Global Journal of Business, Economics, and Management: Current Issues

Volume 14, Issue 1, (2024) 49-69

www.wjbem.eu

A research proposal to examine psychological factors that influence financial planning for retirement in China

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Suggested Citation:

Han, R. & Sang, L.T. (2024). A research proposal to examine psychological factors that influence financial planning for retirement in China. *Global Journal of Business, Economics, and Management: Current Issues. 14*(1), 49-69. https://doi.org/10.18844/gjbem.v14i1.9355

Received from June 18, 2023; revised from January 5. 2024; accepted from March 25, 2024
Selection and peer review under the responsibility of Prof. Dr. Andreea Claudia Serban, Bucharest Academy of Economic Studies, Romania.

Abstract

The life expectancy rate of individuals worldwide has risen, and China is not excluded. Combined with an aging population, increasing pressure on the pension fund system, and a lack of savings, it poses a significant challenge to financial security unless measures are taken to improve individuals' planning and financial well-being in retirement. This study aims to examine the psychological factors that influence individuals' FPR, thereby expanding the explanatory models for retirement savings decisions and behaviors. Using the CWO Model and supported by image Theory and the 3M Model, this research focuses on how the interaction between future time perspective, risk tolerance, retirement goal clarity, subjective financial literacy and objective financial literacy as psychological characteristics influence individuals' FPR. To obtain meaningful results, back translation was used to check the accuracy of the preliminary translation of research instruments. This translation method was also combined with the pretest method of expert reviews and cognitive interviews to increase the validity of the survey questionnaire. A purposive sampling technique will be applied to collect data from adults who are over 23 years old and have a certain income stream in six cities in China. The Structural Equation Modelling software will be used to examine the hypotheses of direct and mediating effects. This study has implications for financial market regulators, policy makers, and consumers.

Keywords: CWO model; decision-making; financial planning; financial literacy; psychological factors; retirement

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1. Introduction

In the past decade, governments and policymakers have insisted on threats posed to public pension systems as the only guarantors of the well-being of retired people (Budowski et al., 2016; Oteng et al., 2024). However, people are not particularly good with the issue of retirement planning. Lusardi (2011) reported that relatively few people feel they can plan their retirement effectively. Various studies express concern about the prevalence of financial insolvency among people during retirement. The sustainability of public and private pension provisions is at risk because of financial deficits (Farrar et al., 2019). Combined with an aging population, increasing pressure on pension provisions, and a lack of savings, this situation poses a significant challenge to financial security unless policy measures are taken to improve their planning and financial well-being in retirement (Ribes, 2022; Ingale & Paluri, 2023). Financial Planning for Retirement (FPR) is a set of activities related to the accumulation of wealth to meet needs in the post-retirement phase of life (Topa et al., 2018). This financial facet involves planning and making decisions about the allocation of limited resources to various competing purposes (Hatcher, 2003; Park & Martin, 2022). This situation calls for exploring the existing retirement landscape to better understand individuals' FPR and draw implications for designing effective strategies and reforms in the pension system.

Chinese individuals are also faced with the same situation. The aging of the population is a challenge for all societies, including China. By 2051, China's elderly population is expected to reach 300-400 million and the trend of population aging is hard to reverse (China National Committee on Aging (CNCA). Hence, aging-population issues will be significant and will impact retiree's financial well-being due to the stress on the pension fund system (Xiang & Wang, 2021). The problem of population aging is not only reflected in the number of aging. China's population aging is also reflected in "getting old before getting rich". The challenge of aging in China is more severe than that in other countries (Lu et al., 2021).

Based on the three-pillar model proposed by the World Bank (World Bank, 1994), the theoretical framework of China's three-pillar pension system has been formed. In terms of structure, Li (2022) indicated that the development of the three-pillar system is extremely uneven in practice. By the end of 2020, the first pillar of the pension system was about 5.8 trillion, accounting for 71%, which ranks in the leading position. The second pillar of annuity is about 3.6 trillion-yuan, accounting for 29% with slow development. However, the third pillar of individual pension is seriously insufficient, which only accounts for 0.004%. It is not difficult to find that the development of the multi-pillar pension system is extremely uneven (Li, 2022). Therefore, when the first pillar and the second pillar cannot meet the needs of retirement income, the issue becomes serious. The current situation of the first pillar is that the capital inflow of basic pension accounts cannot fulfill the expenditure to individuals who have retired, and there is a serious problem of empty accounts of the basic pension system operated by the government (Lou, 2021). In addition, the current participation of the second pillar has limited development space. In general, the basic pension, which accounts for the largest proportion of pension supply, is faced with the issue of empty accounts, and the coverage of the second pillar of enterprise annuity and occupational annuity is limited, which has brought great pressure on individual retirement income. Therefore, private financial retirement savings should become an increasing component of retirement income (Wang & Hanna, 1997).

In terms of FPR, at present, individuals have a preliminary awareness of retirement financial savings, and the corresponding retirement saving methods are more abundant. Considering the subjective consciousness

of FPR, the China Aging Financial Survey (CAFS) found that although most people in China plan to save for retirement through participating in the pension system and purchasing financing products, there are 79.07% of the population have not yet achieved the expected FPR. Due to the lack of FPR, retirement savings are, in turn, still insufficient (Mu, 2020). Apart from insufficient savings for retirement, individuals' investment concepts for retirement are still traditional (Mu, 2020). Wu et al., (2017) proposed that the traditional investment concept for retirement, few financial products of retirement to choose from, coupled with the lack of financial knowledge leads to insufficient retirement savings.

