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A Conceptual Framework of the Retirement Savings Behavior among Civil Servants in Malaysia

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Abstract: The feasibility of maintaining a comfortable standard of living for civil servants in Malaysia is frequently questioned due to their reliance on pensions as the primary source of retirement funds, which may not suffice to cover the rising retirement costs. To address this issue, civil servants could consider accumulating savings during their working years instead of solely depending on pension disbursements. This academic discourse examines the effect of the independent variables of attitudes towards retirement savings (financial risk tolerance, past behaviours, and subjective norms as psychological elements) and financial considerations (tax incentives) on retirement savings behaviour. Additionally, the research also explores the moderating role of perceived government policy and perceived behavioural control with its antecedents, namely financial literacy, self-control between the independent variables, and retirement savings behaviour among civil servants in Malaysia. Drawing from the extended interactive theory of planned behaviour, amalgamated theories comprising the interactive theory of planned behaviour, rationale choice theory, and the behavioural economic model and existing literature, this article introduces a conceptual framework detailing the determinants influencing the RSB of civil servants in Malaysia. The proposed framework has the potential to benefit various stakeholders, particularly civil servants seeking to prepare adequately for their retirement years.

Keywords: *Extended Interactive Theory of Planned Behaviour, Retirement Savings Behaviour, Civil Servants, Conceptual Framework, Malaysia*

1. Introduction

Research Background: Almost half of Malaysians cannot save more than RM1,000 for emergencies due to a lack of financial planning knowledge (News Straits Time [NST], 2024). Additionally, 48% of Malaysians do not have any emergency savings (Murugiah, 2021). A survey by Perbadanan Insurans Deposits Malaysia (PIDM) in 2023 reported that many Malaysians cannot withstand financial shocks, as indicated by 55% of the survey respondents who admitted they have less than RM10,000 in available savings to withdraw in the event of an emergency. The financial distress worsened when it was reported that civil servants accounted for approximately 10% to 13% of new bankruptcy cases (The Star, 2024). Although the statistics from the Malaysian Department of Insolvency (MDI) (2023) reported a decreasing number of bankruptcies among civil servants, including pensioners, this group continues to be exposed to bankruptcy because of failure to manage their finances (Tan & Singaravelloo, 2020).

The pensioners' savings for their retirement planning continued to decrease further when the government announced that public service officers could redeem Cash Awards in place of Leave (GCR) while they are still in service compared to the previous policy in which GCR could only be paid after retirement. This measure may affect public service retirement savings because civil servants are inclined to make the withdrawal similar to the early withdrawal of their Employee Provident Fund (EPF). Malaysia's government is expanding the measures to civil servants on GCR's early withdrawal, while scholars are still debating on the pre-retirement withdrawal of EPF and the issue of the inadequacy of retirement savings (Md Yusuf et al., 2014).

The public service retirement savings were further affected by the government's announcement on 13th July 2023 that the July pension and derivative pension for civil servants who retired before and from 2013 will be paid using the original pension amount. The retirees will no longer receive an annual increment of 2%. This is following a Federal Court decision, which involved pension payments for civil servants who retired before 2013 being reverted to the December 2012 amount, while those who retired from 2013 onwards will have their pension payments reverted to the original amount at the time of their retirement.

The difference between the current pension amount and the original figure will continue to be paid in the form of a special aid known as Special Recognition for Retirees, which allows pensioners to receive the same amount as the one received in June 2023. However, the special aid cannot be sustained as it has legitimate expectations. Another recent policy was announced on the introduction of the Employee Provident Fund's (EPF) Account 3, or Flexible Account, as one of the institution's alternatives to meeting the emergency needs and funds of its contributors in tackling life's challenges before retiring (Bernama, 2024). The initiative to have a flexible account contradicts the aim to increase savings for retirement; the function of Account 3 is similar to any existing personal bank account.

Issues such as increasing poverty among the elderly (DOSM, 2023), low replacement rates (Jaafar et al., 2019; Park, 2009), and insufficient savings for retirement planning (Bank Negara Malaysia, 2022) continue to be major concerns in Malaysia's social security system. The government needs to take immediate action to reduce the burden on public servants during their retirement, especially for pensioners who may receive the lowest pension amount of RM1000 effective from 1 January 2018 (Public Service Department [PSD], 2023). Public retirees receive pension payments based on a formula that calculates 60% of their final salary. However, the replacement rate is not sufficient to maintain their standard of living from the pre-retirement period. Thus, to address the shortfall in retirement savings, it is recommended that a certain percentage of their income should be placed into long-term savings.

This research analyses the impact of various factors on retirement saving behaviour among civil servants in Malaysia. Previous studies have highlighted demographic and psychological factors influence retirement savings behaviour (Hershey & Mowen, 2000; Yusof & Sabri, 2017; Tomar et al., 2021). Additionally, this study explores the potential moderating role of perceived government policies in retirement savings behaviour, building on previous research, which found that perceived government policies moderated the relationship between retirement goal clarity and financial planning for retirement (Ghadwan et al., 2023). However, there has been limited investigation into whether PGP moderates the associations between attitude towards retirement savings, subjective norms, perceived behavioural control, and financial factors such as tax incentives and retirement savings behaviour. In this regard, using the extended interactive theory of the planned behaviour model helps to provide insight and a better explanation of factors influencing civil servants' behaviour to increase their retirement savings.

2. Literature Review

Interactive Theory of Planned Behavior: To address the issue of inadequate retirement savings behaviour among civil servants in Malaysia, it is imperative to comprehend the chronology of the extended interactive theory of planned behaviour (ITPB). It expands upon the interactive theory of planned behaviour (TPB) by integrating supplementary variables (Ajzen, 2020). Within the realm of ITPB, it is theoretically anticipated that perceived behavioural control will moderate the impact of attitude and subjective norms on intentions. Nevertheless, due to the complexity of the interaction effects (i.e., moderation), most empirical examinations of the TPB have solely reported additive effects. Recent investigations have begun to unveil noteworthy ATT x PBC and SN x PBC interactions. The current iteration of the ITPB illustrates the model with the proposition (Ajzen, 2019). Limited research has been conducted on ITPB concerning retirement saving behaviour (RSB).

In the context of this study, the extended interactive theory of planned behavior was developed based on integrated theories and models, comprising the interactive theory of planned behaviour, rational choice theory, and behavioural economics model. The purpose of the ITPB is to obtain a comprehensive understanding by incorporating additional variables and dimensions from the integrated theories and models. The conceptual framework aims to provide a better understanding of human behaviour, allowing for more accurate predictions and targeted interventions to address the issue of inadequate retirement savings among civil servants in Malaysia.

Rational Choice Theory: The evolution of rational choice theory (RCT) can be delineated by pivotal references that have substantially contributed to its advancement and utilisation across a variety of fields. The inception of the notion of maximising benefits within rational choice theory can be attributed to the work of American sociologist George Homans in 1961, establishing the basis for comprehending decision-making processes grounded in rational assessments of costs and benefits (Hiep & Tram, 2020).

Rational choice theory offers a method for comprehending social phenomena based on the assumption that individuals or entities act purposefully to accomplish their objectives. This involves making decisions according to their preferences, constraints, and rational thinking to maximise benefits or utility within specific limitations (Lovett, 2006; Sato, 2013). The fundamental assumptions of RCT encompass the presence of distinct purposeful actors, the application of utility theory to elucidate choices, and the rationality exhibited by these actors in optimising their decision-making processes. Conversely, another scholar proposed that the theory has two primary processes: individual choices and the shift from individual actions to broader social consequences. It is posited that individuals prioritise their preferences according to the utility or payoff they anticipate, ultimately selecting the alternative perceived to offer the greatest utility (Sato, 2013).

