PREPRINT

PERTANIKA JOURNALS

SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Pre-Retirement Withdrawal Patterns and Determinant Factors: A Case Study of Malaysian Employee Provident Fund Members

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ABSTRACT

Retirement savings provide a crucial safety net and pave the way for financial independence in old age. The Employee Provident Fund (EPF) in Malaysia, a national retirement savings scheme, provides members with a pre-retirement withdrawal option, which may cause depleted savings for members. What are the withdrawal patterns, and how much has this impacted the contributor? The study investigates the impact of pre-retirement withdrawal on the savings balance among Malaysian EPF members between the ages of 55 and 59, focusing on withdrawal patterns, motivations, and demographic factors that influence the likelihood of making a pre-retirement withdrawal using data from a nationwide survey conducted in 2015-2016. Findings reveal that the majority of members had modest savings of less than RM100,000. They mostly use partial withdrawals, with the largest withdrawals coming from those with the smallest savings. Buying property and renovating houses are the primary reasons for withdrawal. The study identifies ethnicity and education level as important predictors of pre-retirement withdrawal behaviour. These active withdrawals significantly reduce retirement savings, potentially leading to delayed retirement, extended work hours, and an increased risk of poverty in old age. The findings highlight a potential challenge to retirement security for many EPF members. The incidence of withdrawals, particularly among those with lower savings, raises concerns about the need for governmental initiatives that encourage rational savings behaviour. Focusing on a financial literacy campaign can help educate members about the present bias and repercussions from pre-retirement withdrawals, thus allowing them to make informed decisions and proper financial planning.

Keywords: Old-age savings, pre-retirement withdrawal, provident fund utilization, retirement savings

ARTICLE INFO

Article history:
Received: 22 July 2024
Accepted: 02 May 2025
Published: 17 October 2025

DOI: https://doi.org/10.47836/pjssh.33.5.01

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e-ISSN: 2231-8534

INTRODUCTION

Global development in the past century has led to higher living standards, improved physical health, and increased longevity. The rise in life expectancy is prevalent across most regions worldwide, and the ageing trend is advancing universally. Over the recent decades, the proportion of elderly individuals has displayed an upward trajectory, with projections indicating a continuous rise. According to data from the World Health Organization (WHO) in 2020, the global population of individuals aged 60 and above has surpassed that of children aged 5 and below. The WHO projects this figure to increase from 1 billion in 2020 to 1.4 billion by 2030 (WHO, 2022). It is estimated that by 2030, around one in six individuals globally will be aged 60 or older. This phenomenon, known as population ageing, is occurring rapidly in developed nations such as Japan, where over 30% of the population is currently aged over 60. Malaysia began experiencing population ageing in 2020, with the percentage of individuals aged 65 and above recorded at 7.0%, compared to 5.0% in 2010, and is estimated at 7.7% in 2024. The number is projected to reach 14.5% by 2040 (Department of Statistics Malaysia [DOSM], 2016, 2021, 2024a). Additionally, most low- and middle-income countries are witnessing rapid shifts in age demographics, with individuals aged 60 and above from these countries projected to make up two-thirds of the global population by 2050 (WHO, 2022).

Population ageing is the gradual shift between age groups in which older individuals constitute a proportionally larger share of the overall population. The demographic trend of ageing poses challenges to existing socioeconomic structures, labour force availability, healthcare demand, and the consumer market composition (Chang & Hsu, 2017). The ramifications of population ageing are concerning, particularly with the rise in the senior dependency ratio on social security systems. In light of these challenges, many developing nations maintain mandatory retirement regulations beginning as early as 55, with a ceiling of 60 years, despite limited social protection measures for seniors (Abd Samad & Mansor, 2013). Social transformations and economic uncertainties heighten apprehensions regarding the capacity of the current social security system, notably pensions and retirement funds, to offer sufficient financial support during retirement. The objective is to prevent elderly individuals from falling into poverty post-retirement due to insufficient savings, increased living expenses, and diminishing familial support. Therefore, a robust social protection strategy that is integrated into a broader framework is imperative to ensure sustainable and enhanced living standards in old age.

Emerging Issues and Challenges in Retirement Savings

One of the major challenges facing social security is that more than half of the world's working population lacks adequate social security coverage (International Labour

Organization [ILO], 2024). This issue is exacerbated by the increasing elderly population, highlighting the need for financial security through social security programs. Pension coverage in Asia typically ranges from 10% to almost 100%, with many regions experiencing stagnation (ILO, 2001). In addition to structural challenges, social security systems are grappling with concerns about shrinking contribution funds due to factors such as an ageing workforce, informal employment, and job losses amid economic hardships. There is widespread apprehension regarding the adequacy of retirement savings based on individuals' contributions during their working years and whether the savings will sustain them throughout retirement. The primary fear is that the savings may not suffice to cover living expenses, especially for individuals earning low wages in passive salary systems. In addition, demographic shifts will disproportionately affect women, who typically have longer life expectancies, lower incomes, and less participation in the formal labour market. With a decline in formal job opportunities and economic instability, workers are increasingly responsible for meeting a significant portion of their social security needs, potentially diminishing their quality of life in old age.

Retirement savings are crucial for supporting financial stability, ensuring independence in old age, and reducing reliance on social protection programs. Savings usually begin by setting aside a portion of one's monthly salary, often with contributions from the employer, and are typically placed in a retirement account like a provident fund. The aim is to amass enough savings to cover future living expenses and sustain one's standard of living. While most retirement savings plans permit regulated withdrawals, some exceptions allow for early access under specific conditions, like a minimum contribution period or purposes such as loan settlement, education, or medical expenses. Early access to retirement savings may impact retirement income adequacy (Bateman et al., 2023; Butrica et al., 2010; Hajkowicz et al., 2012). In certain cases, an early withdrawal may incur a tax penalty, making it less ideal. Regrettably, due to the economic impact of the COVID-19 pandemic, many countries, including Malaysia, have temporarily modified withdrawal regulations to allow early access to retirement savings (OECD, 2020).