With the issue of an aging population, increasing pressure on the pension system, and a lack of savings in China, measures should be taken to improve financial well-being in retirement. Due to the importance of individual savings, the study should look beyond it to understand the factors stimulating and inhibiting retirement saving behavior. Consequently, a need exists to determine whether the factors identified as those concerning FPR in foreign economies are also relevant in China.

To better understand what factors, influence individuals not saving at an adequate rate for retirement, researchers are focusing their attention on the factors that influence retirement planning (Hershey & Wilson, 1997; Evans et al., 1985; Ruhm, 1989). Of the numerous studies that have been conducted on retirement decision-making, the majority have focused on non-financial aspects of retirement planning such as timing of individuals' retirement and reasons given for leaving the workforce (Evans et al., 1985; Ruhm, 1989; Taylor & Shore, 1995). However, among psychologists, retirement planning is typically studied by examining how cognitive and personality constructs influence not only planning activities but also the tendency to save (Koposko et al., 2016). In an extended series of investigations, Hershey, Walsh, and their colleagues have examined individuals' abilities to make complex FPR (Hershey & Wilson, 1997). Hence, due to the economic implications of retirement, FPR has been considered one of the most relevant parts of general retirement preparation (Taylor & Geldhauser, 2007). FPR to have a financially secured post-retirement becomes a grave concern for many developed and emerging countries (Henkens, 2022; Scharn et al., 2018; Yeung & Lee, 2022). Therefore, the problem of not saving adequately for retirement can be put in another way: what are the factors that influence the individuals' FPR, which in turn, lead to inadequate saving?

Studies designed to identify variables related to FPR have been conducted by economists, sociologists, and to a lesser extent, psychologists (Furnham & Argyle, 1998; Schuabb et al., 2018; Franca & Hershey, 2018; Koposko & Hershey, 2014). However, much of the literature on FPR focuses on the influence of demographic factors (Jiménez et al., 2019; Heilman & Kusev, 2017). little is known about the psychological mechanisms that underlie FPR. Hershey et al., (2013) proposed a conceptual framework called the "Capacity-Willingness-Opportunity Model" (i.e., CWO model) to understand FPR. Although the CWO model focuses on the understanding of the influence of psychological factors on FPR, the model has not yet been extensively tested (shown in Table 2.1). Empirically, the CWO model was employed only by several researchers such as Jiménez et al., (2019), Palací et al., (2017), Ghadwan et al., (2022), and Tomar et al., (2021). In addition, there is some psychological literature about how psychological factors such as future time perspective (FTP) (Jacobs-Lawson & Hershey, 2005), retirement goal clarity (RGC) (França & Hershey, 2018; Tomar et al., 2021), risk tolerance (RT) (Bayar et al., 2020), objective financial literacy (OFL) (Amir & Anwar, 2016; Tomar et al., 2021) and subjective financial literacy (SFL) (i.e. subjective financial knowledge) (Jacobs & Hershey, 2005; Hershey & Mowen, 2000; Gutierrez & Hershey, 2014) influence retirement preparedness and financial decision-making competence.

1.1. Literature review

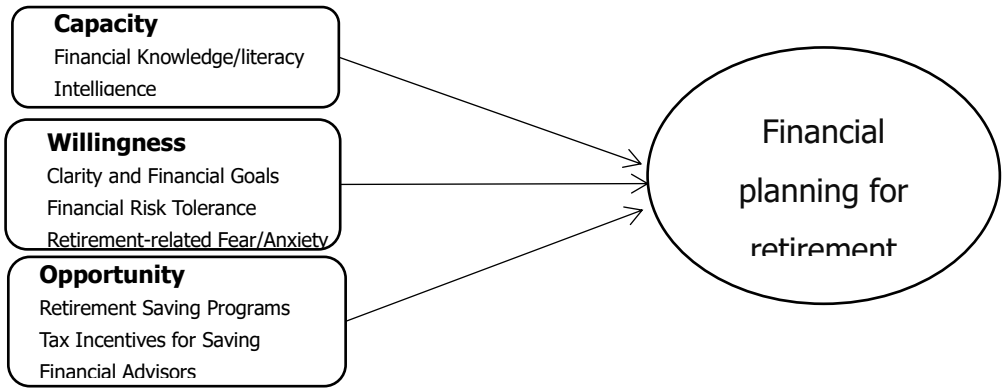
Contrary to the assumption of rationality and wise planning underlying the life-cycle theory, the research of behavioral economists has analyzed the reason why few individuals save for retirement. However, the relevant research mainly focuses on the explanation of what factors make individuals deviate from the rational FPR (Barberis & Thaler, 2003; Roland-Lévy & Kirchler, 2009). However, there is no generally accepted conceptual model for FPR to study what psychological factors affect financial retirement plans and lead to few individuals saving for retirement. One of the most well-developed models is the psycho-motivational model proposed by Hershey and colleagues (Hershey et al., 2007), which is called the Hershey model. Although the Hershey model is a psycho-motivational model to test the influence of psychological factors on FPR, it is usually regarded as an intermediary model to mediate the relationship between demographic variables and savings tendencies. The structure of this model suggests that psychological variables exert a proximal influence on saving tendencies, and demographic variables (i.e., representing the impact of the cultural ethos) have a distal influence on saving predispositions (Hershey et al., 2010).

