and Pivetti (2009).

The results in Table 6 also shows that household size (*SIZE*) has a negative correlation with household savings with the negative estimation coefficient ($\beta_7=-0.2121$) at the significance level of 10 percent. This result provides support for the proposed hypothesis and is consistent with the results of the studies of Abdelkhalek et al. (2010); Hua and Erreygers (2020). Households with many members living together tend to consume more and therefore their savings rate will be lower. Thus, the number of members in a household negatively influence the financial development of the household.

As expected, the research results in Table 6 show that the number of dependents in a household (*DEP*) positively affects household savings with the positive estimate coefficient ($\beta_8=4.7968$) at the significance level of 1 percent. This finding proves that *ceteris paribus*, an increase in the number of dependents in a household leads to an increase in the savings rate. This result is consistent with the results of previous studies conducted by Curtis et al. (2015); Horioka and Watanabe (1997); Schunk (2009). Household dependents provide more substantial savings and prevention incentives for household heads.

From the estimated results in Table 6, it is clearly shown that household living place (*PLACE*) has a positive effect on household savings with the positive estimated coefficient ($\beta_9=4.5194$) at the significance level of 1 percent. The savings rate of households in rural areas is significantly higher than that of households in urban areas. This result is similar to the result of Hua and Erreygers (2020). In fact, in Vietnam, households in rural areas still do not have stable income and have more potential risks than households in urban areas with many high-income job opportunities. In addition, the social security system in developing countries has not yet fully met the needs of the people. These reasons motivate them to save more in order to use in case of difficulties.

V. Conclusions

By adopting the life cycle theory, the hypothesis of permanent income and previous empirical evidence, the study develops the theoretical arguments on the determinant factors of household savings behavior and conducts tests to examine the effects of these variables on the savings rate of households across a sample of 257 observations in Vietnam. The results of Tobit regression analysis show that householder age, household income, the number of dependents, and household living place have a positive impact on household savings. In contrast, householder education level, household debt, and household size negatively affect household savings. The study also finds an inverted U-shaped nonlinear relationship between the age squared of the household head and the savings-to-income ratio of the household.

Based on the research results, several governance implications are offered to improve household savings. State management agencies should create the necessary competitive and transparent legal environment for financial institutions and credit institutions to provide the best services to customers, especially lending and savings activities. A healthy competitive environment contributes to ensuring the safety, transparency, and effective use of capital in the economy, especially a large part of the capital stored in the population by increasing household savings. Credit institutions should expand their operations, ensuring that all groups of households have access to savings deposits and bank loans.

Although the study has provided empirical evidence on the determinants of household saving, it still has some limitations that may provide further development opportunities for further in-depth studies in Vietnam. Specifically, the study focuses mainly on Can Tho city, so it lacks representativeness. Therefore, studies with larger sample sizes are needed. Therefore, further studies can investigate the impact of these factors on household savings rate through household surveys in other localities in Vietnam or the whole country.

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