



Article Type: Research Paper

Can financial literacy and asset ownership affect retirement planning? Insights from the Indonesian family life survey

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Abstract

Research aims: In today's world, financial literacy plays a crucial role in planning for retirement. This study, therefore, investigates the connection between financial knowledge, household asset ownership, and retirement planning.

Design/Methodology/Approach: The study considered variables, such as education level, age, gender, marital status, and household location, using data from the Indonesian Family Life Survey (IFLS)-5 at the household level. This study used a sample of 18,627 households spread across 13 provinces in Indonesia to represent the relationship between the variables. The Logit estimation model then examined the impact of financial literacy and household asset ownership on retirement planning.

Research findings: The results suggest that individuals with higher financial knowledge are better equipped to plan for their retirement needs. Furthermore, significant asset ownership is also positively linked to retirement planning, as it indicates that an individual is better prepared to face the challenges of old age.

Theoretical contribution/Originality: This study contributes to the Life Cycle Hypothesis, which states that individuals will try to keep consumption patterns/needs expenditures and ensure that individual consumption trends remain consistent/constant.

Practitioner/Policy implication: This research is expected to be useful as additional information for policy actors, practitioners, and academics in the financial sector to continue actively introducing and disseminating the importance of financial knowledge to the public. Thus, people have alternative and passive income in their old age that does not require working.

Research limitation/Implication: The descriptive results found a reasonably large gap between households where there are households with no savings or assets at all. The discrepancy is expected to affect the outcomes of the research.

Keywords: Financial Literacy; Asset Ownership; Retirement Planning; IFLS-5



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DOI: [10.18196/jai.v24i3.16112](https://doi.org/10.18196/jai.v24i3.16112)

CITATION:

Maharani, N. K., & Sari, I. M. (2023).
Can financial literacy and asset
ownership affect retirement planning?
Insights from the Indonesian family life
survey. *Journal of Accounting and
Investment*, 24(3), 828-840.

ARTICLE HISTORY

Received:

09 Sep 2022

Revised:

06 Oct 2022

19 Sep 2023

Accepted:

04 Sep 2023



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JAI Website:



Introduction

Financial literacy is knowledge, skills, and beliefs that influence attitudes and behavior to improve the quality of decision-making and financial management to achieve prosperity. In Indonesia, understanding of financial literacy still needs to improve at 38.03% (Otoritas Jasa Keuangan, 2020). Financial literacy significantly impacts economic behavior (Lusardi & Mitchell, 2014). Well-literate individuals will encourage more outstanding saving behavior (Grohmann, 2018).

It can lead to behavior in deciding how one should save many funds and where to store needs after retirement can be fulfilled (Lusardi & Mitchell, 2014). Hence, financial literacy can be critical in retirement preparation (Deuflhard et al., 2019).

Aulia et al. (2019) stated that the size of individual asset ownership could reflect financial well-being. Someone who can manage assets, such as savings deposits, stocks, mutual funds, bonds, and tangible assets, is already trying to prepare plans for their old age. Deuflhard et al. (2019) also investigated the heterogeneity of the benefits of owning assets, such as savings accounts associated with financial literacy. The study's results stated that financial literacy is significantly related to household profits on savings accounts. A higher a person's level of financial literacy can increase the chance of owning risky assets (Mahdzan et al., 2017).

Additionally, positive results and gender exposed the relationship between financial literacy and retirement planning in the Netherlands; men can better plan for retirement and are better literate than women (Van Rooij et al., 2011). Another study said that individuals with high levels of welfare in terms of income and education had good financial knowledge, especially those of productive age (Grohmann, 2018). Several studies have also examined the relationship between financial literacy and retirement planning from the perspective of individuals of productive age. However, research examining the relationship between financial literacy and retirement planning with households as research respondents still needs to be made available.

For that reason, this study would examine: First, this study would examine the effect of household financial literacy level on retirement planning. Does someone with more financial knowledge mean that he is ready and has a plan for the needs of his old age? Second is the effect of asset ownership on retirement planning. Whether a person has extensive asset holdings can be related to his ability to prepare for retirement. The test also used control variables, including education level, age, gender, marital status, and household area of residence.