To better understand FPR, Hershey et al., (2013), called the "Capacity–Willingness–Opportunity (CWO) Model," was developed as a conceptual framework for understanding a wide range of influences on FPR. As a foundation, the authors adapted Blumberg and Pringle's (1982) model of work performance, which proposed three main antecedents that contribute to individual performance: capacity, willingness, and opportunity. As shown in Figure 1, the dimension of capacity includes perceptive variables and skills that assist in distinguishing people's abilities in their knowledge and skills required to save, invest, and plan for retirement (Topa et al., 2018). The dimension of willingness comprises psychological and emotional variables that can motivate people to plan and save for retirement. Lastly, the dimension of opportunity includes external influence variables, such as parental influence. Unlike the original model, where the dimensions were conceived as additive in the Hershey model, potential interactions among the dimensions in the CWO model were acknowledged.

Topa et al., (2018) recommended that the model be used for comprehending FPR behaviors for several reasons. First of all, it is a psycho-motivational model in the sense that it is designed to explain FPR. Furthermore, it is integrative in the sense that it is broader in scope than most previous models of financial planning, in that it includes three different types of variables. (Hershey et al., 2013). And it is procedural because it incorporates a temporal dimension, analyzing age and stage, and their interaction with the other facets of the model. As previous research suggested, different patterns of change should be considered when examining retirement outcomes.

Figure 1

Capacity-Willingness-Opportunity Model



Compared to the Hershey model, although the CWO model focuses on the understanding of the influence of psychological factors on FPR, the model has not yet been extensively tested (shown in Table 2.1). Empirically, the CWO model was employed only by several researchers such as Jiménez et al. (2019), Palací et al. (2017), Ghadwan et al. (2022), and Tomar et al. (2021). That is to say, even though there is more than a decade's worth of empirical work that has examined the CWO model, the empirical evidence supporting this model still is fragmentary and insufficient.

In addition, to further the comprehension of the influence of psychological factors on FPR, broader explanatory models of decisions and behaviors of saving for retirement (Taylor and Doverspike, 2003) are required. There is a small but growing body of work that has demonstrated psychological factors are positively related to both retirement preparedness and financial decision-making competence. Particularly influential psychological variables include domain-specific knowledge (Ekerdt & Hackney, 2002), personality indicators such as conscientiousness, emotional stability, risk tolerance, and future time perspective (Hershey & Mowen, 2000; Vora & McGinnis, 2000; Yuh & DeVaney, 1996), and perceptions and attitudes related to the financial planning process (Jacobs-Lawson & Hershey, 2003). Therefore, in this research, the relationship between psychological factors and the impact on FPR needs to be studied based on the CWO model combined with the relevant psychological theories of decision-making.

Beach's image theory postulates that decision-makers act following their principles, ethics, and personality dimensions (self-image). They frame their goals, plans, and tactics (trajectory image) to be compatible with these principles. These goals further motivate or guide the incremental behavioral steps needed to achieve these goals (Beach and Mitchell, 1987). This theory presents an outline for a sequential relationship among the personality traits (e.g., future time perspective), cognitive constructs (e.g., subjective financial knowledge and goal clarity), and behavioral aspects (e.g., planning activity and saving behavior) (Tomar et al., 2021; Watkins et al., 2024). Mowen's 3M Model of Motivation and Personality suggests that elemental traits are an individual's essential underlying characteristics arising from that person's genetic and early learning (Mowen, 2000). These elemental traits define the compound trait or the central trait (future time perspective). The central traits serve as a causal precursor to the surface traits (retirement goal clarity and subjective financial knowledge), preceding the outcome behavioral variable (planning and saving). Therefore, image theory and the 3M Model provide theoretical support for the relationship among psychological variables. Especially the support for the mediating role of variables (i.e., retirement goal clarity and subjective financial knowledge).

The review of the literature discovered that the study on FPR differs across psychological, demographic, and external variables. In particular, psychological variables are mainly explained in the CWO model. Several studies have confirmed the significance of certain psychological variables: financial literacy (i.e., objective financial literacy and subjective financial literacy), retirement goals clarity, future time perspective, and financial risk tolerance. The variables that are tested frequently are discussed as follows.

Of the various psychological variables that have been studied about FPR, financial literacy is paid much more attention. FPR requires psychological resources such as financial knowledge to plan for and build financial assets for retirement. Likewise, Ghadwan et al. (2022) proposed that financial literacy has a positive effect on FPR. Similarly, the finding (Herrador-Alcaide et al., 2021) that financial literacy has a significant influence on behavior emphasizes the Hershey model's predictive power. Therefore, this finding can explain the financial behavior of retirement in samples of Spanish workers. However, based on the definition of financial literacy,

two types of financial literacy can be distinguished, namely objective financial literacy (OFL) and subjective financial literacy (SFL) (Hadar et al., 2013). Only a few empirical studies distinguish which aspects of financial knowledge/literacy are tested for FPR. Hershey & Mowen (2000) suggested that self-rated financial knowledge was positively related to perceived financial readiness. Palaci et al., (2017) also found that self-perceived financial literacy was positively associated with FPR.

Selected Studies have also shown that a widely accepted indicator of FPR is the clarity of retirement goals. Stawski et al., (2007) found that retirement goal clarity is an important predictor of retirement planning practices and that planning, in turn, predicts savings trends. In recent studies, according to the financial planning model proposed by França and Hershey (2018), financial retirement planning is a function of three main psychological constructs: financial knowledge, RGC, and future time perspective. Especially, RGC is thus closely related to retirement planning activities (França & Hershey, 2018). In fact, according to prior research, the positive effect of individuals' clarity of retirement goals on FPR is noted (Hershey & Mowen, 2000; Stawski et al., 2007; Tomar et al., 2021). A greater retirement goal clarity positively affects individuals' actual retirement planning activity in the three months following an initial intervention (Hoffmann & Plotkina, 2021).