Within the domain of perceived governmental policies concerning retirement savings behaviour, RCT serves as a framework for elucidating how individuals reach decisions regarding retirement savings based on rational assessments of costs and benefits (Askari et al., 2019). This theoretical perspective implies that individuals logically pursue objectives geared toward advancing their interests, which, in turn, impact their attitudes toward retirement savings (Askari et al., 2019). During retirement preparation, effective decision-making necessitates individuals to comprehend the pension mechanisms, portfolio distribution, anticipated benefits, contribution records, and associated risks (Fleishman-Mayer et al., 2013).

The governmental rules might influence retirement savings behaviour through diverse channels, such as grants and automated deposits into retirement accounts (Chetty et al., 2012). These policies shape individuals' decisions by offering incentives or prompts that steer their decision-making process (Chetty et al., 2012; Halpern & Sanders, 2016). Encouraging individuals to save money through saving policies could also be more cost-effective for the government, leading to higher increases in household savings at a lower fiscal cost compared to tax subsidies (Chetty et al., 2013). Moreover, the configuration of retirement saving mechanisms, such as providing concise information with beneficial recommendations, could modify retirement planning decisions (Cardella et al., 2021). Applying principles of choice to retirement savings causes the structure of retirement plans to significantly impact saving rates and investment choices (Benartzi et al., 2007).

RCT is crucial in comprehending individuals' choices concerning retirement savings behaviour and their views on government policies in this context. Contrary to the expectations of RCT, which imply that annuities would be appealing because they mitigate the risk of outliving income, studies show that not many individuals opted to annuitize a portion of their assets (Benartzi et al., 2011). The inconsistency between theory and behaviour underscores the intricacy of retirement savings choices. Government policies could shape retirement savings behaviour through diverse means. For example, measures such as price subsidies and automatic deductions from salaries into retirement accounts influence individuals' saving choices (Chetty et al., 2012). Behavioural economics also brings insight into retirement savings behaviour, underscoring bounded rationality and self-control as factors affecting low-saving households. This circumstance suggests that certain individuals might benefit from support in making saving decisions (Thaler & Benartzi, 2004).

In essence, rational choice theory serves as a significant instrument for comprehending decision-making processes within the realm of public policy. Policy formulators could leverage this framework to pinpoint challenges and formulate remedies that motivate individuals to engage in behaviours that promote collective welfare. Nevertheless, it is vital to acknowledge the restrictions of this framework and consider various other aspects that could impact decision-making processes. The integration of insights derived from behavioural economics and governmental directives is pivotal in shaping the retirement savings behaviours of individuals and their perspectives on government interventions. Through comprehensive scrutiny of these theoretical constructs and their policy implications, stakeholders could devise more productive approaches to foster sufficient retirement savings among public sector employees in Malaysia.

Behavioural Economics Model: The behavioural economics model integrates insights from psychology and economics to understand how individuals make financial decisions. It recognises that individuals do not always act rationally and are influenced by cognitive biases and emotional factors. The theory emphasises the importance of understanding human behaviour in economic decision-making, including retirement savings behaviour (RSB). In contrast, traditional economics theories often assume rational decision-making and overlook the psychological and behavioural aspects of financial choices (Knoll, 2010). However, behavioural economics recognises the importance of psychological aspects, such as financial literacy and self-control, in influencing individuals' retirement savings behaviour (Sekita et al., 2022).

Thaler and Benartzi (2004) introduced the "Save More Tomorrow" (SMarT) programme, which utilised behavioural economics principles to increase employees' savings. The programme's key findings revealed a high enrolment rate and a significant increase in the average saving rates of participants over time (Thaler & Benartzi, 2004). This outcome demonstrates the effectiveness of behavioural economics strategies in influencing retirement savings behaviour (RSB). Nevertheless, the study suggested future research to focus on the effectiveness of automatic escalation plans and explore the impact of behavioural economics on retirement savings. Another study on behavioural economics principles, as well as the use of matching contributions and commitment mechanisms to promote savings behaviour, found that deposit frequency and amounts were higher in the first intervention year than in the second year. Higher match incentives led to increased deposit frequency but not to a higher amount of savings (Wang et al., 2018).

In essence, behavioural economics is employed in the Malaysian government's initiative to increase retirement savings behaviour (RSB) among Malaysian civil servants and to tackle and revisit existing policies, such as tax incentives and matching contributions, the independent variables of this study. Therefore, further investigation on the long-term impact of economic empowerment interventions on savings and consumption behaviours is justified.

Furthermore, Duckworth et al. (2018) highlighted the impact of self-control failures on retirement savings, emphasising the role of behavioural control in financial decision-making. Behavioural economics provides insights into how external interventions, such as incentives or penalties, can be designed to facilitate people making choices that align with their long-term interests without needing to rely solely on willpower (Duckworth et al., 2018). Hence, behavioural economics is pertinent in understanding self-control issues and challenges hindering civil servants from committing to retirement savings.

In summary, behavioural economics theory provides an invaluable understanding of retirement savings behaviour by acknowledging the influence of psychological and behavioural factors. The theory recognises most individuals' psychological matters, such as financial literacy and self-control (Sekita et al., 2022), incentives (Duckworth et al., 2018), matching contributions (Wang et al., 2018), and tax incentives (Sabri et al., 2019) as factors influencing RSB.

Retirement Savings Behaviour: Previous research offered limited insights into retirement savings behaviour (RSB), defining it based on individual interpretations and viewpoints. Various studies have outlined their understanding of RSB, emphasising psychological, behavioural, financial, and economic aspects. For example, a study by Benartzi and Thaler (2007) delved into how individuals make decisions regarding saving for retirement, encompassing participation in savings plans, contribution amounts, investment strategies, and the utilisation of incentive schemes like tax benefits, matching contributions, and programmes such as Save More for Tomorrow. Meanwhile, Sass (2016) discussed the choices people make regarding saving for retirement, including the decision to save, the amount saved, and the chosen saving mechanisms.

According to Weaver (2019), retirement savings behaviour (RSB) entails a series of actions throughout one's career, involving entry into the retirement system, asset accumulation, and eventual asset utilisation during retirement. Studies concurred that these factors, such as governmental incentives, individual attitudes toward retirement savings, and the impact of social influences and cultural norms, significantly shaped retirement savings behaviour. RSB entails the financial decisions individuals undertake to secure their future, influenced by their attitudes towards retirement saving, prevailing social standards, and their confidence in post-retirement saving capabilities, including the amount saved and the chosen saving mechanisms (Magwegwe & Lim, 2021). RSB is also known as resource allocation for future needs, particularly in the post-employment phase (Alkhawaja & Albaity, 2022).

Researchers in Malaysia view retirement savings behaviour as how individuals strategize and allocate funds for their financial requirements post-retirement. This involves depositing funds into designated retirement accounts, such as the Employee Provident Fund (EPF) and making informed investment decisions to ensure adequate coverage for living expenses, medical bills, and unforeseen circumstances during their retirement years (Ibrahim et al., 2012). The concept of retirement savings behaviour revolves around the systematic allocation of financial resources in preparation for the cessation of full-time employment, taking into account the management of escalating living expenses and healthcare costs (Nga & Yeoh, 2018). However, one study delved into the realm of retirement savings funds rather than focusing specifically on retirement savings behaviour. This study defined such funds as financial schemes enabling individuals to set aside savings for retirement, while incentives like tax benefits or subsidies promote active participation and boost contributions. Importantly, these funds are established voluntarily, with individuals opting to save in them to secure a financially stable retirement, in addition to any government pension schemes or obligatory retirement savings plans they may be enrolled in (Sabri et al., 2019). In conclusion, retirement savings behaviour is putting aside certain income after considering all necessary expenditures during working or productive life for retirement or non-productive years. Understanding retirement savings behaviour may help researchers in the development of a comprehensive framework for RSB among civil servants in Malaysia.