Malaysia is moving toward becoming an ageing country. The percentage of people aged 60 and above has increased from 10.7% in 2020 to 11.6% in 2024 (DOSM, 2021, 2024a). Factors such as rising life expectancy and decreasing fertility rates will drastically raise the number of older individuals. The DOSM (2023) reported that in 2023, life expectancy at 60 has increased for males and females, up to 18.3 years and 21.1 years, respectively. Consequently, males can live up to 78.3 years, and females can live up to 81.1 years. Over the last four decades, Malaysia has observed a significant decline in the total fertility rate (TFR) from 4.9 children per woman in 1970 to 1.7 in 2020. The TFR dropped below

the replacement level of 2.1 children from 2013 onward (DOSM, 2024b). Despite the decline in the fertility rate, Malaysia's total population continues to grow, partly due to increased life expectancy. It is also worthwhile to note that the DOSM (2016, 2021) projected that the working age group would decrease from 69.7% in 2020 to 66.9% in 2040.

There have been several studies conducted on the Malaysian social security system that address the concerns and challenges of retirement savings sufficiency due to the population ageing (Taher et al., 2020; Darmaraj & Narayanan, 2019; Ibrahim & Nordin, 2020; Jaafar et al., 2019). Most of these studies highlight the worrying issue of depleted savings among members of the Employees Provident Fund (EPF), Malaysia's largest provident fund institution that provides a social security scheme for private sector employees, non-pensionable public sector, and self-employed individuals. The savings scheme operates on a defined contribution (DC) plan where both employees and employers contribute at a prescribed rate. The EPF Act of 1991 allows for both partial and full withdrawals. Full withdrawals are only permitted when a member reaches the age of 55 or 60 in cases of incapacitation, departure from the country, or in case of death. On the other hand, partial withdrawals are allowed after reaching the age of 50 for purposes such as education, house purchase, house construction, housing loan, hajj pilgrimage, medical expenses, or if the savings exceed RM1 million. Before the COVID-19 pandemic, the EPF reported 78.9% of partial withdrawals as opposed to 21.1% of full withdrawals in 2019 (EPF, 2019).

Many countries rely on retirement savings to ensure stable consumption that meets individual needs in retirement. The United States is known for high liquidity in its defined contribution pension system compared to other developed countries (Beshears et al., 2015). Various studies have investigated early access to retirement savings in the US, mainly through 401(k) plans. Approximately 40% of withdrawals are linked to adverse events such as job loss, poor health, home purchases, and college expenses (Butrica et al., 2010). Research shows that demographics (Beshears et al., 2011) and liquidity constraints (Lu et al., 2017) significantly influence withdrawal decisions. In Singapore, a study by Agarwal et al. (2020) found that individuals tend to withdraw a considerable portion of their retirement savings upon reaching 55, primarily to settle credit card debts. Notably, several ASEAN countries, like Thailand and Indonesia, permit early withdrawal during job termination (Yusuf et al., 2014).

As mentioned earlier, the objective of a provident fund is to help members prepare for retirement comfortably. However, most provident funds allow partial or pre-retirement withdrawals, contributing to reduced savings among members (Khan et al., 2017; Yusuf et al., 2014). This practice raises concerns about whether savings will be adequate for retirement and if members will have enough time to replenish their

savings post-withdrawal. With the projected increase in life expectancy at the retirement age of 60 to at least 18 to 21 years, members have a limited window to enhance their savings. They need an additional 10 to 5 years to improve their savings before turning 60 if they made partial or full withdrawals at ages 50 and 55, respectively. Numerous studies have addressed retirement savings withdrawal, particularly pre-retirement withdrawal (Hassan et al., 2018; Koutronas & Ismail, 2016; Mohd Jaafar et al., 2021; Vaghefi et al., 2017; Yusuf et al., 2014). These studies consistently recommend a thorough review of pre-retirement withdrawal policies and a reform of the application process to minimize the impact of such withdrawals and ensure retirement savings adequacy.

Theoretical Background and Framework

Examining the pension system through the lens of social security policy reveals the broader implications for financial security, income inequality, and the role of government in ensuring equitable retirement outcomes. The study draws from theoretical frameworks based on the Intertemporal Choice Theory (Fisher, 1930), which examines how individuals make decisions that involve trade-offs between present and future consumption. The theory assumes that individuals allocate financial resources rationally over time based on expected future income and interest rates. The Life-Cycle Hypothesis (Modigliani, 1986) extends this framework by proposing that individuals plan savings and consumption to maintain a stable living standard by saving during working years and spending post-retirement to ensure financial security. While these classical models assume rational and progressive decision-making, empirical evidence suggests that individuals often deviate from such action due to behavioural biases and cognitive limitations (Benartzi & Thaler, 2013; Lee & Hanna, 2020). Expanding on this perspective, Laibson (1997) introduced and modelled the concept of hyperbolic discounting, then later contextualised by Frederick et al. (2002) in the broader behavioural approach to intertemporal choice, emphasising the role of present bias and hyperbolic discounting.

Unlike the traditional exponential discounting model, hyperbolic discounting suggests that people disproportionately favour immediate rewards over future benefits. This tendency leads to suboptimal financial decisions, such as premature withdrawals from retirement savings, even when delaying withdrawal would result in greater long-term financial security (Nabeshima et al., 2025). The concept is particularly relevant to the defined contribution (DC) pension system because retirement planning requires individuals to make long-term financial commitments that may conflict with their immediate financial needs. In the context of DC pension, it implies that many individuals either delay enrolling in pension plans, contribute less than optimal amounts, or withdraw funds prematurely. Individuals do not save enough for retirement because

they underestimate future needs, prioritise immediate consumption, or lack financial literacy (Benartzi & Thaler, 2007). Furthermore, unexpected life events such as job loss, health issues, or economic downturns can disrupt long-term savings plans, further challenging the assumption of rational financial behaviour. A study by Innocenti et al. (2024) suggests that individuals facing financial difficulties are less likely to prioritise retirement well-being or invest in supplementary pension funds.