The next psychological determinant of FPR is the future time perspective (FTP). In empirical studies, researchers have found that FTP predicts individuals' planning and saving for retirement. Noone et al., (2012) stated that FTP is an independent predictor of FPR. Hershey and Mowen (2000) suggested that not only does strong FTP affect people's financial planning knowledge, but this core trait has a direct impact on people's FPR as well. It is expected that individuals who score high on the future TP scale would be more likely to set goals and in turn better FPR (Hershey & Mowen, 2000). In a similar vein, Jacobs-Lawson and Hershey (2005) found that individuals with a high score of future time perspective would be more likely to set objectives and consequently, better in developing a plan for their retirement. França and Hershey (2018) also proposed that the relationship between future time perspective and saving tendency is positive. In more recent studies, Tomar et al., (2021) suggested that FTP not only has a significantly positive effect on women's FPR behaviors but also has an indirect impact on retirement planning behaviors through clarity of retirement goals.

A few studies examine the influence of risk tolerance on FPR. Studies from the general investment literature show that risk-tolerant individuals prefer to invest in high-risk options (e.g., equities), whereas those who are risk-averse prefer investing in bonds and certificates of deposit. Similar findings emerge from studies that focus on retirement investments (Hariharan, Chapman & Domian, 2000). Theoretically, risk tolerance should be combined with exogenous preference to analyze the impact of risk tolerance on personal financial retirement behavior (Campbell, 2006). Along similar lines, Grable and Joo (1997) report that risk tolerance is a significant predictor of retirement investment and saving strategies. In that, risk tolerance affects the way people invest their financial resources to achieve their goals, such as saving for retirement. Therefore, there is an expectation that people with varying levels of risk tolerance act differently when making investment decisions (Grable, 2016). In recent studies, risk tolerance was a significant predictor of excellent FPR. Bayar et al., (2020) also found that financial risk tolerance is essential for retirement planning and financial counseling.

After assessing the prior literature on psychological determinants of FPR, four primary gaps have been recognized. In terms of the theoretical gap, it can be seen from the above literature that the Hershey model is an intermediary model to test the relationship between demographic indicators and FPR. Therefore, the CWO model proposed by Hershey et al., (2013) focuses on the understanding of the influence of psychological factors on FPR. However, there are few studies on how psychological factors interact and affect FPR. To further

the comprehension of the influence of psychological factors on FPR, broader explanatory models of decisions and behaviors of saving for retirement (Taylor and Doverspike, 2003) are required. Therefore, the relationship among psychological factors needs to be studied based on the CWO model combined with relevant psychological theories of decision-making, which are the 3M Model and image theory in this research.

Regarding the geographic gap, there are still inconsistencies in the theoretical elements and empirical measurement of some links, and much work remains to be done. Foreign research on the psychological variables affecting FPR started earlier and has a large accumulation in both theoretical and empirical fields. However, according to literature research, the CWO model was mainly tested and studied in the US and Spain. Applying the CWO model to more countries may provide more empirical evidence from different cultures.

In terms of the empirical gap, even though there is more than a decade's worth of empirical works that have examined the CWO model (e.g., Hershey et al., 2013; Hershey & Mowen, 2000), the empirical evidence supporting this model still is fragmentary and insufficient. According to the above relevant literature on psychological factors, it can be seen that there is much literature on the impact of psychological factors on decision-making, but only a handful of literature is about the decisions of FPR. Empirically, the CWO model was employed only by several researchers such as Jiménez et al., (2019), Palací et al., (2017), Ghadwan et al., (2022), and Tomar et al., (2021). So more empirical studies are needed to analyze the impact of psychological factors on FPR. In addition, according to the 3M Model and image theory, psychological factors like retirement goal clarity and SFL can act as mediating roles in the research. OFL can also have a moderating effect. However, this has found little relevant argument in the previous literature. The aim of this research is, therefore, to address the empirical gap in the literature by providing empirical evidence for the influence of FPR.

In terms of the knowledge gap, based on the definition of financial literacy, two types of financial literacy may be distinguished from each other, which are objective financial literacy (OFL)and subjective financial literacy (SFL) (Hadar et al., 2013). The existing measures of financial literacy in the literature are dominated by measures of OFL (Lusardi & Mitchell, 2008; Van Rooj et al., 2011). That is to say, the previous literature about the relationship between financial literacy and FPR mainly considers OFL. As a psychological variable, financial literacy not only refers to objective financial knowledge but also the self-beliefs regarding financial knowledge. Therefore, SFL is also an important independent variable that should be considered. Because SFL relates to the literature on individuals' subjective knowledge (Nejad & Javid, 2018), the previous literature about subjective knowledge and FPR can be interchangeable with SFL and FPR. However, OFL and SFL were not regarded as different independent variables to be discussed in the previous literature about FPR. It is the knowledge that may not exist in the literature of FPR.

From an academic perspective, despite there being more than a decade's worth of empirical works that have examined the aspects of the CWO model, the empirical evidence supporting this model still is fragmentary and insufficient. Therefore, this study can verify and enrich the model from a non-Western perspective, but the empirical evidence supporting this model still is fragmentary and insufficient. Moreover, this study can make up for the research gap in China and enrich the empirical research literature suitable for China. Similarly, the mediating role of SFL and retirement goal clarity and the moderating role of OFL are also considered with the influence of FPR, which expands the existing research perspective and enriches the relevant knowledge. From a practical perspective, by developing an understanding of the interaction of psychological traits with financial literacy, financial market regulators and consumer policymakers in China can get a better understanding of FPR behavior. Moreover, through the research on the psychological influencing

factors and the interaction among psychological factors, this research can get suggestions to improve the financial planning level of individuals' retirement and get a fundamental change in mentality, which also provides an empirical basis for promoting the designation of family retirement financial plan and alleviating the pressure of public support system.