Attitude Toward Retirement Savings: Ajzen (2019) postulated that individuals' attitude emanates from behavioural beliefs, specifically determined by whether the anticipated outcomes or experiences are perceived as positive or negative, ultimately impacting the behavioural outcome. Chee et al. (2011) generally characterised attitude towards saving as individuals' positive or negative perceptions regarding the practice of saving money, influenced by their beliefs about the consequences of saving and the personal assessment of such outcomes. This attitude significantly shapes the inclination to save by fostering a mindset that prioritises the advantages of saving over immediate expenditures. Initially, the decision-making process regarding retirement savings was influenced by individuals' beliefs about such behaviour, social influences exerted on them, and their perceived level of control over these savings determinations (Croy et al., 2012). Subsequently, scholars defined the attitude towards retirement savings as the emotional, cognitive, or perceptual stance individuals adopt towards the notion of setting aside money for the post-employment phase. A positive attitude signifies a recognition of the importance of saving and a propensity to save more, whereas a negative attitude may indicate a reluctance to save adequately for retirement (Tomar et al., 2021).

Attitude toward retirement savings behaviour refers to how individuals feel about saving for their retirement, including their willingness to plan and save and how they perceive the importance and benefits of having financial security in their later years. This attitude significantly influenced their actual savings and planning actions for retirement (Yusof & Sabri, 2017). Attitude toward retirement savings behaviour refers to how individuals feel about saving money for their future after they stop working, which includes their willingness to invest in retirement plans and their belief in the importance of financially preparing for retirement (Afthanorhan et al., 2020). It also refers to individuals' positive or negative evaluation of the act of saving money, which is influenced by their beliefs, feelings, and intentions regarding saving for future needs (Wahab et al., 2022)

Previous research also investigated the effect of financial risk tolerance (FRT) on attitude towards retirement savings behaviour. When a person feels comfortable with the possibility that an investment may not perform as expected, it means that they accept potential loss when deciding on an investment, including retirement savings (Mutlu & Özer, 2022). Ghadwan et al. (2023) referred to FRT as individuals' willingness or ability to handle uncertainty and potential loss in investment value while aiming for higher returns. Past behaviour (PB) also affects attitudes, whether to react positively or negatively. Past behaviour refers to actions or decisions individuals have made in the past, which influence their future decisions, often without being fully aware of this influence (Albarracín & Wyer, 2000). Meanwhile, Habibah et al. (2018) described PB as the frequency with which individuals or households have previously engaged in a specific action, such as making mental budgets, which influences their current intentions and behaviours towards that action.

Financial risk tolerance or past behaviour helps in tailoring retirement savings behaviour that matches individuals' comfort level with risk, aiming to maximise satisfaction from their savings choices. Attitude towards retirement savings is the most important independent variable in shaping retirement savings behaviour among civil servants in Malaysia. Ahmad et al. (2020) revealed that financial risk tolerance (FRT) was correlated with attitude, with risk attitude being a significant factor influencing risk tolerance. The study suggested that risk attitude directly influenced investors' financial risk tolerance, indicating a strong correlation between the two factors. Psychological characteristics, like attitude towards money, financial self-efficacy, and financial risk tolerance, positively influence personal financial management behaviour (Goyal et al., 2023).

Prior research also confirmed that past behavioural biases positively impact attitudes toward investment, supporting the hypothesis that it plays a crucial role in investment decision-making (Raut et al., 2018). PB is a critical factor that may influence both intention and future behaviour. Different forms of PB, such as experience with behaviour, frequency of behaviour, and habits, have been studied and shown significant effects (Sommer, 2011). Another study indicated that past financial experiences influenced how students currently manage their finances (Ameliawati & Setiyani, 2018). Recent studies' findings were consistent in that past experiences, or PB, correlate with attitude. Past experiences have a direct correlation with individuals' attitudes toward risk, uncertainty, and preventive measures. Experience plays a vital role in influencing people's intentions to adopt self-protective behaviours, such as purchasing insurance and safety devices (Innocenti et al., 2023). Past disastrous experience directly influences the attitudes of strategic decision-makers (SDMs) towards disaster planning (Sahadev et al., 2024). Meanwhile, open-experience individuals are more likely to accept products of new technologies, suggesting a positive relationship between openness and attitude (Grassini & Koivisto, 2024).

Attitude towards retirement savings reflects how important individuals perceive saving for retirement to be. A positive attitude indicates a strong belief in the necessity and benefits of saving for the future. Previous researchers widely use attitudes toward retirement savings to investigate the relationship between attitudes towards retirement savings (ATRS) and retirement savings behaviour (RSB). For example, in Malaysia, ATRS is positively correlated with retirement preparation among Gen Y in Selangor, Malaysia (Kumaraguru & Geetha, 2021). Furthermore, attitudes towards retirement and retirement behaviour significantly influenced retirement security for Malaysian civil servants (Ishak et al., 2022). Another study in Vietnam found that financial attitudes positively affected individuals' likelihood to save money (Nguyen & Doan, 2020). In the USA, attitudes towards retirement savings, such as the importance of a long planning horizon, setting specific financial goals, and risk tolerance, were found to significantly impact individuals' intention to save for retirement. The model developed in the study shows that psychological factors, including attitudes, not only influenced the calculation of retirement savings needs but also contributed to the ownership of individual retirement accounts (IRAs). The research highlighted a clear relationship between individuals' attitude towards retirement planning and their retirement saving behavior, emphasising the importance of fostering positive attitudes to encourage proactive retirement savings behaviour (Magwegwe & Lim, 2021).

The above discussions on the relationships between financial risk tolerance, past behaviour, and attitude suggest that they have been widely investigated, and the findings consistently agree that the relationships are still relevant. The relationship between attitude towards retirement savings and retirement savings behaviour has also been highlighted in a few prior research. Thus, in the context of retirement savings behaviour among civil servants in Malaysia, the current study proposed the following hypotheses:
H1: There is a significant positive relationship between financial risk tolerance and attitude towards retirement savings behaviour.
H2: There is a significant positive relationship between past behaviour and attitude towards retirement savings behaviour.
H3: There is a significant relationship between attitude towards savings and retirement savings behaviour.

Subjective Norms: There are two types of normative beliefs; firstly, the injunctive norms refer to what others consider desirable and acceptable in a particular situation; these norms suggest what should or should not be done. Secondly, descriptive norms refer to how people typically act or think in specific contexts based on empirical evidence (Ajzen, 2020). Individuals are prone to acknowledging and reacting solely to the concept of saving for retirement when individuals of significant importance and proximity exert influence on them to allocate funds towards their retirement savings. Scholars in the realm of social sciences widely concur that subjective norms encompass perceived societal pressure to either engage or refrain from specific behaviours, indicating that individuals are more likely to save money if those significant to them endorse the notion of saving (Satsios & Hadjidakis, 2018). Various studies consistently underline the pivotal role of close and influential persons in motivating individuals to save for the future (Thomas & Subhashree, 2020; Magwegwe & Lim, 2021; Kumaraguru et al., 2022; Wahab et al., 2022; She et al., 2023), SN pertains to the influence of individuals who hold importance to a person, such as family or friends, and how their endorsement or disapproval influences the person's decisions regarding retirement savings. It concerns facing social pressure to conduct oneself in a specific manner owing to the expectations of others.

The primary individuals with the most significant impact on shaping the SN and promoting saving for retirement are the family members (Jamal et al., 2016; Puspasari et al., 2018), as well as close friends or peers (Kumaraguru & Geetha, 2021). Families play a crucial role in influencing students' behaviour, demonstrating that favourable and encouraging families results in more robust subjective norms among students, consequently enhancing their saving habits (Puspasari et al., 2018). Mutlu and Özer (2022) posited that financial attitudes are not inherently innate but are influenced by family and close acquaintances. This view was corroborated by Hartono and Isbanah (2022), who discovered that parental upbringing and peer pressure have a positive effect on the financial literacy of individuals. This illustrates the interconnected nature of individual variables, where SN intertwine with attitudes toward saving for retirement.