This study used data from the Indonesian Family Life Survey (IFLS) collected by the RAND Corporation. This IFLS data has been collected since 1993 and contains a longitudinal collection of individual and household data in Indonesia. This data is compelling because it is claimed to represent a sample of 83% of the population in Indonesia (Strauss et al., 2009). In general, research on the relationship between financial literacy, asset ownership, and retirement planning primarily uses questionnaire data where the respondent's criteria have been determined, and the area coverage should be narrower. Thus, this study used IFLS-5 data, which is a development, and very few studies related to financial literacy and retirement planning use this IFLS data.

This research is expected to contribute to the scientific field, especially those focusing on public knowledge about finance and the importance of planning income in old age. Most Indonesians who have entered retirement have lower payments than in the previous productive period. A significant portion of the population remains that, upon reaching old age, rely on their children to fulfill their daily requirements. In addition, this research is

expected to be useful as additional information for policy actors, practitioners, and academics in the financial sector to continue actively introducing and disseminating the importance of financial knowledge to the public. Thus, people have alternative and passive income in their old age that does not require working.

Literature Review

The LCH theory (Life Cycle Hypothesis) states that individuals will try to keep consumption patterns/needs expenditures and ensure that individual consumption trends remain consistent/constant (Mahdzan et al., 2017). This study is related to the consumption of individuals who will continue to meet their needs until old age (retirement). In the productive period, individuals will work to meet their needs to remain fulfilled. Still, individuals must continue living using their accumulated savings when retirement comes.

Lusardi and Mitchell (2014) revealed that the current baby boomer generation (1946-1964) mostly had retirement planning during the year they worked. This trend requires everyone to decide how much to save and where to keep it so that they can meet post-retirement needs. In this case, financial literacy is a person's ability to process information and make informed decisions about financial planning, wealth accumulation, debt, and retirement. Financial literacy has a significant impact on economic behavior. The Indonesian people's welfare tends to depend on the community's understanding of financial literacy (Brillianti & Kautsar, 2020). In addition, financial literacy plays an essential role in retirement preparation and can be proven when households generate high returns on their investments. Economic literacy also increases share ownership and encourages the accumulation of wealth/assets (Van Rooij et al., 2011; Deuflhard et al., 2019).

Grohmann (2018) analyzed financial literacy and financial behavior in people living in countries with urban economies. The results found that individuals with a high level of welfare, both in terms of income and education, had a better literacy level, especially in individuals of productive age. In addition, individuals with sound financial literacy tend to have assets other than savings and are likely to have fixed deposit accounts. They understand the use of credit cards, know the interest rates charged on them, and have no significant problems paying off credit card debt.

The level of financial understanding, retirement planning, and the amount of asset ownership can also influence the welfare of the retirement-age family. Aulia et al. (2019) revealed a significant difference between retirement-age families in urban and rural areas. The financial knowledge and planning level for old age in urban areas was higher, meaning that urban people could better plan their retirement and have more significant assets than rural communities. Furthermore, research related to ownership of financial support was also carried out by Deuflhard et al. (2019) to investigate the heterogeneity of profits from ownership of assets, such as savings accounts associated with financial literacy. The study's results stated that financial literacy had a significant relationship with household profits on savings accounts. Someone with high financial literacy can better

identify bank accounts with specific volumes and characteristics with the highest profit level.

Also, Mahdzan et al. (2017) analyzed the impact of financial literacy, risk aversion, and expectations on retirement planning in Malaysia. The results uncovered that individuals with sound financial literacy and low-risk phobia tended to hold risky financial assets in their retirement planning portfolios. In the Netherlands, MCJ Van Rooij et al. (2011) examined the relationship between financial knowledge and retirement planning. The results disclosed a robust positive relationship between financial knowledge and retirement planning, where someone with high financial ability tended to have planned retirement planning. Then, women with low educational attainment showed the lowest level of financial expertise.

Furthermore, household individuals who know are more likely to have retirement planning, including education and income. In Germany, financial literacy has an essential effect on retirement planning. In the current era, there is an increasing responsibility for the individual to meet needs in life in the future. Furthermore, financial literacy is highly correlated with education level. The results found that only 22% of respondents with a junior secondary education level (SMP) could answer all questions correctly compared to respondents who completed senior secondary education (SMA). For respondents with the highest education level (college), almost 70% of respondents answered all questions correctly. Meanwhile, individuals who did not work (students, unemployed, homemakers) and retirees had significantly lower financial literacy than those who worked in companies or were self-employed. In addition, the analysis of the relationship between financial literacy and gender in East Germany and West Germany showed that female/male respondents in West Germany could better answer all questions correctly than female/male respondents in East Germany (Bucher-Koenen & Lusardi, 2011).