1.1.1. Development of framework and hypothesis

In the research of FPR, behavioral economists have found that there are differences in individual retirement savings behavior. These practices that deviate from rational people can be explained by behavioral economics combined with psychological theory (Barberis & Thaler, 2003; Tversky & Kahneman, 2002). They found that these decisions were in turn influenced by a few psychological characteristics. Therefore, there is a need to research the psychological factors influencing the FPR. Hershey's CWO model proposed three dimensions of psychological variables and verified how they influenced FPR through empirical research. But CWO model can only provide a theoretical framework to test the impact of psychological variables on FPR. To understand the relationship among psychological variables and their effect on FPR, the research needs to combine the CWO model with the psychological theory of decision-making. Image theory and the 3M Model provide theoretical support for the relationship among psychological variables and enrich the research scope of the CWO model.

1.2. Theoretical framework

This theoretical framework is developed based on the CWO model (Hershey et al., 2013) and supported by image theory (Beach, 1998) and the 3M Model (Mowen, 2000). Based on the CWO model (Hershey et al., 2013), the framework identifies financial literacy (i.e., SFL and OFL), FTP, retirement goal clarity, and risk tolerance as antecedents of FPR. To further the comprehension of FPR, the study needs broader explanatory models of decisions and behaviors of saving for retirement (Taylor & Doverspike, 2003). This research combines the CWO model with image theory and the 3M Model to study the relationship between psychological factors and the impact on FPR. Therefore, according to the image theory and 3M Model, SFL and RGC are predicted to mediate the relationship between FTP and FPR. In terms of OFL, previous literature tested the moderating effect of OFL (Grable, 2008; Diacon, 2004; Lusardi & Mitchell, 2008). Therefore, the framework examines the moderating effect of OFL on the relationship between risk tolerance and FPR, and the relationship between SFL and FPR.

1.2.1. The Impact of psychological characteristics on FPR

1.2.1.1. Future time perspective

In terms of the relationship between FTP and FPR, the Hershey model (2013) and the 3M model (Mowen, 2000) provide a theoretical base on the relationship between FTP and FPR. Hershey et al., (2010) characterize future time perspective as one of the "central" or "cardinal" personality traits and a predictor of future financial planning. It exerts its effect by influencing involvement in financial planning activities (Hershey et al., 2007; Kooij, et al., 2018). Hastings et al., (2011) identify FTP as a significant predictor of savings for retirement. They find that investors who are not FTP tend to invest in shortsighted investment options, which in turn, have less savings for the future. Similarly, França and Hershey (2018) also proposed that the relationship between future time perspective and saving tendency is positive. Tomar et al., (2021), and Clark et al., (2019), present similar findings. They state that people scoring low on FTP are less concerned about savings or future retirement planning.

According to the literature review, there are contradictory views regarding the effect of future time perspective and planning. Petkoska & Earl (2009) showed that future time perspective was not a predictor of planning across any of the planning domains. But the most of the literature still has the conclusion that FTP has a positive relationship with FPR. Consequently, the following hypothesis is posited:

Hypothesis 1: Future time perspective is positively associated with financial planning for retirement.

1.2.1.2. Subjective financial literacy

With measures of financial literacy dominated by OFL, little literature is about SFL. Due to the definition of SFL is not applied extensively, the previous literature related to SFL can be substituted by the definition of individuals' subjective financial knowledge (Nejad & Javid, 2018). The relationship between SFL and FPR is based on the Hershey model and CWO model (Hershey et al., 2013). Subjective financial knowledge plays a key role in FPR. Research also demonstrates that self-assessed knowledge is positively related to retirement planning activities (Ekerdt et al., 2001) and financial saving tendencies. Based on the above argument, people who have more SFL will have the confidence or attitude to plan more retirement activities and have more saving tendencies. Hence:

Hypothesis 2: Subjective financial literacy is positively associated with financial planning for retirement.

1.2.1.3. Risk tolerance

The relationship between risk tolerance and FPR has a theoretical base in the CWO model (Hershey et al., 2013). Besides, as the variable of value image in image theory (Beach, 1998), the individuals' decision or plan should be compatible with value image (i.e., risk tolerance) (Gutierrez & Hershey, 2014). Though few literatures examine the influence of risk tolerance on FPR, the relationship between them can still be concluded. For instance, Grable and Joo (1997) and Jacobs-Lawson and Hershey (2005) report that a higher risk tolerance predisposes an individual to develop aggressive FPR. Along similar lines, Grable and Joo (1997) report that risk tolerance is a positive predictor of FPR. In recent studies, risk tolerance was a significant predictor of excellent FPR (Larisa et al., 2020). Bayar et al., (2020) also found that financial risk tolerance is essential for retirement planning and financial counseling.

Based on past studies, high-risk tolerant individuals prefer to invest in risky options and dare to make financial decisions more independently. Therefore, these people tend to develop aggressive FPR such as retirement financial investment. Thus, the following hypotheses are posited:

Hypothesis 3: Risk tolerance is positively associated with financial planning for retirement.