A positive and significant relationship exists between subjective norms and the intention to act, which in turn affects saving behaviour (Puspasari et al., 2018). SN, which entails the opinions of friends and family, have a strong influence on one's financial decisions (Bongini & Cucinelli, 2019); for instance, they significantly impact risky investment intention (Sobaih & Elshaer, 2023). Studies have highlighted that financial planning behaviour, including retirement savings behaviour, can be influenced by subjective norms such as financial socialisation, where societal expectations around financial planning are internalised through interactions with family, friends, and colleagues (Yeo et al., 2023).

Relationships between social influence and retirement planning were significantly and positively associated (Afthanorhan et al., 2020). If the SN in their environment leans towards the importance of retirement planning, individuals are more likely to adopt similar behaviours (Tomar et al., 2021). The influence of SN is evident in how individuals engage in proactive behaviours, such as saving more or investing wisely, based on the financial behaviours and opinions of their peers or society at large. This suggests that a supportive social environment that values financial preparedness could encourage better retirement-saving behaviours (Ugwu & Idemudia, 2023).

Subjective norms play a crucial role in shaping individuals' intentions and behaviours regarding retirement savings. Understanding this relationship could help financial advisors and educators design more effective strategies to encourage retirement planning and saving. Therefore, this study suggests the following hypothesis:
H4: There is a significant relationship between subjective norms and retirement savings behaviour.

Tax Incentives: Although psychological factors were recognised as determinants of retirement savings behaviour, several studies applied tax incentives in their framework of retirement savings and reported tax incentives according to the context of their studies. For instance, tax incentives for retirement savings were most utilised by older/high-income individuals. Tax incentives in this study refer to government policies designed to encourage individuals to save more for their retirement by offering benefits like reducing the taxes on the money they save in pension plans. These incentives work by increasing the after-tax return on savings, meaning people get to keep more of the money they earn from their investments in retirement accounts after taxes are taken out (Ayuso et al., 2019). Sabri et al. (2019) described tax incentives as government concessions, rebates, credits, subsidies, or contributions, either directly or through employers, which support individuals' retirement income savings. The aim is to encourage savings for retirement by offering tax advantages like tax deferral or performance-based incentives.

In the context of retirement savings behaviour, tax incentives are defined as a government subsidy, which can be front-loaded where the tax benefit is received when the contribution is made, or back-loaded where the tax benefit is received upon withdrawal during retirement (Cuccia et al., 2019; Fadejeva & Tkacevs, 2022). Cuccia et al. (2019) examined how these tax incentives, whether they are given at the start (front-loaded) or the end (back-loaded), impact taxpayers' decisions on which retirement savings plans to choose, highlighting that people's choices were influenced not just by economic factors but also by their attitudes and preferences. Tax incentives also refer to the government's policy allowing individuals to deduct contributions to private pension funds and life insurance plans, up to 10% of their annual income, from their income tax base. These incentives are designed to encourage people to save more for their retirement by offering them a tax break, which means they pay less tax if they save money in specific ways.

However, earlier research found that these incentives are designed to have a delayed effect, contrasting savings by making saving in a voluntary retirement fund more appealing through tax benefits. The study suggested that tax incentives do not directly trigger additional savings but reduce the individual burden for a supplementary pension, acting as a facilitating condition that affects perceived behavioural control rather than directly influencing saving intentions (Sabri et al., 2019).

Economic policies, like tax rebates, could significantly influence corporate behaviour towards achieving dual economic and environmental benefits. Similarly, tax incentives could influence individual behaviour by making retirement savings more appealing, thereby improving personal financial security (Zhang & Song, 2022). The application of tax incentives as a medium to induce or stimulate specific behaviour is widely applied in multidisciplinary studies. For instance, taxes are more effective for smoking and alcohol consumption, while positive rewards have shown promise in preventing behaviours like unsafe sex, which are harder to monitor. Financial incentives, including taxes, correlate with behaviour by leveraging economic principles to encourage healthier choices and deter harmful behaviours (de Walque, 2020). In France, tax incentives modestly impacted the decision to energy-saving renovate, increasing renovations by only 1.09 percentage points. Meanwhile, a study in Spain highlighted that there are indeed tax incentives in place for the ownership of eco-friendly cars, specifically within the framework of the IVTM (Tax on Motor Vehicles). These incentives are designed to reduce the annual tax burden for owners of electric, hybrid, and liquefied petroleum gas vehicles (Alonso, 2020). In European countries, tax incentives significantly affect the decision to purchase electric vehicles (EVs), making them more financially attractive to potential buyers (Jurlin, 2023). Hence, based on the arguments above, this study postulates the following hypothesis:
H5: There is a significant relationship between tax incentives and retirement savings behavior.

Perceived Behavioural Control: The augmentation of retirement savings behaviour for the future necessitates the accessibility of behavioural beliefs that lead to a positive attitude and strong support from family and peer influences alongside normative beliefs. Additionally, a crucial factor that could strengthen the effectiveness of retirement savings behaviour is perceived behavioural control. Within the framework of the interactive theory of planned behaviour, perceived behavioural control operates as a moderating element between attitude and subjective norms regarding intention, while the actual behavioural control is expected to moderate the impact of intention on behaviour (Ajzen, 2020). In the present study's context, perceived behavioural control is projected to moderate the influence of attitudes towards retirement savings and subjective norms with regard to retirement savings behaviour. Various research elucidated perceived behavioural control as individuals' beliefs regarding control that could influence or enable the execution of specific behaviours (Jamal et al., 2016; Nosi et al., 2017; Kumaraguru & Geetha, 2021). Control belief is instrumental in shaping and contributing to PBC in the context of retirement savings behaviour (Ajzen, 2020).

Perceived behavioural control is a vital factor in the interactive theory of planned behavior. It suggests that the more control people feel they have overperformed a behaviour, the more likely they intend to do it. This highlights the importance of confidence in one's abilities and resources. Kumaraguru and Geetha (2021) described PBC as how much a person feels they can perform a certain behaviour, considering both their skills and the potential challenges. It reflects on past experiences and the expected difficulties in doing the behaviour. From another perspective, PBC is about how easy or hard people think it will be to perform a certain action based on their feelings and not on the real difficulty of doing the action.

In the context of this study, it is expected that financial literacy and self-control contribute to PBC in influencing and shaping retirement savings behaviour among civil servants in Malaysia. Several studies examined how these factors influenced retirement savings behavior. Lajuni et al. (2018) defined financial literacy as the knowledge about financial matters and the skills of how to manage finances effectively, which influence a person's ability to change their financial behavior. Financial literacy suggested that higher financial literacy encourages individuals to save more, indicating that higher financial knowledge significantly enhances the propensity to save among low-income groups (Rabun et al., 2023). Research findings also show that the better the financial literacy applied, the lower the level of consumptive behaviour, implying the role of behavioural control. Research findings further highlighted the influence of financial literacy on students' spending habits, indicating a correlation with behavioural control (Putri et al., 2022).

Understanding financial products through financial literacy augments perceived behavioral control, helping individuals make informed and confident investment decisions. Thus, a positive relationship exists between financial literacy and perceived behavioural control in the context of investment decision-making (Pambudi et al, 2024). Prior studies have indicated that enhancing financial literacy can be a valuable strategy to encourage savings behaviour and the intention to save more, underscoring the significance of perceived behavioural control in the financial decision-making process (Peiris, 2021).

Self-control is the ability of individuals to regulate their desires, practice self-discipline, and delay gratification to save money, making saving an effortless endeavour for those with high levels of self-control. It involves managing wants and expenditures effectively to enhance savings, where individuals with higher self-control are better at financial management and less likely to spend impulsively on shopping (Mohd et al., 2020). Generally, self-control encompasses the ability to change or override dominant response tendencies and regulate individuals' behaviour, thoughts, and emotions, which are crucial for managing financial behaviour and savings. The concept also includes the exertion of self-discipline, characterised by the will and capacity to delay fulfilment, which is essential in financial decision-making and saving behaviour (Hartono & Isbanah, 2022).

