COMPARISON OF FINANCIAL LITERACY IMPACT ON RETIREMENT PLANNING DECISIONS AMONG PUBLIC AND PRIVATE SECTOR WORKERS IN SRI LANKA

Wewala, W.W.N.R.[1], Ediriweera, E.A.I.N.[2]

[1,2]*Department of Accountancy, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka*
[1]*nuwangiwewala@gmail.com,* [2]*induniln@wyb.ac.lk*

ABSTRACT

This paper intends to identify and compare the impact of financial literacy on retirement planning decisions among public and private-sector workers in Sri Lanka. Ultimately, this study examines the level of financial literacy among the labour force in emerging economies such as Sri Lanka and their behavioural aspects in planning future retirement. Based on the prior literature, we divided financial literacy into savings behaviour (SB), payment mechanism (PM), and awareness of financial products (AFP) and tested those variables with retirement planning decisions. We used the positivism research philosophy and deductive research approach with the experimental research strategy and quantitative methods to address the research question. The study investigated 662 currently occupied workers in the public and private sectors using convenient sampling. We collected the primary data through a structured questionnaire and used the multinomial logistic regression model to test the hypotheses. The results confirmed a significant positive relationship between savings behaviour and retirement planning decisions, while awareness of financial products confirmed it to be negative and significant. The comparison of means indicated that the low financial literates are more likely to be in the public sector; thus, high financial literates are equally distributed among the public and private sectors. Finally, the results concluded that retirement planning decisions are higher for the public sector than in the private sector. Thereby, we recommend future studies to identify the reasons for having higher retirement planning in the public sector while their financial literacy is comparatively low. Further, we recommend developing more awareness among public sector workers to enhance voluntary retirement planning than government-funded retirement planning.

Keywords: Financial Literacy, Retirement Planning, Public and Private Sector, Savings Behaviour, Awareness of Financial Products

1. INTRODUCTION

Insufficient retirement savings would lead retirees to experience difficulties in maintaining their pre-retirement standard of living. Ultimately this will direct retirees to rely on welfare benefits (Mahdzan et al., 2017). Thus, developed countries use many official retirement-support programs, including private pensions, government welfare systems, and personal savings accounts (Minh & Huu, 2016). Mostly in developing countries, family and relatives provide retirement support (World Bank

and the Consultative Group, 2004). Thus, Tan (2015) stated that Malaysian retirees are highly dependent on family, especially on children at their retirement.

As revealed by the Health and Retirement Survey conducted in the United States, roughly 25% of retirees undergo a decline in psychological well-being one year after retirement (Wang & Bodner, 2007; Wong & Earl, 2009). Yet, a study revealed that it is possible to obtain positive changes in well-being by increasing the retirement resources between the pre-and post-retirement phases (Yeung & Zhou, 2017).

Though planning is recommended as a "more successful transition" into retirement (Petkoska & Earl, 2009), prior studies identified that behavioural factors such as time preference, risk attitude, savings behaviour, confidence, and economic knowledge impact inadequate personal retirement (Hanna et al., 2011; Tanaka et al., 2010; Van Rooij et al., 2011). Albeit many researchers revealed a robust relationship between retirement planning and financial literacy (Fornero and Monticone, 2011; Brown and Graf, 2013; Crossan et al., 2011), studies rarely compare the different financial literacy levels among public and private sector workers and their impact on retirement planning. Thereby, the current study focuses on identifying and comparing the impact of financial literacy levels among public and private sector workers on their retirement planning decisions.

Table 5: Aggregate Consumption and Savings (as a percentage of GDP)

Item	2018	2019	2020
Private consumption	67.8	69.8	70.7
Government consumption	9.1	9.4	10.4
Private savings	24.2	24.0	21.6
Government savings	-1.2	-2.7	-1.1

Source: Central Bank Annual Report 2019

As per the Central Bank Annual Report, 2019, the Sri Lankan economy experiences a considerable gap between consumption and savings. Parallelly the continuous negative government savings emphasize the limited capacity of the government budget to afford the further expansion of pension and retirement benefit payments. Also, the lesser the household savings, the higher the dependency ratio. Parallelly, a study revealed that a one percentage increment in the dependency ratio could lower the household savings rate as a per cent of gross domestic production and disposable income (Sophia, 2019). Thus, understanding retirement planning behaviour would be beneficial for households, government, and economic policymakers.