1.2.1.4. Retirement goal clarity

The relationship between retirement goal clarity and FPR is supported by the 3M Model and CWO model. Hershey et al., (2003) reported that people who engaged in goal-setting exercises showed greater FPR after 12 months than people who did not. Furthermore, Neukam and Hershey (2003) showed that financial goal strength was positively related to retirement savings contributions. Various studies in the field of psychology also unanimously agree that a clear and well-defined goal is crucial as it predisposes an individual to get involved in planning activities, which further enhance the saving contributions (Hershey et al., 2007; Hershey et al., 2010; Stawski et al., 2007). According to prior works, the positive effect of personal goals for retirement on the decision-making of FPR is noted (Hershey & Mowen, 2000; Hershey et al., 2007; Topa & Herrador-Alcaide, 2016; Topa et al., 2018; Stawski et al., 2007). In recent studies, more empirical evidence has tested

the relationship between retirement goal clarity and FPR. Research has demonstrated that goal clarity positively explains individuals' level of FPR (Stawski et al., 2007; França & Hershey, 2018; Tomar et al., 2021; Hoffmann & Plotkina, 2021). Taken together, clearer retirement goals are associated with a more active decision of FPR. The clear goals help to structure perceptions of the retirement experience, they allow individuals to form expectations about future resource needs, and as mentioned above, they help increase both actual savings levels as well as the intention to save. Based on previous research findings, the following is posited:

Hypothesis 4: Retirement goal clarity is positively associated with financial planning for retirement.

1.2.1.5. The mediating role of subjective financial literacy and retirement goal clarity

Due to the definition of SFL is not applied extensively, the previous literature related to SFL can be substituted by the definition of individuals' subjective financial knowledge (Nejad & Javid, 2018). Hershey and Mowen (2000) studied the influence of psychological characteristics, subjective financial knowledge, and financial preparedness on retirement planning. They included cardinal traits to predict the central trait (future time perspective) and the surface trait (subjective financial planning knowledge and level of involvement in retirement issues). Finally, the criterion measure was identified that represented financial preparedness in the form of FPR. In this context, subjective financial knowledge reflects a mediating role in the relationship between FTP and other financial preparedness (Hershey & Mowen, 2000). Moreover, based on previous empirical findings by Hershey and Mowen (2000), Jacobs-Lawson and Hershey (2005), and Mowen (2000), subjective financial knowledge will be predicted by future time perspective and general retirement goal clarity. In recent studies, Rolison, Hanoch, and Wood (2017) found that younger individuals with a long-term or high future time perspective, prioritize the attainment of subjective financial knowledge. Kooij et al., (2018) also proposed that future time perspective is positively associated with retirement planning-related outcomes (i.e., self-assessed financial knowledge) from the aspect of psychology. Taken together, they can explain a significant variance in the various components of financial well-being. Therefore, the following hypotheses are proposed:

Hypothesis 5: Subjective Financial literacy mediates the relationship between future time perspective and FPR

The theoretical base of the mediating role of goal clarity also has empirical research in FPR. Mowen (2000) proposed that general retirement goal clarity will be predicted by a future time perspective. It is posited that future time perspective (a personality trait) precedes general retirement goal clarity in the model based on the theoretical position advanced in (Mowen 2000; and Austin & Vancouver, 1996). Based on previous empirical findings by Hershey and Mowen (2000); and Jacobs-Lawson and Hershey (2005), general retirement goal clarity will be predicted by a future time perspective. Rolison et al., (2017) also found that younger individuals with a long-term or high future time perspective prioritize their goals for retirement. It can be seen that there is literature about the mediating role of retirement goal clarity. But the mediating role has the theoretical basis which is Mowen's 3M Model. The theory suggests that future time perspective is one of the "central" or "cardinal" personality traits, and can predict surface traits like retirement goal clarity. Hence:

Hypothesis 6: Retirement goal clarity mediates the relationship between future time perspective and FPR

1.2.1.6. The moderating role of objective financial literacy

Objective financial literacy (OFL) can not only influence FPR directly but also be regarded as a moderator to have an impact on the relationship between psychological factors and FPR. In terms of the moderating effect

on psychological variables, Grable (2008) proposed that financial literacy has a significant impact on risk tolerance. People with greater OFL tend to invest their retirement savings in high-risk, high-return products, which means to have more risk tolerance. In the same vein, financial experts prefer risky areas of investment as compared to less financially literate people (Diacon, 2004).

In addition, there is a very strong correlation between objective and subjective financial literacy, that is, self-reported financial literacy provides useful information about SFL (Lusardi & Mitchell, 2009). OFL has an impact on SFL. Therefore, due to the definition of OFL and SFL, SFL is self-belief toward financial knowledge. It can be regarded as a psychological factor to test the influence on FPR. OFL, which refers to actual financial knowledge, is regarded as a moderator to test the impact of the relationship between psychological factors and FPR in this research. It is consistent with the evidence showed by Tomar et al., (2021) that OFL moderates the relationship among psychological factors and FPR. Especially from the literature above, people who have higher OFL will have more risk tolerance about the retirement financial product which in turn, moderates the relationship between risk tolerance and FPR. Besides, higher OFL has a connection with higher SFL, which leads to the impact of the relationship between SFL and FPR. Based on the above arguments, the following hypotheses are proposed:

Hypothesis 2a: Objective financial literacy moderates the relationship between subjective financial literacy and FPR.

Hypothesis 3a: Objective financial literacy moderates the relationship between risk tolerance and FPR.

1.3. Purpose of study

Therefore, in this research, the relationship between psychological factors and the impact on FPR needs to be studied based on the CWO model combined with the relevant psychological theories of decision-making.