A study by Awang et al. (2020) among EPF members highlights the implications of early withdrawals on long-term savings, emphasising the need for improved financial literacy. While financial planning is crucial, understanding the underlying patterns of withdrawal behaviour and the influence of demographic factors is essential. This paper contextualises the behavioural economics framework to examine the pre-retirement withdrawal pattern. The focus is specifically on members aged 55 to 59, representing a critical transition period leading to retirement, during which individuals must navigate a financial trade-off between preserving savings for post-retirement security and withdrawing funds for present needs. This age group is in a unique position as they approach retirement, highlighting the urgency of financial planning. The study investigates the impact of pre-retirement withdrawal on savings adequacy by examining withdrawal patterns and motivations, and also evaluating the likelihood of individuals making pre-retirement withdrawals based on demographic profiles, including gender, ethnicity, education level, and employment status. These assessments can help identify financial vulnerabilities in the pre-retirement phase, such as the adequacy of savings and the behavioural rationale behind withdrawal decisions. The findings offer valuable insights for policymakers on necessary adjustments to contribution structures, withdrawal regulation, and targeted financial literacy programs. Ultimately, the study aims to empower well-informed financial decisions and promote financial security for future retirees.

The structure of the paper is as follows: Section 2 describes the method used, Section 3 reports the results, and Section 4 discusses the main findings. The last section includes a conclusion, implications of the study, limitations, and suggestions for further research.

METHODS

Data Source

The study involved a sample of 771 EPF members, selected randomly through face-to-face interviews at 19 EPF branches nationwide from December 2015 to March 2016. The sample included individuals aged 55 and above. The Social Wellbeing Research Centre (SWRC) at the University of Malaya supervised and conducted the data collection process (Awang et al., 2020). The study focused on pre-retirement withdrawal cases, which are when EPF members withdraw funds before reaching the retirement age of 60. The sample concentrated on individuals aged 55 to 59,

a period when many members opt for pre-retirement withdrawals. All withdrawals, whether partial or full, made before age 60 are categorised as pre-retirement withdrawals. Hence, the analysis involved a subset of 473 cases from the total 771 sample.

Methodology

The analysis commences with descriptive statistics to explore and describe the data for preliminary analysis and the presentation of results in frequency and percentage. These include examining savings, withdrawals, and the balance of EPF funds. Furthermore, cross-tabulations investigate the relationship between withdrawal categories and amounts with selected demographic variables. Meanwhile, logistic regression analysis assesses the measurement properties and tests the proposed relationship model between dependent and independent variables. The model analysis aims to test the hypothesis on the relationship between the likelihood of pre-retirement withdrawal decisions and demographic profiles. Based on previous studies, demographic profiles such as gender, ethnicity, education level, and working status are believed to influence financial decision-making practices, particularly in the context of retirement savings (Beshears et al., 2011; Butrica et al., 2010). The proposed model considers withdrawal categories as the dependent variable with a dichotomous response, while categorical demographic profiles are the independent variable treated using dummy coding. A summary description of the variables is in Table 1. The model is constructed in the following equation form:

$$ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

The model describes the relationship between the likelihood of withdrawal (p) and a linear combination of predictor variables (X). Here, α is the constant intercept coefficient, while β represents the regression coefficient for each X. The significance of the predictor variables in the model can be determined using the Wald and likelihood ratio tests. The Hosmer-Lemeshow test evaluates the goodness of fit of the model by comparing observed and predicted outcomes (Hosmer Jr et al., 2013). This analysis does not necessitate the assumption of normal distribution for the

Table 1
Description of variables for logistic regression model

Variable	Coding
Dependent (Y)	
Withdrawal	0 = No 1= Yes
Independent (X)	
Gender (X_1)	0 = Male (Reference) 1 = Female
Ethnicity (X_2)	0 = Malay (Reference) 1 = Chinese 2 = Indian 3 = Others
Education Level (X_3)	0 = None/Primary (Reference) 1 = Secondary 2 = Form 6 / Diploma 3 = Degree and above
Working Status (X_4)	0 = Not working (Reference) 1 = Still working

variables (Harrell, 2015). The data analysis is conducted using SPSS version 25.

RESULTS

Demographic Profile

Table 2 shows a total of 473 respondents selected from the survey data, focusing on those aged 55 to 59 (Mean = 56.7), with the majority being male (64.9%) and female (35.1%). The ethnic profile shows Malays (55.4%) with the highest participation, followed by Chinese (29.2%), Indian (13.5%), and others (Kadazan & Iban) (1.9%). Furthermore, the majority of them completed secondary education (56.7%), while 15.9% held a diploma and 14.2% held a degree. Only 13.3% reported having no primary education. Additionally, more than half (67.4%) were still employed at the time.

Table 2
Demographic profile of respondents (n = 473)

Demographic variable	f	%
Gender		
Male	307	64.9
Female	166	35.1
Ethnicity		
Malay	262	55.4
Chinese	138	29.2
Indian	64	13.5
Others	9	1.9
Education Level		
None / Primary	63	13.3
Secondary	268	56.7
Form 6 / Diploma	75	15.9
Degree and above	67	14.2
Working Status		
Not working	154	32.6
Still working	319	67.4

Savings, Withdrawal, and Balance of EPF Fund

According to the 1991 EPF Act, members have two withdrawal options: partial and full. Although partial withdrawals can be made for specific purposes before the age of 55, full withdrawals can start at 55 years, as long as there is a remaining balance.

Based on the data in Table 3, a higher percentage of members opted for partial withdrawals (42.1%) compared to full withdrawals (30.0%). The majority of members have savings of less than RM25,000 (26.2%), while only a quarter have RM200,000 or more saved up (25.2%). The distribution of withdrawal amounts follows a similar pattern to savings, with most withdrawals happening below RM25,000 (25.6%) and a small percentage above RM200,000 (10.1%). Furthermore, a large portion of members (27.9%) chose not to withdraw any funds. As a result of withdrawing funds before retirement, a substantial number of members (22.2%) ended up with a zero balance, while the majority (26.6%) had less than RM25,000 in savings by the time they turned 60.