Furthermore, self-control positively impacts saving behaviour, indicating that individuals with higher self-control tend to save more efficiently, which is crucial for financial management and planning (Faisal et al., 2023). Self-control is positively correlated with perceived behavioural control, as individuals with high Self-control tend to believe more in their ability to conduct certain behaviours. Another study found that self-control has a significant effect on students' saving behaviour; good self-control was correlated with the ability to control money usage and manage finances better (Setya Ningsih & Sudarma, 2018). Self-control contributes significantly to saving behaviour, signifying that individuals with good self-control are more likely to engage in positive savings habits. In short, there is a direct correlation between self-control and perceived behavioural control in the context of saving behaviour (Angela & Pamungkas, 2022).

Perceived behavioural control enhances the relationship between a positive attitude towards retirement savings and retirement savings behaviour by providing the means and confidence to act on the attitude (Yeo et al., 2023). Individuals who feel more in control of their finances are more likely to translate positive attitudes towards retirement savings into actual saving behaviours. This control enhances the impact of a positive attitude toward retirement savings on the behaviour of saving itself (She et al., 2024). Another study also indicates that PBC moderates the effect of attitudes on behaviour by influencing individuals' perceptions of their ability to perform the behaviour. Thus, when someone has a positive attitude towards road violations, for instance, if they perceive that they have no control over performing such actions (due to external factors or personal limitations), they may be less likely to commit them (Castanier et al., 2013).

Perceived behavioural control may also strengthen the impact of subjective norms on retirement-saving actions by equipping individuals with the knowledge and confidence needed to save for retirement (Yeo et al., 2023). For individuals with low perceived behavioural control, the influence of subjective norms on recycling behaviour might be more pronounced. If these individuals perceive strong social support or pressure to recycle, they might be more likely to recycle despite feeling less capable of doing so. In addition, subjective norms have the highest variance in behavioural tests, and researchers suggested that this may happen because moral norms were employed to operate as subjective norms (Liu et al., 2022). Hence, based on these arguments, this study postulates the following hypotheses:

H6: There is a significant relationship between financial literacy and perceived behavioural control.

H7: There is a significant relationship between self-control and perceived behavioural control.

H8: Perceived behavioral control does significantly moderate the relationship between attitude towards

retirement savings and retirement savings behaviour.
H9: Perceived behavioral control does significantly moderate the relationship between subjective norms and retirement savings behaviour.

Perceived Government Policy: Government policy is described as actions taken by the government to address specific public issues, which may involve the use of funds, laws, and regulatory measures to shape and change individuals' behaviour, for example, saving money. This policy includes a set of systems aiming to significantly change savings behaviour through strict legislation and possibly coercion, ensuring individuals save money for future use (Muhammad Husin & Mohamed, 2021).

There are minimal studies investigating perceived government policy's moderating role in the context of attitude and retirement savings behaviour. However, in a different discipline, it was found that the relationship between attitude towards entrepreneurship and the actual development of entrepreneurial ventures can be significantly influenced by perceived government policy. Perceived government policy could augment individuals' attitudes towards entrepreneurship by creating an environment that is encouraging and safe for starting new ventures. The effect of individuals' attitudes on their likelihood to engage in entrepreneurship can be strengthened or weakened depending on the perceived government policies (Obaji, 2014). Another study highlighted the importance of a supportive environment policy in bridging the gap between farmers' positive attitudes towards environmental protection and their actual participation in these activities. It underscores the need for policies that not only encourage positive attitudes but also facilitate the translation of these attitudes into meaningful actions (Dong et al., 2023).

A study on vaccination behaviour found that PGP positively moderated the relationship between attitude and vaccination behaviour among teachers (Abd Rahman et al., 2024). Several other studies defined perceived government policy as how individuals understand and interpret the actions and regulations set by the government, especially those aimed at influencing specific behaviours, such as retirement savings behaviour, through various policy activators, such as information dissemination, incentives, and current policy. Ghadwan et al. (2023) explored how perceived government policy influences employees' financial planning for retirement. The study shows that policies play a crucial role in shaping retirement planning behaviours among public university employees. The research also revealed that government policy significantly moderated the relationship between retirement goal clarity and financial planning for retirement. The finding indicates that clearer retirement goals aligned with supportive government policies lead to better financial planning outcomes.

There have been minimal studies investigating the role of perceived government policy in moderating the relationship between subjective norms and retirement savings behaviour. A study found that when people perceive strong government support for energy-saving initiatives, the social pressure to save energy is more likely to translate into actual energy-saving actions (Hong et al., 2019). In another study, a supportive policy environment enhanced the positive impact of participation intention on actual participation behaviour, indicating that when farmers perceive government policies as favourable, the influence of subjective norms on participation is likely to be stronger (Dong et al., 2023).

Similarly, studies exploring the moderating role of perceived government policy in the relationship between tax incentives and retirement savings behaviour are scarce, specifically in the context of Malaysian civil servants. A study by Ningrum and Setiyawati (2022) investigated the influence of taxpayer awareness on tax compliance and examined whether trust in the government, which is seen as a proxy for perceived government policy, moderates this relationship. The study concluded that trust in the government did moderate the relationship between taxpayer awareness and tax compliance. Another study on the effectiveness of R&D tax incentives in Turkiye did not directly discuss perceived government policy but found that R&D tax incentives were designed to encourage firms to increase their R&D expenditures to boost innovation and economic growth. Meanwhile, Taş and Erdil (2023) suggested that firms' behaviour in response to R&D tax incentives was influenced by the incentives, which can be seen as a reflection of their perceived government policy. Another study described the moderating role of perceived government policy as an investigation of how perceived government policy moderates the relationship between tax incentives and foreign investment, indicating that the perceived government policy regarding transparency and fairness in the application of tax incentives impacted investment behaviour (Hyun Hong & Nam, 2021). Venti (1992) noted that incentives to save for retirement have been an important component of government tax policy, and pension funds have grown enormously. For instance, private firm pension assets increased from $13 billion in 1950 to $1,836 billion in 1989.

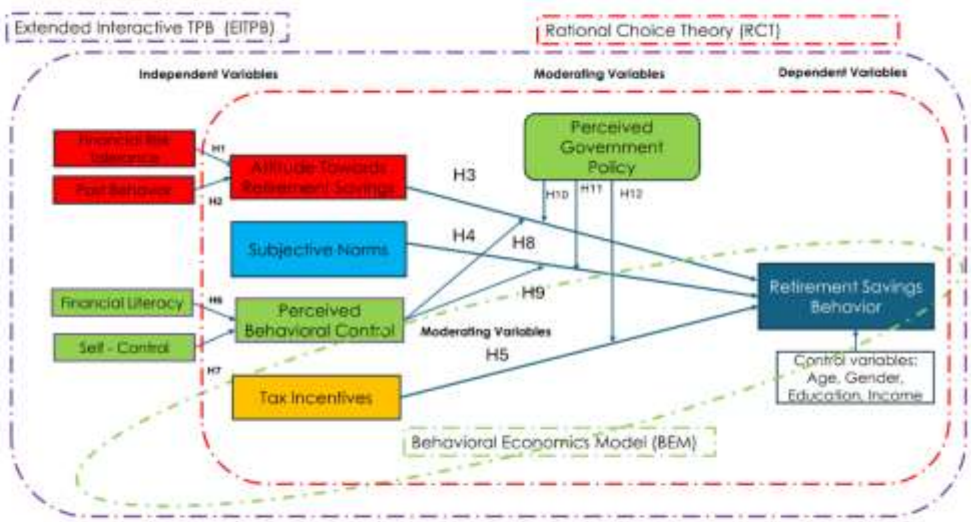
While most of the literature works did not directly explore the moderating role of perceived government policy in the relationship between attitudes towards retirement saving, subjective norms, tax incentives, and retirement savings behaviour, the studies offer several points from their similar concepts related and applicable to the current study. Hence, this study suggests the following hypotheses:
H10: Perceived government policy does significantly moderate the relationship between civil servants' attitudes and retirement savings behaviour.
H11: Perceived government policy does significantly moderate the relationship between civil servants' subjective norms and retirement savings behaviour.
H12: Perceived government policy does significantly moderate the relationship between tax incentives and retirement savings behaviour.