According to the above gaps, this research explores the following questions:

1. Is FPR influenced by retirement goal clarity, risk tolerance, subjective financial literacy, and future time perspective?
2. What is the relationship among retirement goal clarity, subjective financial literacy, risk tolerance, and future time perspective?
3. Does retirement goal clarity and subjective financial literacy mediate the relationship between future time perspective and FPR?
4. Does objective financial literacy moderate the relationship between risk tolerance and FPR, and the relationship between subjective financial literacy and FPR?

2. Methods and materials

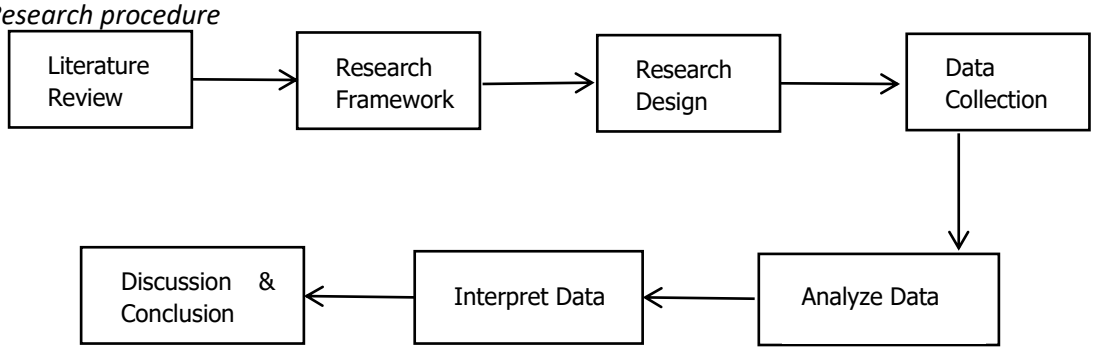
The research is to empirically investigate the effects of psychological factors on financial planning for retirement using primary data, thus positivist research. Based on relevant theories, a theoretical model is formulated, and hypotheses are constructed.

2.1. Procedure

This study follows a research process that comprises searching the research questions, formulating a conceptual framework, designing the survey questionnaire, collecting and evaluating data, and discussing the results. Figure 2 outlines the research process involved in the study.

Figure 2

Research procedure



2.2. *Participants*

The unit of analysis is individual. The targeted respondents are Chinese adults with a steady income and who are 23 years old and above. The minimum age is determined as university graduates complete their first degree at 22 years old and are assumed to have a stable income one year after.

Sampling involves finding the right respondents for a study and there are two commonly used sampling methods, i.e., non-probability and probability (Sekaran & Bougie, 2016; Sekaran, 2003). There could be certain situations that may constrain the study from collecting data via probability sampling (Visser et al., 2000). In the current study, the key barrier unavailability of the sampling frame. Hence, a non-probability sampling is used. This sampling method denotes that not all individuals in the population will have an equal opportunity to be chosen (Sekaran & Bougie, 2016). Data for the research were collected from several cities covering the Northern, Southern, Eastern, and Western areas of China. The cities include Changchun, Chengdu, Xining, Zhejiang, Beijing, and Shanghai. Changchun, Chengdu, Xining, and Zhejiang are four major cities located separately in the Northern, Southern, Eastern, and Western areas of China. Beijing and Shanghai are two super major cities in China. These cities were considered appropriate as the locations are scattered in different parts of China. Besides, major cities normally attract job seekers and entrepreneurs from other districts and states. Thus, it is fair to claim that the data collected from these major cities could ensure diversity in terms of respondents' backgrounds.

The participants were filtered using three requirements to guarantee that they met the study obligation. The criteria are:

- Coverage of Chinese individuals residing in China.
- Individuals who have a steady income.
- All working Chinese adults aged 23 years and above will be involved in this survey (Those over 23 years old are targeted as this group has graduated from university and is about to seek a job).

Another important aspect concerning sampling design is the sample size. The GPower application was used to determine the minimum sample size. For this study, the F-test of regression was used via the GPower application. The criteria for sample size computation used are given in Table 1. To determine the accurate sample size, the Power analysis is set for multiple regression comprising four predictors. The test used an alpha of 0.05, a power of 0.80, and a medium effect size of (f2 = 0.15). As 80 percent is considered the minimum acceptable power in most social sciences studies (Gefen et al., 2011), the desired sample size was set to 92.

Table 1

Criteria for GPower analysis

• Test family=f-test • Type of power analysis=Priori • Effect size f-square=0.15 (for medium effect) • Alpha criteria=0.05 • Power=0.8 • Number of predictors=5

2.3. Data collection instrument

This is a quantitative study. Primary data will be sourced using survey questionnaires. Statistical tests will be employed to test all research hypotheses (Mackenzie & Knipe, 2006). The survey research methodology herewith adopted provides standardized information to examine the associations between the constructs. These methods are often cost-effective and allow quick responses and higher control over the respondents (Malhotra, 2010). Over the years, surveys have been frequently used to describe populations and to explain behavior with a high level of validity (Lazar et al., 2010). The survey is suitable for asking about respondents' thoughts, opinions, and feelings (Shaughnessy & Zechmeister, 1997) as well as collecting data relating to beliefs, attitudes, and motives (Burns & Bush, 2000).

The study instrument was developed by adapting items from the existing validated measurements. The items were carefully modified to ensure they were understood by the respondents and the researcher could gauge the best answer. Modifications were made to the wording and length of the items to ensure the items capture the essence of the issue.