Withdrawal Category by Demographic

The analysis of withdrawal categories based on selected demographic variables such as gender, ethnicity, education level, and working status reveals various trends. The results in Table 4 show females have a higher percentage of full withdrawals (31.9%) compared to males (29.0%), while the reverse is true for partial withdrawals. The prevalence of full withdrawals is

Table 3
Savings, withdrawal, and balance of EPF fund

Amount (RM)	Savings		Withdrawal		Balance	
	f	%	f	%	f	%
Zero Balance	NA	NA	NA	NA	105	22.2
< 25,000	124	26.2	121	25.6	126	26.6
25,000 – 49,999	52	11.0	52	11.0	45	9.5
50,000 – 99,999	68	14.4	54	11.4	56	11.8
100,000 – 199,999	85	18.0	52	11.0	59	12.5
≥ 200,000	119	25.2	48	10.1	63	13.3
No response	25	5.3	14	3.0	19	4.0
No withdrawal	NA	NA	132	27.9	NA	NA
Total	**473**	**100.0**	**473**	**100.0**	**473**	**100.0**
Withdrawal Category			**f**	**%**		
Full withdrawal			142	30.0		
Partial withdrawal			199	42.1		
No withdrawal			132	27.9		
Total			**473**	**100.0**		

Table 4
Withdrawal category by demographic

Demographic variable	Withdrawal category | f (%)		
	Partial	Full	No
Gender			
Male	135 (44.0)	89 (29.0)	83 (27.0)
Female	64 (38.6)	53 (31.9)	49 (29.5)
Ethnicity			
Malay	103 (39.3)	106 (40.5)	53 (20.2)
Chinese	73 (52.9)	17 (12.3)	48 (34.8)
Indian	20 (31.3)	14 (21.9)	30 (46.9)
Others	3 (33.3)	5 (55.6)	1 (11.1)
Education Level			
None / Primary	21 (33.3)	11 (17.5)	31 (49.2)
Secondary	114 (42.5)	86 (32.1)	68 (25.4)
Form 6 / Diploma	32 (42.7)	26 (34.7)	17 (22.7)
Degree and above	32 (47.8)	19 (28.4)	16 (23.9)
Working Status			
Not working	51 (33.1)	60 (39.0)	43 (27.9)
Still working	148 (46.4)	82 (25.7)	89 (27.9)

highest among other ethnic groups (55.6%), followed by Malay (40.5%) and Indian (21.9%). In contrast, Chinese individuals have the highest proportion of partial withdrawals (52.9%), followed by Malays (39.3%). Moreover, individuals with a diploma (34.7%) and a degree (47.8%) show the highest rates for full and partial withdrawals. Finally, non-working members exhibit a higher rate of full withdrawals (39.0%), while working members show a higher rate of partial withdrawals (46.4%).

Withdrawal Amounts by Demographic

Table 5 shows the analysis for the distribution of withdrawal amounts across different demographic variables using chi-square test statistics. There is a significant association between education level and withdrawal amount. Individuals with primary education had a higher proportion (80.6%) of withdrawing less than RM25,000, whereas those with a degree showed a higher proportion (34%) for making withdrawals of at least RM200,000. On the other hand, there is no significant association between withdrawal amounts across gender, ethnicity, and working status.

Utilisation of Withdrawal

In total, 341 respondents made 459 withdrawals related to seven forms of utilisation, as presented in Table 6. The responses indicate that the majority of

Table 5
Withdrawal amount by demographic

Demographic variable	Withdrawal amount | f (%)					Chi-Square Test
	<RM25K	RM25K -RM49K	RM50K -RM99K	RM100K - RM199K	≥ RM200K	
Gender						7.85
Male	72 (33.6)	30 (14.0)	42 (19.6)	36 (16.8)	34 (15.9)	
Female	49 (43.4)	22 (19.5)	12 (10.6)	16 (14.2)	14 (12.4)	
Ethnicity						12.89
Malay	66 (33.2)	34 (17.1)	32 (16.1)	34 (17.1)	33 (16.6)	
Chinese	37 (42.0)	10 (11.4)	18 (20.5)	13 (14.8)	10 (11.4)	
Indian	15 (46.9)	7 (21.9)	4 (12.5)	4 (12.5)	2 (6.3)	
Other	3 (37.5)	1 (12.5)	0 (0.0)	1 (12.5)	3 (37.5)	
Education Level						55.81*
None / Primary	25 (80.6)	3 (9.7)	1 (3.2)	2 (6.5)	0 (0.0)	
Secondary	73 (38.2)	28 (14.7)	40 (20.9)	30 (15.7)	20 (10.5)	
Form 6 / Diploma	14 (25.5)	11 (20.0)	9 (16.4)	10 (18.2)	11 (20.0)	
Degree and above	9 (18.0)	10 (20.0)	4 (8.0)	10 (20.0)	17 (34.0)	
Working Status						1.14
Not working	42 (38.9)	15 (13.9)	16 (14.8)	19 (17.6)	16 (14.8)	
Still working	79 (36.1)	37 (16.9)	38 (17.4)	33 (15.1)	32 (14.6)	

**Note*: Significant at $\alpha = 0.05$

members use the money to purchase a property or renovate a house (26.6%). Additionally, 20.7% utilise it for children's education, while 16.6% use it for various related expenses such as children's weddings, travel, and daily living costs. Furthermore, the utilisation also includes repaying loans for a house or car (13.7%), investing in a unit trust (10.7%), and performing hajj or umrah (9.4%). On the other hand, only a small portion of respondents use the funds for medical expenses (2.4%).

Table 6
Utilisation of withdrawal

Code	Utilisation	f	%
U1	Buy a property or renovate a house	122	26.6
U2	Settle a loan for a house or a car	63	13.7
U3	Children's education	95	20.7
U4	Medical expenses	11	2.4
U5	Invest in a unit trust	49	10.7
U6	Hajj or umrah	43	9.4
U7	Other	76	16.6
Total		**459**	**100.0**

Evaluation of Logistic Regression Model

Assessing The Likelihood of Making a Pre-Retirement Withdrawal

According to the model results in Table 7, the logistic regression model predicts the likelihood of withdrawal using predictors such as gender, ethnicity, education level, and working status, with all predictors being dummy-coded. The log likelihood that individuals would engage in pre-retirement withdrawals is significantly related to ethnicity and education level. In terms of the exponential beta (Exp(β)) value, individuals of Chinese and Indian descent are less likely to withdraw compared to Malay individuals, with 0.5 times and 0.3 times lower probability, respectively. However, the likelihood of other ethnicities is not significantly different from that of Malay individuals. Additionally, education level indicates that the higher the level, the higher the likelihood of withdrawal compared to the reference indicator. For instance, individuals with secondary education have a 2.7 times greater likelihood, those with a form 6/diploma have a 3.1 times greater likelihood, and those with a degree have a 3.0 times greater likelihood compared to those with no education or only primary education.