Jappelli and Padula (2011) revealed that financial literacy is an option. Individuals with excellent financial knowledge will likely invest in multiple assets and securities. Their study indicates a balance between the costs and benefits obtained by the individual. Furthermore, a comparison between studies in several countries shows that a high understanding of financial markets that increases investment incentives is associated with improved financial literacy and savings.

In the case of Russia, the study of financial literacy was significantly positively related to retirement planning using private pension funds and schemes. However, the study found that rural residents depend more on providing public facilities and invest less in private savings plans (Klapper & Panos, 2011). In contrast to the case in the Netherlands, many Dutch workers lacked knowledge about their retirement and needed to gain great interest in retirement matters. This study will likely result from mandatory participation in corporate pension plans (Van Rooij et al., 2011).

In Australia, financial literacy and retirement planning have a positive relationship where literacy and planning continue to increase. As people age, individuals begin to pay attention to issues surrounding knowledge, insight, and skills related to retirement

planning. In addition, the Australian Government also requires the public to invest in motivating higher financial literacy (Agnew et al., 2012). Financial literacy also moderates the relationship between individual factors, such as risk aversion behavior and intention to invest in risky assets. The relationship between risk aversion behavior and the choice to invest in risky investments is getting more robust because it is supported or moderated by a high level of financial literacy (Aren & Aydemir, 2015)

Moreover, there are two benefits of financial literacy. First, literate individuals are more likely to own assets other than savings accounts, and second, individuals are more likely to have fixed deposit accounts and use credit cards more broadly. Furthermore, building a better understanding of stock market knowledge may be one of the targets of middle-class financial literacy in developing countries (Grohmann, 2018). Individuals with a higher level of finance are also more likely to purchase derivative financial products. Other variables, such as wealth, gender, and urban settlement, also affect financial literacy (Hsiao & Tsai, 2018). Thus, improving financial literacy, human resource potential, and quality of education both at the individual and country level is very important to ensure higher participation in capital market activities (Thomas & Spataro, 2018).

In Romania, Beckmann (2013) analyzed the impact of financial literacy on household savings. The results found that financial literacy positively and significantly impacted saving behavior in Romania. Financially literate individuals, especially those related to inflation, are more likely to save using more than one interest-bearing savings instrument. Respondents who already have children are more likely to hold, while respondents who are not married tend not to hold. Other findings stated that the income variable is also significantly positively correlated with savings.

Grohmann et al. (2015) also investigated the potential role of childhood experiences on financial literacy. The results suggest that childhood experiences influence the family and school channels. First, parental socialization positively affects financial literacy and has the most substantial impact among the five childhood factors. In addition, Deuflhard et al. (2019) inspected financial literacy and the rate of return on savings accounts in the Netherlands. Most households own savings accounts, but few know about household investment performance. The results showed that financial literacy positively impacted the return on savings. The primary data source for the analysis was the DNB Household Survey (DHS) in 2005. DHS is annually surveying about 2,000 Dutch households, sponsored by the National Bank of the Netherlands and managed by the Data Center at the University of Tilburg. In the same survey, Van Rooij et al. (2011) found that financial literacy induces share ownership and increases wealth accumulation.

Grohmann (2018) analyzed middle-class people's financial literacy and behavior in Asian cities. The average level of financial literacy of the middle class in Bangkok is the same as in developed countries. However, knowledge about stock market diversification still needs to be improved. Only 24% could answer financial literacy questions correctly. The results showed that higher financial literacy leads to better economic decision-making. Financially literate individuals are more likely to own assets other than savings accounts and are more likely to have fixed deposit accounts. In addition, middle-class respondents

with higher financial literacy are more likely to use the various financial services offered and use credit cards more informatively because they know credit interest rates, so they have less difficulty paying off credit card debt.