3. Research Methodology

The current study is a causal study, which focuses on the cause-and-effect association between variables. The target population is Malaysian civil servants working in grades 41 to 54. The sample size required was 135 based on the G*Power 3.1 application. The sampling techniques used are nonprobability sampling and purposive sampling. The data were collected through online and offline questionnaire surveys. The questionnaire used was adapted from previous studies, which consisted of 50 items and 10 variables. The SPSS and SEM PLS using Smart PLS Version 4 were applied for the statistical analysis of the data.

Conceptual Framework

Figure 1: Conceptual Framework of Retirement Savings Behaviour Among Civil Servants in Malaysia



4. Conclusion

There are very few theories explicitly related to retirement savings behaviour among civil servants in Malaysia, and they focus on motivations to save for retirement. After a careful and details review of previous research on retirement savings behaviour, this study integrates the interactive theory of planned behaviour, the behavioural economics model, and the rational choice theory to construct a research framework to justify this study. In addition, several variables of new determinants were included to explain further the variance of retirement savings behaviour among civil servants in Malaysia. The current study focuses on the psychological factors of the theory of planned behaviour, namely attitude towards retirement savings and subjective norms, while perceived behavioural control was employed as a moderating variable to strengthen the relationship between attitude towards retirement savings and subjective norms towards retirement savings behaviour. Tax incentives, which aim to increase income for savings are plotted from the behavioural economics model. The rational choice theory supports perceived government policy in making decisions to encourage those factors to motivate civil servants to increase retirement savings behaviour among civil servants in Malaysia.

A more comprehensive and established theory is needed to better explain factors influencing retirement savings behaviour among civil servants in Malaysia. The conceptual framework proposed in the current study attempts to take a wider view of retirement savings behaviour and examines attitudes toward retirement savings, subjective norms, tax incentives, perceived behavioural control, and perceived government policies in the context of RSB. This new conceptual framework could guide researchers in developing the knowledge base for retirement savings behaviour. As discussed earlier, past studies yielded inconsistent findings and only focused on certain factors, such as psychological factors, which do not guarantee better retirement savings behaviour. Stronger predictors or variables are required to inspire and motivate retirement savings, especially among civil servants in Malaysia. Additionally, there are very minimal studies in the literature that employed perceived government policy and perceived behavioural control as moderating variables. In short, this discourse proposes to develop and validate a conceptual framework to explain the relationships between factors influencing retirement savings behaviour among civil servants in Malaysia, as well as to better understand their retirement savings behaviour.

References

Afthanorhan, A., Mamun, A. Al, Zainol, N. R., Foziah, H., & Awang, Z. (2020). Framing the retirement planning behavior model towards sustainable wellbeing among youth: The moderating effect of public profiles. *Sustainability*, 12(21), 8879. https://doi.org/10.3390/su12218879

Ahmad, G. N., Warokka, A., & Puji Lestari, I. (2020). Financial risk tolerance analysis of Indonesian retail investors. *Humanities & Social Sciences Reviews*, 8(4), 852–875. https://doi.org/10.18510/hssr.2020.8484

Ajzen, I. (2019). Theory of Planned Behavior Diagram. https://people.umass.edu/aizen/tpb.diag.html

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314–324. https://doi.org/10.1002/hbe2.195

Albarracín, D., & Wyer, R. (2000). The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology*, 79(1), 5-22. https://doi.org/10.1037/0022-3514.79.1.5.

Alkhawaja, S. O., & Albaity, M. (2022). Retirement saving behavior: Evidence from UAE. *Journal of Islamic Marketing*, 13(2), 265–286. https://doi.org/10.1108/JIMA-03-2020-0072

Ameliawati, M., & Setiyani, R. (2018). The influence of financial attitude, financial socialization, and financial experience on financial management behavior with financial literacy as the mediation variable. *KnE Social Sciences*, 3(10), 811. https://doi.org/10.18502/kss.v3i10.3174

Angela, G., & Pamungkas, A. S. (2022). The influence of financial literacy, parental socialization, peer influence and self-control on saving behavior. *Advances in Economics Business and Management Research*, 216, 560–566

Askari, G., Gordji, M. E., & Park, C. (2019). The behavioral model and game theory. *Palgrave Communications*, 5(1). https://doi.org/10.1057/s41599-019-0265-2

Ayuso, J., Jimeno, J. F., & Villanueva, E. (2019). The effects of the introduction of tax incentives on retirement saving. *SERIEs*, 10(3–4), 211–249. https://doi.org/10.1007/s13209-019-0195-7

Bank Negara Malaysia (BNM) (2022), Rebuilding retirement savings and financial safety nets in Malaysia. *Economic and Monetary Review*, 49-62. https://www.bnm.gov.my/documents/20124/10150285/emr2022_en_box1.pdf

Benartzi, S., Peleg, E., & Thaler, R. H. (2007). Choice architecture and retirement saving plans. http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html

Benartzi, S., Previtero, A., & Thaler, R. H. (2011). Annuitization puzzles. *Journal of Economic Perspectives*, 25(4), 143–164. https://doi.org/10.1257/jep.25.4.143

Bernama (2024, April 26), Introduction of account 3 can help contributors in time of emergency-expert, https://www.bernama.com/en/news.php?id=2291561

Bongini, P., & Cucinelli, D. (2019). University students and retirement planning: Never too early. *International Journal of Bank Marketing*, 37(3), 775–797. https://doi.org/10.1108/IJBM-03-2018-0066

Cardella, E., Kalenkoski, C. M., & Parent, M. (2021). Less is not more: 401(k) plan information and retirement planning choices. *Journal of Pension Economics and Finance*. https://doi.org/10.1017/S1474747221000445

Castanier, C., Deroche, T., & Woodman, T. (2013). Theory of planned behaviour and road violations: The moderating influence of perceived behavioural control. *Transportation Research Part F: Traffic Psychology and Behaviour*, 18, 148–158. https://doi.org/10.1016/j.trf.2012.12.014

Chee Seong, L., Bik Kai, S., & Guan Joo, G. (2011). The analysis of psychological factors affecting savers in Malaysia. *Middle Eastern Finance and Economics*, 12, 77–84. http://www.eurojournals.com/MEFE.htm

Chetty, R., Friedman, J. N., Leth-Petersen, S., Nielsen, T., & Olsen, T. (2012). Active vs. passive decisions and crowd-out in retirement savings accounts: Evidence from Denmark (18565). http://www.nber.org/papers/w18565

Chetty, R., Friedman, J.N., Soren Leth-Petersen, S., Torben Heien Nielsen, T., & Olsen, T. (2013). Subsidies vs. nudges: Which policies increase saving the most? Center for Retirement Research at Boston College, 13(3), 1-6.

Croy, G., Gerrans, P., & Speelman, C. (2012). Normative influence on retirement savings decisions: Do people care what employers and the government want? *Australian Journal of Psychology*, 64(2), 83–91. https://doi.org/10.1111/j.1742-9536.2011.00029.x

Cuccia, A. D., Doxey, M. M., Stinson, S. R., (2019). The impact of tax incentive structure on taxpayers' retirement savings decisions. *25th Journal of the American Taxation Association (JATA) Conference Washington*, DC. https://tinyurl.com/53aa9f9w

de Walque, D. (2020). The use of financial incentives to prevent unhealthy behaviors: A review. *Social Science and Medicine*, 261, 1–13. https://doi.org/10.1016/j.socscimed.2020.113236

Department of Statistics Malaysia (DOSM) (2023). Poverty in Malaysia 2022, Malaysian Poverty Report 2022.