Model Goodness of Fit Test and Validation

The overall test (Table 7) of the model fit was assessed by the Omnibus test result ($\chi^2(8) = 37.183$; $p < 0.05$), indicating that the model coefficient is statistically significant. Conversely, the Hosmer-Lemeshow ($\chi^2(8) = 6.859$; $p > 0.05$) suggests a good fit between the data and the model (Hosmer Jr et al., 2013). Two additional descriptive measures of pseudo R^2 value using Cox's (1989) R^2 and Nagelkerke's (1991) R^2 indicate that the explained variation in the dependent variable for this model ranges from 7.6% to 10.9%. The classification result in Table 8 shows the validity of predicted probabilities, indicating that the prediction success for the cases involved in developing the model

Table 7
Logistic regression analysis of likelihood for pre-retirement withdrawal

Independent variables	β	S.E.	Wald	df	Sig.	Exp(β)	95% C.I. for Exp(β)
Constant	0.601	0.336	3.202	1	0.074	1.825	
Male							Reference
Female	-0.184	0.230	0.638	1	0.425	0.832	0.530 – 1.307
Malay							Reference
Chinese	-0.756	0.242	9.726	1	0.002	0.469	0.292 – 0.755
Indian	-1.239	0.301	16.967	1	0.000	0.290	0.161 – 0.522
Others	0.542	1.077	0.254	1	0.614	1.720	0.208 – 14.191
None / Primary							Reference
Secondary	0.995	0.299	11.115	1	0.001	2.706	1.507 – 4.858
Form 6 / Diploma	1.128	0.385	8.582	1	0.003	3.088	1.452 – 6.567
Degree and above	1.095	0.394	7.736	1	0.005	2.988	1.382 – 6.462
Not working							Reference
Still working	-0.048	0.235	0.041	1	0.839	0.954	0.602 – 1.510
Test			χ^2	df	Sig.	R^2	
Omnibus Test of Model Coefficients			37.183	8	0.000		
Hosmer and Lemeshow Test			6.859	8	0.552		
Cox R^2						0.076	
Nagelkerke R^2						0.109	

Table 8
Classification table for logistic regression model

Observed	Predicted		% Correct
	No	Yes	
No	18	114	13.6
Yes	14	327	95.9
Overall %			72.9

is relatively high. The model correctly classifies an overall prediction success rate of 72.9%. It makes a correct prediction rate of 95.9% for those making withdrawals, compared to 13.6% for those not.

DISCUSSION

The study investigated savings and pre-retirement withdrawals among individuals aged 55 to 59. The data analysis uses the EPF scheme to represent retirement savings scenarios, which includes examining savings, pre-retirement withdrawal amounts, and the probability of members making withdrawals based on demographic characteristics. The findings revealed that a large proportion of members had savings below RM100,000 at age 55, falling short of the recommended minimum retirement savings threshold of RM240,000 suggested by EPF for basic retirement needs (EPF, 2024). This raises concerns about their ability to maintain living standards after retirement. While many opted for partial withdrawals, members with lower savings tended to withdraw proportionally more than those with higher savings. The shortfall may reflect behavioural patterns consistent

with present bias in the Intertemporal Choice Theory, which explains a tendency for individuals to place greater weight on immediate outcomes over future consequences (Fisher, 1930; Frederick et al., 2002). This pattern aligns with Butrica et al. (2010), who found that individuals with smaller balances are more likely to withdraw savings than those with larger balances. Research suggests that individuals with inadequate savings are at risk of falling into old-age poverty after retirement, particularly when they deplete a substantial portion of their savings through pre-retirement withdrawal (Fuentes et al., 2025). This study found approximately 40% of members to be in this potentially vulnerable group. Furthermore, data showed a higher rate of full withdrawals among female members, a finding that may have long-term negative consequences since women generally have longer life expectancies, lower incomes, and earlier retirement. These factors compound financial vulnerability in later life (Mitchell & Lusardi, 2015). Although the EPF permits pre-retirement withdrawals, the findings underscore the importance of financial planning and raise the need for more targeted guidance, especially for individuals at risk of underfunding their retirement.

The paper also examines the utilisation of savings withdrawals. Many members use the money to buy a property or renovate a house. This trend reflects a common preference for asset accumulation as individuals approach retirement, though such decisions can significantly reduce available retirement savings. A similar pattern is observed in the United States, where approximately 9.5% of individuals have used retirement savings for house purchases (Purcell & Topoleski, 2009). Through the lens of Intertemporal Choice Theory, this behaviour can be partly attributed to hyperbolic discounting, where individuals prefer immediate consumption needs or desires over long-term savings goals (Laibson, 1997; Frederick et al., 2002). However, using retirement savings for property acquisition carries certain risks. For instance, in the event of defaulting on housing-related loans, they may suffer losses that impact both assets and retirement savings (Butrica et al., 2010). Despite these risks, some scholars argue that property can serve as an effective hedge against inflation, mainly because real estate tends to appreciate over time (Narayanan, 2002). Nevertheless, the benefits of homeownership in retirement depend on how the asset is managed and utilised. While owning a house may offer stability and potentially lower living costs than renting, it may not generate immediate financial return unless used as an income-generating asset (Hassan et al., 2022). In many cases, asset value appreciation may only benefit future heirs rather than providing liquidity or income for retirees during their lifetime. Consequently, purchasing property at or near retirement age may not yield sufficient returns to justify large withdrawals from retirement savings, especially in the short term. Moreover, real estate investments are subject to market volatility, illiquidity, and maintenance costs, all of which can pose additional financial burdens during retirement (Ervin &

Smolira, 2023). These findings underscore the importance of careful financial planning when using retirement savings for property-related investments.