A study observed that the level of financial literacy among higher education students in Sri Lanka had not been properly examined (Edirisinghe et al., 2015). Thus, a preliminary idea about the degree of financial literacy is necessary to enhance the quality of life within Sri Lanka. Also, older employees who lack the basic knowledge of financial literacy are less likely to make investment planning decisions in different life stages in their life cycles (Lusardi and Mitchell, 2007). Thus, the current study focuses on addressing the research question:

Does the level of financial literacy among public and private sector workers have an impact on retirement planning?

2. LITERATURE REVIEW

Financial literacy, or making effective decisions and judgments when utilizing and managing money (Schagen & Lines, 1996), followed by a series of abilities such as reading, money managing, analysing, interpreting, making personal judgments, and taking action to gain (Vitt et al., 2000).

Financial literacy was measured by using interest rate, inflation rate, and stock in many previous studies (Fornero and Monticone, 2011; Brown and Graf, 2013; Crossan et al., 2011). Atkinson and Messy (2012) considered financial knowledge, behaviour, and attitudes to measure financial literacy. They revealed a positive relationship between financial behaviour and financial literacy. They measured financial knowledge based on the knowledge to calculate simple interest rates on a savings account. Thereby, being aware of the financial products and their cost is a sign of being financially literate.

The behaviour of a particular individual has a significant impact on their financial well-being (Atkinson and Messy, 2012). Thus, studies revealed a significant positive relationship between savings behaviour and financial literacy (Peiris, 2021; Jamal et al., 2015; Henager and Mauldin, 2015; Zazili, 2017). Parallelly, healthy credit card use creates financial satisfaction while developing strong confidence among individuals (Atlas et al., 2019). Perera (2020) revealed that individuals who use credit cards as a payment mechanism hold a high financial literacy rate. Atkinson and Messy (2012) considered attitudes and preferences as a key element of financial literacy measured using attitudes toward money and planning for the future.

Meanwhile, retirement planning is a simple and direct way to look forward to individuals' potential vulnerability in the future (Lusardi and Mitchell, 2007). Retirement planning is closely related to the individual's life cycle, and the individual must plan for retirement, especially in terms of finance (Mohidin et al., 2013).

Many behavioural studies revealed a positive relationship between retirement planning and financial literacy within different economies (Fornero and Monticone, 2011; Almenberg and Säve-Söderbergh, 2011; Brown and Graf, 2013; Nguyen et al., 2017; Klapper and Panos, 2011; Agnew et al., 2013). A study revealed that the level of financial literacy is moderate among Germans and confirmed that lower financial literates have less propensity to plan their retirement (Bucher-Koenen & Lusardi, 2011). In contrast, a study revealed a minor relationship between retirement planning and the financial literacy of Dutch households in the Netherlands (Van Rooij et al., 2011). Lusardi and Mitchell (2011) found a lower association between retirement planning and financial literacy in the United States. According to Perera (2020), if someone has a better financial literacy rate, that person tends to select a retirement plan.

Besides, the USA-based study revealed that government sector workers have higher preparedness than nongovernment employees for retirement. Also, lower-income

earners are less likely to save for their retirement while educated individuals are more likely to save (Chatterjee, 2010). Further, a South Asia-based study highlighted the low level of financial literacy among the large young workforce in South Asia. In spite, it highlighted the requirement of enhancing financial planning knowledge among households to expand the voluntary coverage of formal pension agreements (Kim & Bhardwaj, 2011). Thus, this study focused on filling this literature gap by evaluating the impact of the financial literacy level among public and private sector workers on retirement planning in Sri Lanka.

3. METHODOLOGY

Based on the objectives of the study, we generated hypotheses using existing literature, following Positivism. We applied the deductive research approach and developed hypotheses based on prior findings to continue the study. Thereby, we followed quantitative research methods to analyse the duly collected data. The study used the mono-research method and collected cross-sectional data based on a structured questionnaire to quantify the variables addressed in the below conceptual framework.
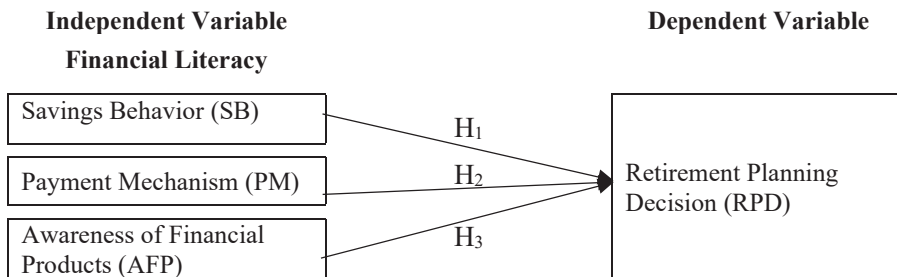
Independent Variable   **Dependent Variable**
Financial Literacy

Savings Behavior (SB)	H_1	Retirement Planning Decision (RPD)
Payment Mechanism (PM)	H_2
Awareness of Financial Products (AFP)	H_3

Figure 2: Conceptual Diagram

Since the questionnaire consists of both categorical and Likert-scale questions, and the dependent variable (response variable) is categorical (El-Habil, 2012), we used multinomial logistic regression to express the relationships of the conceptual framework.