Further, Kusairi et al. (2019) examined household financial efficacy through psychometric instruments, financial literacy, risk preferences, and demographic characteristics on saving decision behavior. The sample included 404 households in Peninsular Malaysia. The results demonstrated that household economic efficacy is significant for decisions on saving behavior and the choice of saving on financial instruments. Families with higher financial efficacy tend to choose savings instruments such as savings accounts and time deposits. The policy implications of the findings indicate that economic effectiveness, financial literacy, and demographic characteristics are essential in determining the choice of savings instrument.

Research Method

This research used data from the Indonesian Family Life Survey, better known as the Indonesian Family Life Survey or IFLS 5. IFLS is a scientific survey consisting of instruments designed to answer research questions. IFLS data is longitudinal and is observed from time to time. IFLS data is divided into the household and the community levels. This study used a sample of 18,627 households spread across 13 provinces in Indonesia to represent the relationship between the variables. IFLS data allows the researchers to see changes in individuals and households and analyze policies and changes in household members over time. This IFLS data is panel data collected by the RAND Corporation since 1993 (Strauss et al., 2009). IFLS data is also still relevant because it focuses on capturing the relationship between phenomena and issues of financial knowledge associated with household behavior in preparing future funds, which is also associated with the amount of ownership of assets in the household.

The analytical tool utilized was STATA 13.0. The analysis technique consisted of several stages, starting with a descriptive analysis of each variable and then testing the model with Logit analysis. The logit analysis method is a non-linear regression model where the dependent variable in a test is categorical. Furthermore, in another sense, Logit regression is a binary where the dependent variable is measured on a nominal scale of two categories (values 1 and 0) (Ghozali & Ratmono, 2013). Besides, because IFLS data is longitudinal, OLS regression analysis and other linear analyses are inappropriate. In this test, the dependent variable used was retirement planning, where the value is one if the household already has a pension fund and 0 if the household does not have a pension fund.

The first stage started by comparing the suitable estimation model between Probit and Logit and then looked at the best estimation results, namely the Logit analysis model. Indeed, this estimation model can produce a fixed predictive value of 1 and 0. Logit analysis is a different analysis from multiple regression analysis. The regression coefficients in the logit analysis cannot be directly interpreted because the dependent variable tends to be 1 and 0 or 'yes' and 'no.' Interpretation of the results of logit analysis

must be considered by calculating the marginal effect, and the interpreted result is the result of the calculation of the marginal effect.

The variable used in this study was retirement planning (Retirement), taken from the respondent's question about having pension insurance (Brilianti & Kautsar, 2020). The independent variables included financial literacy (FinLit), the respondent's understanding of the types of financial institutions, and asset ownership (AssetOwnit) as indicated by the nominal amount of ownership of assets/assets. This study also employed control variables, including education level, age, gender, marital status, household area of residence, and household's province. Thus, the model used in the study is as follows:

$$Retirement_{it} = \alpha + \beta_1 FinLit_{it} + \beta_2 AssetOwn_{it} + \beta_3 Educ_{it} + \beta_4 Age_{it} + \beta_5 Gender_{it} + \beta_6 Married_{it} + \beta_7 Area_{it} + \beta_7 Java_{it} + \dots \varepsilon_{it} \quad (1)$$

Variable *Retirement_{it}* is used with a dummy variable where value 1 represents who has pension funds, and 0 does not have pension funds. *FinLit_{it}* or financial literacy is proxied with dummy variables where 1 represents who has financial literacy, and 0 represents who does not have financial literacy. Furthermore, *AssetOwn_{it}* is the total asset owned by the household (savings, securities, land, houses, vehicles, jewellery, and others). *Educ_{it}* represents the level of education by household with a score of 1 to 5, where 1 means uneducated; 2 elementary school graduates; 3 junior high school graduates; 4 high school graduates; and 5 undergraduate. *Age_{it}* represents the age of the household. *Gender_{it}* is the gender of the household (1 = male, 2 = female). Variable *Married_{it}* is the marital status of the household where one is married, and 0 is the other. *Area_{it}* is the position of the household's residence (1 = urban, 0 = rural). *Java_{it}* represents a dummy variable, which means the province of the household's life (1 = java, and 0 = non-java).

Based on the elaboration of the operational definitions of the variables above, all variables were taken from the pocketbook in the IFLS with the following explanation in Table 1.