The assessment highlights that ethnicity and education level significantly influence pre-retirement withdrawal behaviour. Malays exhibit a higher tendency to withdraw compared to the Chinese and Indian communities, which aligns with findings by Agarwal et al. (2020) in Singapore. Prior studies suggest that certain demographic groups may be more vulnerable to income insecurity. Diverse ethnicities often possess varying demographic characteristics, such as income levels, educational attainment, and employment opportunities. These aspects can shape the ability to save for retirement and the likelihood of reliance on pre-retirement withdrawals (Abdullah Yusof, 2019; Mahdzan et al., 2020). The pattern suggests a potential deviation from the Life-Cycle Hypothesis, which generally expects individuals to smooth consumption by saving during working years and withdrawing the savings in retirement (Modigliani, 1986). Cultural preferences may also play a role; for instance, some ethnic groups may prioritise intergenerational financial support, prompting withdrawals to assist younger family members or elderly parents (Awang et al., 2024). Notably, the findings reveal that individuals with higher education levels are more likely to make pre-retirement withdrawals. One possible explanation is that higher education attainment often correlates with increased income and access to credit, which may lead to greater financial obligations. Retirement savings may, therefore, be tapped for managing debt related to housing, education, healthcare, and lifestyle costs (Krishnaveni et al., 2024; Loke et al., 2022). Pre-retirement withdrawals may reflect financial strain or competing consumption needs that could disrupt the ideal savings trajectory. Nonetheless, further empirical study is imperative to elucidate the underlying mechanism of this association comprehensively.

CONCLUSION

The study empirically supports the Intertemporal Choice Theory by demonstrating how present bias and hyperbolic discounting drive pre-retirement withdrawals, particularly among individuals with smaller savings. It also challenges and refines the Life-Cycle Hypothesis, showing that not all individuals engage in rational long-term financial planning, and factors such as ethnicity and education level play a crucial role in withdrawal decision-making. These insights contribute to a more realistic and policy-relevant on retirement savings behaviour, reinforcing the need for interventions that mitigate behavioural biases and enhance financial planning literacy among at-risk groups.

Implications of the Study

The study makes a significant contribution to the limited research investigating retirement savings and pre-retirement withdrawal trends among the pre-retirement group of individuals in Malaysia. It offers valuable insights into understanding the

motivation and determinants influencing these withdrawals. The findings provide empirical validation and subtle extensions to the theoretical frameworks of Intertemporal Choice Theory and Life-Cycle Hypothesis (Fisher, 1930; Frederick et al., 2002; Laibson, 1997; Modigliani, 1986). The observed savings adequacy, withdrawal patterns, and demographic influences offer insights into the ways individuals' actions deviate from classical economic assumptions due to behavioural biases and demographic factors. Behavioural economics recognises that financial decision-making is not purely rational but shaped by present bias preferences. Individuals approaching retirement, particularly those aged 55 to 59, often face financial trade-offs between preserving savings for future security and accessing funds to meet present needs. This stage of life represents a crucial period where behavioural tendencies can significantly impact financial choices.

The findings that individuals opt for partial withdrawals rather than preserving the savings thus reinforce the concept of present bias as a core aspect of Intertemporal Choice Theory. Additionally, individuals with smaller savings tend to make the largest withdrawals aligns with hyperbolic discounting, which suggests that individuals prefer immediate financial satisfaction over long-term financial security. Individuals prioritise present consumption instead of preserving the limited savings for post-retirement use, particularly for property purchases and house renovations. This supports the idea that people favour short-term tangible benefits over uncertain future security. While rational economic models predict that individuals should accumulate wealth to sustain retirement, present-bias decision-making leads to discounting future needs disproportionately. Such behaviour is particularly problematic for those with modest or low savings, as withdrawing a significant portion earlier can jeopardise financial security in later years.

The Life-Cycle Hypothesis assumes that individuals make optimal intertemporal consumption choices, smoothing income over a lifetime to maintain a stable living standard. However, the findings indicate that for many individuals, particularly those from specific ethnic backgrounds and higher education levels, their withdrawal decisions are not fully aligned with the assumption. They withdraw before retirement instead of systematically accumulating savings for post-retirement consumption, challenging the assumption of rational and forward-looking behaviour. The role of ethnicity and education level as predictors of withdrawal suggests that financial decision-making is not solely based on individual optimisation but is also shaped by demographic and socioeconomic factors. Ethnic variations may reflect differences in access to economic resources, cultural attitudes towards savings, or social support structures. Similarly, higher education levels may be associated with higher financial commitment, which can impair long-term financial decision-making and increase the likelihood of early withdrawals.

By integrating these findings into the Intertemporal Choice Theory and the Life-Cycle Hypothesis, the study highlights key areas where real-world behaviour diverges from theoretical assumptions. The results suggest that policies aimed at reducing present bias, such as automatic savings mechanisms, withdrawal restrictions for smaller savings, or financial literacy programs to help individuals make rational and better long-term financial decisions. Additionally, recognising the role of ethnicity and education in shaping financial planning behaviour can help policymakers design more tailored interventions that address structural barriers towards broader socioeconomic and cultural influences on effective financial planning.

Limitations and Recommendations for Future Research

While the study offers valuable insights into pre-retirement savings and withdrawal patterns, it is crucial to acknowledge its limitations. Firstly, the focus on a specific age group in Malaysia hinders the applicability of the findings. The data collected only represents members visiting and transacting at the EPF counter during a particular timeframe, which may not be representative of the broader population approaching retirement. Secondly, the use of retrospective questions in the survey that rely on respondents' memories can introduce biases into the results. Respondents may struggle to recall specific savings amounts, and some may be hesitant to disclose accurate financial information. Future research could explore alternative data collection approaches, such as using administrative data from EPF records, to address these potential limitations.

Future research could expand on this groundwork by exploring the decision-making process behind pre-retirement withdrawals. Qualitative methods like interviews and focus groups could illuminate the motivations, concerns, and strategies that influence these decisions, particularly concerning present bias behaviour for individuals nearing retirement. Filling these knowledge gaps can offer comprehensive guidance for individuals and policymakers navigating the challenges of retirement planning and financial management.

ACKNOWLEDGEMENTS

We thank the Social Wellbeing Research Centre (SWRC) for providing the data. The work is jointly funded by SWRC and the Population Studies Unit, Faculty of Business and Economics, University of Malaya, under the program Enhancing Demographic Research and Training for Development Planning; Research Grant Project No. UM.E/SSRC/628/3/2015.