If there are many predictors for binary response Y, let k denote the number of predictors, and the model for log odds is,

$$Logit[P(Y = 1)] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \cdots + \beta_k x_k$$

The alternative formula for $\pi(x)$ is,

$$\pi(x) = \frac{\exp(\alpha + \beta_1 x_1 + \cdots + \beta_k x_k)}{1 + \exp(\alpha + \beta_1 x_1 + \cdots + \beta_k x_k)}$$

$$\log\left[\frac{\pi_i}{1 - \pi_{ji}}\right] = \alpha_{10} + \beta_{11} SB_{1i} + \beta_{12} PM_{2i} + \beta_{13} AFP_{3i}$$

The effect of x_i is explained through the parameter β_i on the log odds that is $Y = 1$, controlling other x_j. Thereby, $\exp(\beta_i)$ is the effect on the odds of a one-unit increase in x_i, at fixed levels of other x_j.

The population of the study is the total labour force in Sri Lanka. As per the statistics published, the total labour force within the first quarter of 2020 was 8,503,617 (Department of Census and Statistics, 2020). Morgan's table suggested 385 samples for the above population. Based on convenience, we distributed the questionnaire and collected 662 responses from currently occupied public and private-sector workers. Thus, we considered all 662 responses for the analysis.

Accordingly, the alternative hypotheses considered for the study are as follows.

H_1: Savings Behaviour has a significant impact on individual retirement planning decision

H_2: Payment Mechanism has a significant impact on individual retirement planning decision

H_3: Awareness of Financial Products has a significant impact on individual retirement planning decision

Operationalization of variables tables illustrates the measurement of each variable.

Table 6: Operationalization of Variables

Concept	Variable	Indicator	Reference
Financial Literacy	Savings Behaviour	Monthly savings Sufficiency of salary Monthly budget	(Dovie, 2018)
	Payment Mechanism	Comparing offers of credit card Monthly credit card rate Use of credit card	(Heenkkenda, 2014)
	Awareness of Financial Products	Knowledge of investing in financial products Buying rate of T-Bills Knowledge of Share trading	(Heenkkenda, 2014)
Retirement Planning Decision	Retirement Planning	Having a retirement plan	(Lusardi and Mitchell, 2007)

4. DATA ANALYSIS

Frequency analysis is used to understand the demographic characters of the respondents in terms of their gender, civil status, and employment sector. Based on the details in Table 3 major proportion of respondents are females (56.0%) and males are only 44.0%. While 44.0% are married and 56.0% are single. Also, 58% and 42% of respondents are respectively occupied by private-sector and public sector.

<p align="center">**Table 7: Demographic Characteristics**</p>

	Category	Numbers	Percentage (%)
Gender	Male	294	44
	Female	368	56
Civil Status	Single	368	56
	Married	294	44
Employment Sector	Private	386	58
	Public	276	42

We measured the level of financial literacy by using six (06) multiple-choice questions focusing on the inflation rate and interest rate. We categorized the respondents into three (03) financial literacy levels as low (02 or less correct answers), moderate (03 correct answers), and high (04 or more correct answers) based on their scores. As per table 4, out of the 662 respondents, there are 163 respondents with low levels of literacy while 114 respondents have a moderate literacy level. However, 385 respondents have a high level of literacy and as a percentage, it is 58%.

<p align="center">**Table 8: Level of Financial Literacy**</p>

Level Literacy	Frequency	Percentage (%)
Low	163	25
Moderate	114	17
High	385	58
Total	662	100

Testing the Reliability of the Questions

We used Cronbach's Alpha statistic to test the reliability of questions used to define the variables in the conceptual framework.

<p align="center">**Table 9: Cronbach's Alpha Values**</p>

Variable	Reliability Statistics	
	Cronbach's Alpha	N of Items
Savings Behavior (SB)	0.740	3
Payment Mechanism (PM)	0.718	3
Awareness of Financial Products (AFP)	0.795	3

According to table 5, Cronbach's Alpha of SB, PM, and AFP is more than 0.7. So, we can confirm strong reliability within the questionnaire when defining the variables through the questions.