Dong, H., Zhang, Y., & Chen, T. (2023). A Study on farmers' participation in environmental protection in the context of rural revitalization: The moderating role of the policy environment. *International Journal of Environmental Research and Public Health*, 20(3). https://doi.org/10.3390/ijerph20031768

Duckworth, A. L., Milkman, K. L., & Laibson, D. (2018). Beyond willpower: Strategies for reducing failures of self-control. Psychological science in the public interest: *A Journal of the American Psychological Society*, 19 (3), 102–129. https://doi.org/10.1177/1529100618821893

Fadejeva, L., & Tkacevs, O. (2022). The effectiveness of tax incentives to encourage private savings. *Baltic Journal of Economics*, 22(2),110–125. https://doi.org/10.1080/1406099X.2022.2109555

Faisal, A., Fauzi, A., & Respati, D. K. (2023). The effect of financial literacy, self-control, and peers on saving behavior students of state vocational high school in west Jakarta region. *International Journal of Multidisciplinary Research and Literature*, 2(2). https://doi.org/10.53067/ijomral.v1i1

Fleishman-Mayer, L. A., Hung, A., Yoong, J., Clift, J., & Tassot, C. (2013). Designing better pension benefits statements: current status, best practices and insights from the field of judgment and decision making. 1-33. https://tinyurl.com/3mn3eyek

Ghadwan, A. S., Wan Ahmad, W. M., & Hisham Hanifa, M. (2023). Financial planning for retirement: The moderating role of government policy. *SAGE Open*, 13(2). https://doi.org/10.1177/21582440231181300

Goyal, K., Kumar, S., & Hoffmann, A. (2023). The direct and indirect effects of financial socialization and psychological characteristics on young professionals' personal financial management behavior. *International Journal of Bank Marketing*. https://doi.org/10.1108/IJBM-09-2022-0419

Grassini, S., & Koivisto, M. (2024). Understanding how personality traits, experiences, and attitudes shape negative bias toward AI-generated artworks. *Scientific Reports*, 14(1). https://doi.org/10.1038/s41598-024-54294-4

Habibah, U., Hassan, I., Iqbal, M. S., & Naintara. (2018). Household behavior in practicing mental budgeting based on the theory of planned behavior. *Financial Innovation*, 4(1). https://doi.org/10.1186/s40854-018-0108-y

Halpern, D., & Sanders, M. (2016). Nudging by government: Progress, impact, & lessons learned. *Behavioral Science & Policy*, 2(2), 53–65

Hartono, U., & Isbanah, Y. (2022). Students' saving behavior: What are the motives that influence them to save? *Jurnal Ekonomi Bisnis Dan Kewirausahaan*, 11(3), 363. https://doi.org/10.26418/jebik.v11i3.56561

Hershey, D. A., & Mowen, J. C. (2000). Psychological determinants of financial preparedness for retirement. *The Gerontologist*, 40 (6). https://academic.oup.com/gerontologist/article/40/6/687/604735

Hiep, N. Van, & Tram, P. N. (2020). Innovation of university teaching methods towards "maximising benefits" of students in Vietnam. *Universal Journal of Educational Research*, 8(12B), 8255–8261. https://doi.org/10.13189/ujer.2020.082630

Hong, J., She, Y., Wang, S., & Dora, M. (2019). Impact of psychological factors on energy-saving behaviour: The moderating role of government subsidy policy. *Journal of Cleaner Production*, 232, 154–162. https://doi.org/10.1016/j.jclepro.2019.05.321

Hyun Hong, S., & Nam, B. (2021). Policy considerations in using tax incentives for foreign investment. ASEAN+3 Macroeconomics Research Office (AMRO), 1-17.

Ibrahim, D., Isa, Z. M., & Ali, N. (2012). Malaysian savings behavior towards retirement planning. 2012 *International Conference on Economics Marketing and Management*, 102–105. https://tinyurl.com/3z9mcvkh

Innocenti, S., Clark, G. L., & McGill, S. (2023). 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

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

Jamal, A. A. A., Ramlan, W. K., Mohidin, R., & Osman, Z. (2016). Determinants of savings behavior among university students in Sabah, Malaysia. *International Journal of Accounting, Finance and Business*, 1(1), 24–37. www.ijafb.com

Jurlin, K. (2023). How efficient and socially sensitive are fiscal incentives for electric cars in Europe? *Journal of Risk and Financial Management*, 16(6). https://doi.org/10.3390/jrfm16060283

Knoll, M. A. Z. (2010). The Relevance of Behavioral Economics and JDM in the Current Savings Climate*. Social Security Bulletin*, 70, 1–23. http://www.socialsecurity.gov/policy

Kumaraguru, L., & Geetha, C. (2021). The influence of attitude, subjective norms and perceived behavioral control on retirement preparation: a case of gen Y in Selangor, Malaysia. *International Journal of Advanced Research in Economics and Finance*, 3(3), 219–238. http://myjms.mohe.gov.my/index.php/ijaref

Kumaraguru, L., Geetha, C., & Mohidin, R. (2022). The factors influencing retirement preparation among Gen Y in Malaysia. *Advanced International Journal of Banking, Accounting and Finance*, 4(10), 01–12. https://doi.org/10.35631/aijbaf.410001

Lajuni, N., Abdullah, N., Bujang, I., Yacob, Y., & Yusman. (2018). Examining the predictive power of financial literacy and theory of planned behavior on intention to change financial behavior. *International Journal of Business and Management Invention (IJBMI)*, Vol. 7. www.ijbmi.org60|Page

Lovett, F. (2006). Rational choice theory and explanation. *Rationality and Society,* 18(2), 237–272. https://doi.org/10.1177/1043463106060155

Magwegwe, F. M., & Lim, H. N. (2021). Factors associated with the ownership of Individual Retirement Accounts (IRAs): Applying the theory of planned behavior. *Journal of Financial Counselling and Planning,* 32(1), 116–130. https://doi.org/10.1891/JFCP-19-00023

Malaysian Department of Insolvency (MDI) (2023). Bankruptcy Statistic 2023. https://www.mdi.gov.my/index.php/legislation/statistics/75-bankruptcy/2215-bankruptcy-statistic-2023

Md Yusuf, M., Yazis Ali Basah, M., & Suhaylah Yusoff, Y. (2014). Pre-Retirement withdrawal in EPF: An exploratory study of employees in Malaysia. *Australian Journal of Basic and Applied Sciences*, 8(3), 439–444. www.ajbasweb.com

Mohd, J., Kadir, A., Azri, A., & Jamaluddin, B. (2020). Saving behavior in an emerging country: The role of financial knowledge, parent socialization and peer influence. *Journal for Social Sciences,* 23(1). https://gadingss.learningdistance.orgeISSN:2600-7568|65

Muhammad Husin, N. K., & Mohamed, A. M. (2021). The Effects of Savings Culture and Government Policy in Instilling the Habit of Savings: Evidence from a Survey of Public Sector Employees. *Advances in Social Sciences Education and Humanities Research*, 564, 307–312.

Murugiah, L. (2021). Saving management in Malaysia. *Estudios de Economia Aplicada*, 39(10). https://doi.org/10.25115/eea.v39i10.5360

Mutlu, Ü., & Özer, G. (2022). The effects of financial attitudes, financial literacy and health literacy on sustainable financial retirement planning: The moderating role of the financial advisor. *Journal of Emerging Economies And Policy,* 7(1), 8–15. http://dergipark.org.tr/joeep

News Straits Time (NST) (2024, January 22), the Cakna duit campaign encourages financial literacy among Malaysians. https://www.nst.com.my/business/money/2024/01/1004251/cakna-duit-campaign-encourage-financial-literacy-among-malaysians

Nga, K. H., & Yeoh, K. K. (2018). An exploratory model on retirement savings behaviour: A Malaysian study. *International Journal of Business and Society*, 19(3), 637–659.