REFERENCES

Abd Samad, S., & Mansor, N. (2013). Population ageing and social protection in Malaysia. *Malaysian Journal of Economic Studies*, *50*(2), 139-156.

Abdullah Yusof, S. (2019). Ethnic disparity in financial fragility in Malaysia. *International Journal of Social Economics*, *46*(1), 31–46. https://doi.org/10.1108/IJSE-12-2017-0585

Agarwal, S., Pan, J., & Qian, W. (2020). Age of decision: Pension savings withdrawal and consumption and debt response. *Management Science*, *66*(1), 43-69. https://doi.org/10.1287/mnsc.2018.3148

Awang, H., Abd Ghani, M. A. A., & Mansor, N. (2024). Examining intergenerational transfers in Malaysia. *International Journal of Population Studies*, *11*(4), 100-118. https://doi.org/10.36922/ijps.1326

Awang, H., Rashid, N. F. A., Peng, T. N., & Mansor, N. (2020). Factors associated with savings and withdrawals among employees provident fund members. *Pertanika Journal of Social Science and Humanities*, *28*(3), 2239-2263.

Bateman, H., Dobrescu, L. I., Liu, J., Newell, B. R., & Thorp, S. (2023). Determinants of early-access to retirement savings: Lessons from the COVID-19 pandemic. *The Journal of the Economics of Ageing*, *24*, Article 100441. https://doi.org/10.1016/j.jeoa.2023.100441

Benartzi, S., & Thaler, R. (2007). Heuristics and biases in retirement savings behavior. *Journal of Economic Perspectives*, *21*(3), 81–104. https://doi.org/10.1257/jep.21.3.81

Benartzi, S., & Thaler, R. H. (2013). Behavioral economics and the retirement savings crisis. *Science*, *339*(6124), 1152–1153. https://doi.org/10.1126/science.1231320

Beshears, J., Choi, J. J., Hurwitz, J., Laibson, D., & Madrian, B. C. (2015). Liquidity in retirement savings systems: An international comparison. *American Economic Review*, *105*(5), 420-425. https://doi.org/10.1257/aer.p20151004

Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2011). *The availability and utilization of 401 (k) loans (No. w17118)*. National Bureau of Economic Research. https://doi.org/10.3386/w17118

Butrica, B. A., Zedlewski, S. R., & Issa, P. (2010). *Understanding early withdrawals from retirement accounts*. (Discussion Paper 10 – 02). The Urban Institute. https://www.urban.org/sites/default/files/publication/28706/412107-Understanding-Early-Withdrawals-from-Retirement-Accounts.PDF

Chang, N. W., & Hsu, Y. H. (2017). Social security reform in ageing economy. *International Journal of Humanities and Social Sciences (IJHSS)*, *6*(3), 9-28.

Cox, D. R. (1989). *Analysis of binary data* (2nd ed.). Routledge. https://doi.org/10.1201/9781315137391

Darmaraj, S. R., & Narayanan, S. (2019). The long-term financial sustainability of the civil service pension scheme in Malaysia. *Asian Economic Papers*, *18*(1), 155-178. https://doi.org/10.1162/asep_a_00670

Department of Statistics Malaysia. (2016). *Population projection (revised) Malaysia 2010-2040*. https://www.dosm.gov.my/portal-main/release-content/population-projection-revised-malaysia-2010-2040

Department of Statistics Malaysia. (2021). *Current population estimates Malaysia 2021.* https://www.dosm.gov.my/portal-main/release-content/current-population-estimates-malaysia-2021

Department of Statistics Malaysia. (2023). *Abridged life tables Malaysia 2021-2023.* https://www.dosm.gov.my/portal-main/release-content/abridged-life-tables-malaysia--

Department of Statistics Malaysia. (2024a). *Current population estimates Malaysia 2024.* https://www.dosm.gov.my/portal-main/release-content/current-population-estimates-2024

Department of Statistics Malaysia. (2024b). *OpenDOSM: TFR and ASFR*. https://open.dosm. gov.my/data-catalogue/fertility?age_group=tfr&visual=fertility_rate

Employees Provident Fund (2019). *Annual report 2019*. https://www.kwsp.gov.my/

documents/20126/d516b96f-064b-dbda-6bc4-370e8bd018f1

Employees Provident Fund (2024). *EPF releases belanjawanku 2024/2025 and retirement income adequacy framework*. https://www.kwsp.gov.my/en/w/epf-releases-belanjawanku-2024/2025-and-retirement-income-adequacy-framework

Ervin, D. M., & Smolira, J. C. (2023). REITs and diversification in a retirement withdrawal portfolio. *Journal of Real Estate Portfolio Management*, *29*(2), 140–150. https://doi.org/10.1080/10835547.2023.2221631

Fisher, I. (1930). *The theory of interest: As determined by impatience to spend income and opportunity to invest it*. Macmillan.

Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002). Time discounting and time preference: A critical review. *Journal of Economic Literature*, *40*(2), 351–401. https://doi.org/10.1257/jel.40.2.351

Fuentes, O. M., Mitchell, O. S., & Villatoro, F. (2025). Early pension withdrawals in Chile during the pandemic. *Journal of Pension Economics and Finance*, *24*(1), 69-94. https://doi.org/10.1017/S1474747223000112

Hajkowicz, S. A., Cook, H., & Littleboy, A. (2012). *Our future world: Global megatrends that will change the way we live. The 2012 Revision*. CISRO.

Harrell, F. E. (2015). *Regression modeling strategies: With applications to linear models, logistic ordinal regression, and survival analysis* (2nd Ed.). Springer. https://doi.org/10.1007/978-3-319-19425-7

Hassan, M. M., Ahmad, N., & Hashim, A. H. (2022). Housing property investment Opportunity in Malaysia: Things that new investor should know. *International Journal of Academic Research in Business and Social Sciences*, *12*(1), 924–941. https://doi.org/10.6007/IJARBSS/v12-i1/12003

Hassan, S., Othman, Z., & Hashim, M. S. (2018). Savings for retirement in the Employees Provident Fund (EPF): A profile of contributors and their views towards the EPF Scheme. *Current Perspective to Economics and Management*, *2*, 60-70. https://doi.org/10.9734/JEMT/2018/41931

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (3rd ed. Vol. 398). John Wiley & Sons. https://doi.org/10.1002/9781118548387

Ibrahim, R. I., & Nordin, N. M. (2020). Analysis of mortality improvement on the pension cost due to ageing population. *Malaysian Journal of Industrial and Applied Mathematics*, *36*(3), 209–216. https://doi.org/10.11113/matematika.v36.n3.1273

Innocenti, S., Clark, G. L., & McGill, S. (2024). Experience of financial challenges, retirement concerns, and planning: Evidence from representative samples of workers in 16 countries. *Journal of Pension Economics and Finance*, *23*(2), 183–201. https://doi.org/10.1017/S1474747223000082

International Labour Organization. (2001). *Social security: Issues, challenges, and prospects* [Conference Report]. 89th Session of International Labour Conference, Geneva.