Testing the Adequacy of the Sample and Multicollinearity of the Variables

<p align="center">**Table 10: KMO and Bartlett's Test**</p>

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.657
Bartlett's Test of Sphericity	Approx. Chi-Square	347.874
	df	3
	Sig.	.000

KMO statistics measures the sampling adequacy of the variables, and Bartlett's test outlines the redundancy between those variables. The KMO value is 0.657, higher

than the minimum recommended value of 0.5. Thus, it emphasizes the adequacy of the sample size to conduct the study. The P-value of the Chi-square statistic is 0.000 < 0.05 rejects the null hypothesis of Bartlett's Test, thus it is concluded that the variances are not equal between the dependent variables. Hence, there is no redundancy between the dependent variables.

Multinomial logistic regression results

Table 11: Multinomial Logistic Regression Results

RPD[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
1.0	Intercept	-0.934	0.448	4.341	1	0.037			
	SB	0.529	0.124	18.270	1	**0.000**	1.698	1.332	2.165
	PM	0.127	0.125	1.043	1	0.307	1.136	0.889	1.451
	AFP	-0.321	0.118	7.353	1	**0.007**	.725	0.575	0.915
a. The reference category is .0.									

$$\log\left[\frac{\pi_i}{1-\pi_{ji}}\right] = -0.934 + .529SB_1 + .127PM_2 - .321AFP_3$$

Table 6 illustrates that Savings behaviour (SB) has a significant positive impact on the retirement planning decision (RPD) as 0.529. It indicated that increasing savings behaviour could increase retirement planning decisions (P = 0.000 < 0.05) from 52.9%. Payment mechanism (PM) has no significant impact on the retirement planning decision (RPD) (P = 0.307 > 0.05). According to the above table, awareness of financial products (AFP) has a significant negative impact on retirement planning decisions (RPD) (P = 0.007 < 0.05). Also, as per Table 7, the significance of the chi-square statistic confirmed that the overall model is significant (P = 0.001, 0.000 < 0.05).

Table 12: Goodness-of-fit Test

	Chi-Square	df	Sig.
Pearson	377.381	295	0.001
Deviance	469.739	295	0.000

Hypothesis Testing

Table 13: Summary of Hypothesis Testing

Hypothesis	Coefficient	Reported sign	P-Value	Relationship	Result
H_1	0.529	Positive	0.000	Significant	Accepted
H_2	0.127	Positive	0.307	Insignificant	Rejected
H_3	(-0.321)	Negative	0.007	Significant	Accepted

H_1: Savings Behaviour has a significant impact on individual retirement planning decisions.

The P-value of the regression of savings behaviour was 0.000 with a 95% confidence level we accept the alternative hypothesis. Accordingly, we can conclude that there is a significant relationship between savings behaviour (SB) and retirement planning decisions (RPD).

H_0: Payment Mechanism has no significant impact on individual retirement planning decisions.

The P-value of the regression of the payment mechanism was 0.3071 with a 95% confidence level; therefore, we accept the null hypothesis. Accordingly, we can conclude that there is no significant relationship between the payment mechanism (PM) and retirement planning decisions (RPD).

H_3: Awareness of Financial Products has a significant impact on individual retirement planning decision

The P-value of the regression of Awareness of financial products was 0.007 with a 95% confidence level, therefore, we accept the alternative hypothesis. Accordingly, we can conclude a significant relationship between awareness of financial products (AFP) and retirement planning decisions (RPD).

ANOVA Results

Table 10 represents the action effect of financial literacy on the employment sector. There are three levels of financial literacy, namely low (1.0), moderate (2.0), and high (3.0), and two employment sectors, namely private (1.0) and public (2.0).

When considering the low financial literacy level, government workers have low financial literacy than private-sector workers. People with moderate financial literacy are more likely to be in the public sector than in the private sector. Furthermore, there is a small difference between the high financial literacy level of the public and private sectors. When comparing the three levels of financial literacy, most public sector workers are within moderate financial literacy levels, and most private sector workers are within high financial literacy levels.

Table 14: Two-way ANOVA Results

Financial Literacy* Employment Sector

Dependent Variable: Financial Literacy		Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1.0	1.0	0.467	0.051	0.368	0.567
	2.0	0.592	0.058	0.478	0.705
2.0	1.0	0.441	0.059	0.326	0.557
	2.0	0.696	0.072	0.555	0.836
3.0	1.0	0.624	0.032	0.560	0.687
	2.0	0.673	0.038	0.597	0.749

Table 11 represents the pairwise comparison of the RPD among two (02) employment sectors, where 01 indicates the private sector and 02 indicates the public sector. The results confirmed that the mean difference between public and private sector workers is statistically significant (P = 0.001 < 0.05).