Table 1 Source of IFLS' Book

No	Variables	Book
1	Retirement planning	Book 3A, section TK25A4
2	Financial literacy	Book 2A, section BH01
3	Asset ownership	Book 3A, section HR01
4	Level of education (Control)	Book 3A, section DL1, question dl04, dl06, dl07
5	Age (Control)	Book 3A, section COV, question age
6	Gender (Control)	Book 3A, section COV, question gender
7	Marital status (Control)	Book 3A, section COV, question marstat
8	Urban (Control)	Book BK, question sc05
9	Java (Control)	Book BK, question sc01_14_14

Furthermore, Table 2 is a description of the sources of questions from the IFLS pocketbook.

Table 2 List of Questions

No	Variables	Questions
1	Retirement planning	What type of pension insurance do you have?
2	Financial literacy	What borrowing places do you know about, other household members, or the local community?
3	Asset ownership	What is the nominal value of the asset now?
4	Level of education (Control)	What is the highest level of education that you have/are currently attending?
5	Age (Control)	How old are you?
6	Gender (Control)	What is your gender?
7	Marital status (Control)	Marital status?
8	Urban (Control)	Do you live in urban/rural areas?
9	Java (Control)	Which province?

Results and Discussion

Descriptive Statistics

The results of descriptive statistics are presented in Table 3, consisting of the dependent, independent, and control variables. Variable retirement planning averaged 0.106, meaning only about 10% of Indonesians had retirement savings. This result indicates that many households still need to learn and understand the importance of planning for retirement. In addition, the average financial literacy variable of 0.79 suggests that 79% of individuals had good knowledge of finance and the location of loan facilities. Meanwhile, ownership assets are the natural log of the total assets of each household, with an average of 17.991. At the education level, households without schooling scored 1; elementary school graduates scored 2; junior high school graduates were given a score of 3; high school graduates scored 4; the last education, undergraduate graduates scored 5. The average education level of Indonesian households was 3.325, denoting that most households had the latest education in junior high school.

Table 3 Descriptive Statistics

Variable	Mean	Min	Max
<i>Retirement</i>	0.106	0	1
<i>FinL</i>	0.79	0	1
<i>AssetOwn</i>	17.991	0	22.096
<i>Educ</i>	3.325	1	5
<i>Age</i>	38.819	15	101
<i>Gender</i>	0.598	0	1
<i>Married</i>	0.787	0	1
<i>Urban</i>	0.618	0	1
<i>Java</i>	0.556	0	1

Obs: 18.627

Furthermore, the household respondents in this study ranged from 38 years of age. Most respondents who filled out the questionnaire in this study were men compared to women. On marital status data, 78% of respondents were married or had a family. Also,

the area of residence in this study was divided based on the position of the household's residence, namely households living in urban and rural areas, whether the respondent lived on Java Island or outside Java Island. As many as 62% of respondents lived in urban areas. Furthermore, the majority of respondents came from the Java Island, 56%.

Effect Test Results with Logit Model

This study examined the relationship of knowledge or financial literacy to household asset ownership and retirement planning. The test was carried out using the logit model to estimate the effect of these variables. The logit marginal effect showed the test results in Table 4. The results are presented by estimating several logit equation models. In models 1, 2, 4, and 5, the authors found that the effect of financial knowledge on retirement planning had a significant positive relationship. These results indicate that the higher a person's financial knowledge, the more prepared they will be in planning finances in old age. This finding aligns with previous literature, where someone with good financial literacy and understanding of saving and investing will think long-term to prepare for their retirement needs.

Furthermore, the explanation of the relationship between household asset ownership and retirement planning is shown with significant positive results (models 1, 3, 4, and 5). In large quantities, a person with assets in the form of assets (savings, securities, land, houses, vehicles, jewelry, and others) will be more likely to prepare for retirement. This result can be used as a comparison for someone who, on the other hand, has lower assets because they are less likely to have retirement planning opportunities. Also, a person from a productive age who has an income tries to continuously accumulate assets so that his needs in retirement remain stable and fulfilled.