International Labour Organization. (2024, September 24). *World social protection report 2024-26: In figures*. ILO. https://www.ilo.org/publications/flagship-reports/world-social-protection-report-2024-26-universal-social-protection-climate

Jaafar, R., Daly, K. J., & Mishra, A. V. (2019). Challenges facing Malaysia pension scheme in an era of ageing population. *Finance Research Letters*, *30*, 334-340. https://doi.org/10.1016/j.frl.2018.10.017

Khan, S., Tan, O., Khan, N., & Vergara, R. G. (2017). Strengthening social safety Net for older people in Malaysia. *Journal of Southeast Asian Research*, *2017*, 1-10. https://doi.org/10.5171/2017.912568

Koutronas, E. & Ismail, N. A. (2016). *Savings adequacy assessment: The case of Malaysian Employees Provident Fund members* (Working Paper No. 2016-2), Social Wellbeing Research Centre, University of Malaya. https://doi.org/10.2139/ssrn.2817700

Krishnaveni, V., Jusoh, Z. M., Othman, M. A., & Zainudin, N. (2024). Financial security in retirement: The importance of savings vs earnings in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *14*(10), 1671–1683. https://doi.org/10.6007/IJARBSS/v14-i10/23273

Laibson, D. (1997). Golden eggs and hyperbolic discounting. *Quarterly Journal of Economics*, *112*(2), 443-477. https://doi.org/10.1162/003355397555253

Lee, S. T., & Hanna, S. D. (2020). Financial knowledge overconfidence and early withdrawals from retirement accounts. *Financial Planning Review*, *3*(2), Article e1091. https://doi.org/10.1002/cfp2.1091

Loke, Y. J., Chin, P. N., & Hamid, F. S. (2022). Financial literacy in Malaysia, 2015–2018. *Malaysian Journal of Economic Studies*, *59*(2), 171-197. https://doi.org/10.22452/MJES.vol59no2.1

Lu, T., Mitchell, O. S., Utkus, S. P., & Young, J. A. (2017). Borrowing from the future? 401 (K) plan loans and loan defaults. *National Tax Journal*, *70*(1), 77-109. https://doi.org/10.17310/ntj.2017.1.03

Mahdzan, N. S., Zainudin, R., Abd Sukor, M. E., Zainir, F., & Wan Ahmad, W. M. (2020). An exploratory study of financial well-being among Malaysian households. *Journal of Asian Business and Economic Studies*, *27*(3), 285-302. https://doi.org/10.1108/JABES-12-2019-0120

Mitchell, O. S., & Lusardi, A. (2015). Financial literacy and economic outcomes: Evidence and policy implications. *The Journal of Retirement*, *3*(1), 107-114. https://doi.org/10.3905/jor.2015.3.1.107

Modigliani, F. (1986). Life cycle, individual thrift, and the Wealth of Nations. *The American Economic Review*, *76*(3), 297-313. https://doi.org/10.1126/science.234.4777.704

Mohd Jaafar, N. I., Awang, H., Mansor, N., Jani, R., & Abd Rahman, N. H. (2021). Examining withdrawal in Employee Provident Fund and its impact on savings. *Ageing International*, *46*, 70-82. https://doi.org/10.1007/s12126-020-09369-8

Nabeshima, H., Lal, S., Izumi, H., Himeno, Y., Khan, M. S. R., & Kadoya, Y. (2025). The impact of hyperbolic discounting on asset accumulation for later life: A study of active investors aged 65 years and over in Japan. *Risks*, *13*(1), Article 8. https://doi.org/10.3390/risks13010008

Nagelkerke, N. J. (1991). A note on a general definition of the coefficient of determination. *Biometrika*, *78*(3), 691-692. https://doi.org/10.1093/biomet/78.3.691

Narayanan, S. (2002). Old age support for private sector employees in Malaysia: Can the employees provident fund do better? *Hitotsubashi Journal of Economics*, *43*(2), 119-134.

OECD. (2020, December 7). *OECD pensions outlook 2020: Retirement savings in the time of COVID-19*. OECD Publishing. https://www.oecd.org/en/publications/oecd-pensions-outlook-2020_67ede41b-en.html

Purcell, P., & Topoleski, J. J. (2009). *401(k) Plans and retirement savings: Issues for congress*. Congressional Research Service. https://www.everycrsreport.com/files/20090714_R40707_a2e400d280b110afe57a4c983319e9f338ca2e03.pdf

Taher, M. A., Jamaluddin, S. Z., Mohd Yusoff, J. Z., Tahir, Z., & Thambapillay, S. (2020). Ensuring the well-being of the elderly: Revisiting the role and adequacy of social protection

schemes in Malaysia and the Philippines. *UUM Journal of Legal Studies, 9,* 175-203. https://doi.org/10.32890/uumjls.9.2018.9109

Vaghefi, N., Kari, F., & Abdul Talib, M. (2017). Poverty and income replacement profile among EPF retiree in Malaysia. *Social Indicators Research*, *132*, 1065-1078. https://doi.org/10.1007/s11205-016-1326-1

World Health Organization. (2022). *Newsroom fact sheets: Ageing and health*. https://www.who.int/news-room/fact-sheets/detail/ageing-and-health.

Yusuf, M. M., Basah, M. Y. A., & Yusoff, Y. S. (2014). Pre-retirement withdrawal in EPF: An exploratory study of employees in Malaysia. *Australian Journal of Basic and Applied Sciences*, *8*(3), 439-444.