Ningrum, A. U., & Setiyawati, H. (2022). Tax compliance analysis moderated with trust in government. *International Journal of Engineering Research and Management (IJERM)*, 9(4), 21–27. www.ijerm.com

Nosi, C., D'Agostino, A., Pagliuca, M., & Pratesi, C. A. (2017). Securing retirement at a young age. Exploring the intention to buy longevity annuities through an extended version of the theory of planned behavior. *Sustainability (Switzerland),* 9(6). https://doi.org/10.3390/su9061069

Obaji, N. O. (2014). The role of government policy in entrepreneurship development. *Science Journal of Business and Management*, 2(4), 109. https://doi.org/10.11648/j.sjbm.20140204.12

Pambudi, S. R. T., Sudarno, & Sabandi, M. (2024). Financial Literacy, Risk Perception, Overconfidence Moderated by Financial Education on Investment Decisions. *Economic Education Analysis Journal,* 13(2), 151-162.

Park, D. (2009). Ageing Asia's Looming Pension Crisis, 165, 25-26. https://hdl.handle.net/11540/1819

Peiris, T. U. I. (2021). Effect of financial literacy on individual savings behavior: The mediation role of intention to saving. *European Journal of Business and Management Research*, 6(5), 94–99. https://doi.org/10.24018/ejbmr.2021.6.5.1064

Perbadanan Insurans Deposits Malaysia (PIDM) (2023). Why don't we save more: Encouraging Malaysian financial resilience. Savings Report. https://www.pidm.gov.my/en/info-centre/reports-and-insights/savings-report

Puspasari, E., Yanto, H., & Prihandono, D. (2018). The saving behavior of State Vocational High School Students in Tegal Regency. *Journal of Economic Education*, 7(2), 132–142. http://journal.unnes.ac.id/sju/index.php/jeec

Putri, R. E., Sutieman, E., Noy, I. R., Marih, L. O., & Pattiasina, V. (2022). The influence of financial literacy, self-control and parents' socio-economic status on students' consumptive behavior. *Jurnal Aplikasi Kebijakan Publik & Bisnis*, 3(2), 125–140. https://stia-saidperintah.e-journal.id/ppj

Rabun, M. N., Ahmad Marzuki, N. N., Abd Mutalib, N., & Othman, M. H. (2023). Do they intend to save? Saving behavior intention among urban dwellers from low-income households. *Environment-Behaviour Proceedings Journal*, 8(SI15), 271–275. https://doi.org/10.21834/e-bpj.v8isi15.5102

Raut, R. K., Das, N., & Kumar, R. (2018). Extending the theory of planned behaviour: Impact of past behavioural biases on the investment decision of Indian investors. *Asian Journal of Business and Accounting*, 11(1).

Sabri, M. F., Yusof, R., Abd. Rahim, H., & Md. Jusoh, Z. (2019). The role of perceived behavioral control as a mediator on financial incentives towards saving in a voluntary retirement fund. *Advances In Business Research International Journal*, 5(1), 144. https://doi.org/10.24191/abrij.v5i1.10002

Sahadev, S., Malhotra, N., Kannangara, L. N., & Ritchie, B. W. (2024). Disaster planning intentions of tourism accommodation managers: Understanding the influence of past disaster experience and disaster management training. *Journal of Travel Research*, 63(1), 175–194. https://doi.org/10.1177/00472875221145129

Sass, S. A. (2016). Can we increase retirement savings? Chestnut Hill, Mass. Centre for Retirement Research at Boston College, 16(15), 1-9. http://hdl.handle.net/2345/bc-ir:107184

Sato, Y. (2013). Rational choice theory. Sociopedia. https://doi.org/10.1177/205684601372

Satsios, N., & Hadjidakis, S. (2018). Applying the theory of planned behavior (TPB) in the saving behavior of Pomak households. *International Journal of Financial Research*, 9(2), 122–133. https://doi.org/10.5430/ijfr.v9n2p122

Setya Ningsih, R., & Sudarma, K. (2018). The effect of family environment and school environment towards savings behavior through self-control in high school students in Purwodadi City, Grobogan Regency. *Journal of Economic Education*, 7(1), 52–59. http://journal.unnes.ac.id/sju/index.php/jeec

Sekita, S., Kakkar, V., & Ogaki, M. (2022). Wealth, financial literacy and behavioral biases in Japan: The effects of various types of financial literacy. *Journal of the Japanese and International Economies*, 64. https://doi.org/10.1016/j.jjie.2021.101190

She, L., Rasiah, R., Weissmann, M. A., & Kaur, H. (2023). Using the theory of planned behavior to explore predictors of financial behavior among working adults in Malaysia. *FIIB Business Review*. https://doi.org/10.1177/23197145231169336

Sommer, L. (2011). The theory of planned behaviour and the impact of past behaviour. *International Business & Economics Research Journal*, 10(1).

Tan, S., & Singaravelloo, K. (2020). Financial literacy and retirement planning among government officers in Malaysia. *International Journal of Public Administration*, 43(6), 486–498. https://doi.org/10.1080/01900692.2019.1672078

Taş, E., & Erdil, E. (2023). Effectiveness of R&D tax incentives in Turkey. *Journal of the Knowledge Economy*. https://doi.org/10.1007/s13132-023-01326-5

Thaler, R. H., & Benartzi, S. (2004). Save more tomorrow: Using behavioral economics to increase employee saving. *Journal of Political Economy*, 112(1). https://doi.org/10.1086/380085

The Star (2024, September 9), 10-13% of new bankruptcy cases from 2021-2024 involve civil servants, says MDI DG, https://www.thestar.com.my/news/nation/2024/09/09/10-13-of-new-bankruptcy-cases-from-2021-2024-involve-civil-servants-says-mdi-

Thomas, B., & Subhashree, P. (2020). Behavioral and psychological factors that influence the usage of formal financial services among low-income households. *Research in World Economy*, 11(5), 326–333. https://doi.org/10.5430/rwe.v11n5p326

Tomar, S., Kent Baker, H., Kumar, S., & Hoffmann, A. O. I. (2021). Psychological determinants of retirement financial planning behavior. *Journal of Business Research*, 133, 432–449. https://doi.org/10.1016/j.jbusres.2021.05.007

Ugwu, L. E., & Idemudia, E. S. (2023). Retirement planning and financial anxiety among Nigerian civil servants: Insights from social comparison theory. *Behavioral Sciences*, 13(5). https://doi.org/10.3390/bs13050425

Venti, S. F., & Wise, D. A. (1992). Government policy and personal retirement saving. *Tax Policy and the Economy*, 6, 1–41. https://doi.org/10.1086/tpe.6.20061808

Wahab, Mohd. S. @ S., Abd. Karim, Mohd. R., & Lim, T. S. (2022). Financial literacy and behavioral disposition in retirement saving – A study on employee's preparedness for a fully defined contribution pension scheme in Malaysia. *Kasetsart Journal of Social Sciences*, 43(3), 619–628. https://so04.tci-thaijo.org/index.php/kjss/article/view/260322

Wang, J. S. H., Ssewamala, F. M., Neilands, T. B., Bermudez, L. G., Garfinkel, I., Waldfogel, J., Brooks-Gunn, J., & You, J. (2018). Effects of financial incentives on saving outcomes and material well-being: evidence from a randomized controlled trial in Uganda. *Journal of Policy Analysis and Management*, 37(3), 602–629. https://doi.org/10.1002/pam.22065

Weaver, R. K. (2019). Reverse Engineering And Policy Design. https://tinyurl.com/bdf2cz3h

Yusof, R., & Sabri, M. F. (2017). Determinants of retirement savings. *Human Ecology International*, 167–182. https://www.researchgate.net/publication/321572773_Determinants_Of_Retirement_Savings