The following test results investigated the relationship between retirement planning variables and several control variables. Educational variables (EDUC 2, 3, 4, 5), representing a person's level of education according to their level, had a significant positive relationship with old-age planning. These results imply that someone with a higher level of education will be more aware of preparing for future financial needs. Someone with the highest level of education (EDUC 5) is considered the most understanding that retirement income will decrease or even no income at all, so he starts preparing for old-age finances early. The age variable (AGE) also showed significant positive results (models 2, 3, 4, 5) on retirement planning. The more a person enters the productive age until retirement, he will be more aggressive in accumulating assets and wealth. This result is also related to the relationship between the variable gender (GENDER) and retirement planning. The results also revealed a significant positive effect (models 2, 3, 4, 5) where men can better plan their old age preparations than women. In this regard, Indonesian people who work and have their income dominated by men as breadwinners and heads of families, allowing more men to prepare for retirement with their partners.

Table 4 Logit Marginal Effect Results

	(1)	(2)	(3)	(4)	(5)
	Retirement	Retirement	Retirement	Retirement	Retirement
FinL	0.0563*** (0.00696)	0.0246*** (0.00658)		0.0176*** (0.00660)	0.0181*** (0.00658)
AssetOwn	0.0358*** (0.00218)		0.0133*** (0.00180)	0.0129*** (0.00181)	0.0125*** (0.00178)
Educ 2		0.0109*** (0.00295)	0.0112*** (0.00327)	0.0112*** (0.00337)	0.0114*** (0.00362)
Educ 3		0.0357*** (0.00438)	0.0366*** (0.00466)	0.0362*** (0.00473)	0.0361*** (0.00490)
Educ 4		0.129*** (0.00538)	0.126*** (0.00546)	0.124*** (0.00550)	0.120*** (0.00558)
Educ 5		0.321*** (0.00883)	0.292*** (0.00967)	0.288*** (0.00969)	0.280*** (0.00978)
Age		0.00247*** (0.000191)	0.00213*** (0.000197)	0.00213*** (0.000197)	0.00210*** (0.000199)
Gender		0.0197*** (0.00422)	0.0210*** (0.00419)	0.0211*** (0.00419)	0.0216*** (0.00419)
Married		0.0267*** (0.00526)	0.0258*** (0.000197)	0.0249*** (0.00531)	0.0258*** (0.00529)
Urban					0.0224*** (0.00457)
Java					-0.000123 (0.00423)
C	-9.913*** (0.459)	-7.132*** (0.476)	-9.581*** (0.599)	-9.615*** (0.599)	-9.650*** (0.596)
N	18627	18627	18627	18627	18627
Pseudo R-sq	0.058	0.177	0.184	0.184	0.186
LL	-5934.0	-5182.8	-5140.9	-5137.1	-5125.5
Chi2	353.7	1521.0	1566.0	1564.0	1601.4

Note: *p<0.1, **p<0.05, ***p<0.01

Further, the results showing a significant positive relationship (models 2, 3, 4, 5) were also represented by the marital status variable (MARRIED) on retirement planning. Married individuals are more dominant in preparing for retirement needs than unmarried individuals. In general, individuals who are already married have greater responsibilities because, apart from meeting their own needs, they must also be able to meet the needs of their family members. Moreover, it is associated with the area where individuals live, namely between urban and rural areas (URBAN). In that case, the results exposed a significant positive relationship (model 5) where individuals living in urban areas had the awareness to prepare for retirement planning. Many urban individuals have higher levels of education than individuals living in rural areas. Thus, the awareness of individuals living in urban areas is greater towards retirement planning.

Conclusion

This study scrutinized the effect of financial literacy and asset ownership on retirement planning. Based on the study results, financial literacy positively influenced old-age planning. Households with excess financial insight would impact the ability to determine the allocation of their savings portfolio. The results also found that households in urban areas were better prepared to face their survival when they retired. Households in Indonesia should increase their insight and understanding of finances so they can plan well and do it as early as possible (productive age). In addition, socialization related to retirement savings is mandatory. Although Indonesian people already know about access to money-lending facilities, they still need to be moved to be more aggressive in saving and investing.

The testing results for asset ownership and retirement planning were also significantly positively related. Hence, households with much property ownership must be aware of old-age planning. If the household understands the concept of saving and investing, the assets collected can become savings that can be used in retirement when the household has no income. However, the descriptive results uncovered a reasonably large gap between households where there are households with no savings or assets at all. Through their social responsibility programs, the state government and companies must educate the Indonesian people through programs related to the saving movement, especially those living in rural areas and lacking public facilities.

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.



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