**Table 15: Pairwise Comparison of Employment Sector**

Pairwise Comparisons

Dependent Variable: Employment Sector		Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1.0	2.0	-0.143[*]	.043	0.001	-.228	-.057
2.0	1.0	0.143[*]	.043	0.001	.057	.228

Based on estimated marginal means
*. The mean difference is significant at the .05 level.
b. Adjustment for multiple comparisons: Bonferroni.

This has been further explained by Figure 2 which is the estimated marginal means of RPD of each employment sector. Accordingly, RPD is higher for the public sector (02) than that of the private sector (01).
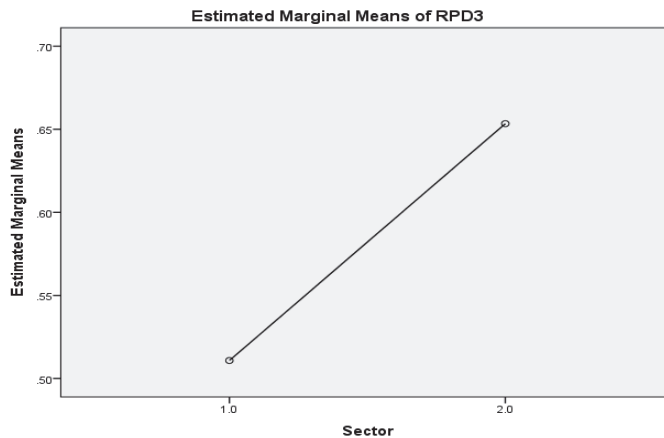
Figure 3: Estimated Marginal Means of RPD

5. RESULTS DISCUSSION AND CONCLUSION

This study intends to compare the level of financial literacy among public and private sector workers and its' impact on retirement planning in Sri Lanka. The study focused on three financial literacy determinants (savings behaviour, payment mechanism, and awareness of financial products), and hypotheses were tested using the Multinomial logistic regression model results.

H_1: *Savings Behaviour has a significant impact on individual retirement planning decisions.*

The study accepted the alternative hypothesis and confirmed a significant positive relationship between savings behaviour and retirement planning decisions. The hypothesis complies with the prior literature, which emphasizes the influence of savings behaviour on retirement planning decisions (Dovie, 2018; Peiris, 2021; Jamal et al., 2015; Henager and Mauldin, 2015; Zazili, 2017).

H_0: Payment Mechanism has no significant impact on individual retirement planning decisions.

However, the results indicated that the payment mechanism has an insignificant relationship with retirement planning decisions. Accordingly, we rejected the alternative hypothesis derived. We concluded that the effective use of alternative payment methods (credit cards) does not influence retirement planning decisions among individuals in Sri Lanka. Even though Atlas et al. (2019) explained the capacity of developing strong confidence among individuals through healthy credit card usage while creating financial satisfaction as a payment mechanism, it has not been a choice among Sri Lankan individuals to plan their retirement.

H3: Awareness of Financial Products has a significant impact on individual retirement planning decision

The findings of the current study accepted the alternative hypothesis and confirmed that there is a significant negative relationship between awareness of financial products and retirement planning decisions. Besides, Heenkkenda (2014) revealed a significant positive relationship between awareness of financial products and retirement planning decisions among government workers and an insignificant relationship among the business sectors.

The mean comparison revealed that people with low financial literacy are more likely to be in the public sector than in the private sector. People with moderate financial literacy are more likely to be in the public sector than in the private sector. However, there are almost equal proportions of high financial literacy among the private and public sectors. However, when comparing the frequencies of financial literacy levels, most government sector workers are within moderate financial literacy levels, and most private sector workers are within high financial literacy levels. Meanwhile, high financial literates are more prone to plan their retirement, while low financial literates are yet to develop in both sectors.

Further, based on the findings, we can conclude that using savings behaviour and awareness of financial products could explain financial literacy among individuals more precisely. The current findings also confirm the significant relationship between financial literacy and retirement planning among both public and private sector workers. However, the mean comparison confirms the proposals of Kim and Bhardwaj (2011) and signifies the necessity of enhancing the financial literacy among public sector workers. Even though the public sector workers in Sri Lanka show a greater preparedness for retirement planning root cause for that has to be identified. Since they are entitled to a government-funded pension scheme, based on the proposals of Kim and Bhardwaj (2011), it is necessary to promote voluntarily funded pension agreements which would ultimately reduce the burden of recurrent expenditure on the government budget.

Eventually, financial institutions and the Labour Department can conduct awareness programs for government and private-sector workers to enhance their knowledge of retirement planning and financial literacy.

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