As the objective of this study is to measure the influence of psychological factors on financial planning for retirement, the items comprised of items on subjective feelings and objective facts. The items in the primary constructs for this research were selected based on the extensive literature review and measurement items were adopted from validated survey instruments. The use of validated instruments allowed the researcher to control the measurement qualities (Bryman & Bell, 2007). At the same time, adapting validated measurement items can ensure the construct's validity and ensure they will obtain the same responses despite being administered to different people across contexts and time. Each question is carefully checked to make sure there are no unnecessary items added.

As explained previously, all constructs in this study were adapted from established questionnaires, and no single item was used in the model measurement. Churchill (1979) criticized that the use of a single-item scale is problematic as it lacks sufficient correlation with the attribute being measured. A multi-item psychometrics scale has been commonly used to measure the constructs in a questionnaire (Robinson, 2018). In all, 30 items were used to measure the constructs in this research.

Constructs have been operationalized using Likert scales. The Likert-type scale is a common approach used to measure a wide variety of latent constructs (Kent, 2001). In this research, the six-point Likert scale, ranging from (1) strongly disagree to (6) strongly agree was applied. The rationale for applying the six-point scale was to overcome the central tendency error (Cooper & Schindler, 2003). This error could occur when respondents especially in the Asian countries ended up ranked their priority in the neutrality dimension (Trompenaars & HampdenTurner, 1997). Thus, the middle response namely neutral or neither agree nor disagree was excluded when designing the instrument. For instance, risk tolerance was assessed using a scale ranging from (1) strongly disagree and (6) strongly agree. The accurate constructs, number of items, and measurement scales are shown

in Table 2.

Table 2

Scale Development

Constructs	Number of Items	Scale
Financial Planning for Retirement	9	Six-Point Likert Scale
Future Time Perspective	5	Six-Point Likert Scale
Risk Tolerance	5	Six-Point Likert Scale
Retirement Goal Clarity	5	Six-Point Likert Scale
Subjective financial literacy	6	Six-Point Likert Scale

2.4. Ethics

The study was carried out with honesty, openness, and intellectual integrity by the researchers. Rigidly, impartially, and without bias or manipulation, data were gathered, analyzed, and interpreted. The study's results are fairly represented in the published conclusions, which clearly recognize any shortcomings or ambiguities.

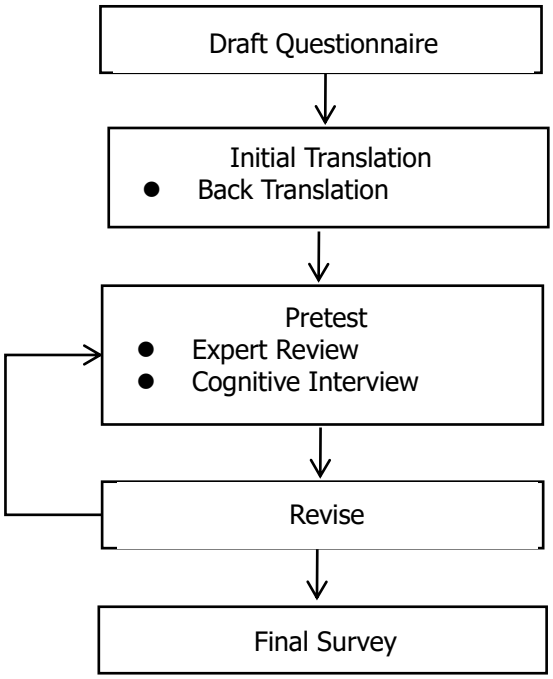
3. Results

3.1. Primary data

There are a few procedures taken while collecting the data in this research. Following these steps will result in a questionnaire that produces reliable and valid results. The steps are summarized in Figure 3.

Figure 3

Data collection process



As mentioned earlier, the current study employed validated quantitative measures derived from past literature. All of the measurements used in this study are written in the source language (English) and have been tested previously mostly in Western countries. Since this research was done in China and the sample of this study consists of non-English speakers, the questionnaire needed to go through the translation process in an attempt to minimize any possible variance due to cultural and linguistic differences (Kim & Han, 2004).

Historically, in the social sciences, back translation has been widely used to test the accuracy of the translation and to detect translation errors. Brislin (1970) also proposed that a procedure that is commonly used to test the accuracy of translation in multi-country research is back translation. There are two bilingual translators competent in both English and Chinese Language in the translation process. As the target respondents are Chinese, the draft questionnaire was first translated into Chinese version by an independent translator. A back translation from the Chinese version was conducted by another translator to compare the new English version with the original items. Then, the translated versions were discussed by the researcher and the translator until an agreement was reached. The translators also evaluated the cultural appropriateness of the instrument. At this stage, the measurement items were verified and revised for translation accuracy after further discussion until the final Chinese language version was produced.

After the final version of the translation has been approved, the next stage is to pretest the translation. Various procedures can be used to evaluate a translated questionnaire, including both qualitative and quantitative approaches, though qualitative procedures are more common because they provide richer insights into the exact nature of translation issues. Presser and Blair (1994) concluded four qualitative pretesting methods, which were conventional pretests, behavior coding, cognitive interviews, and expert reviews. Beginning in the 1980s, cognitive interviewing has emerged as one of the more prominent methods for identifying and correcting problems with survey questions. In addition, a book by Willis (2004) contains an extensive review of the methodology and serves as a practical guide for carrying out cognitive interviewing projects. However, no matter the methods adopted in cognitive interview, or the skills of the interviewer, the analysis is faced with much variety. Therefore, only one pretesting method of translated questionnaires is not enough to develop and evaluate questions effectively. Presser and Blair (1994) indicated that expert reviews and cognitive interviews were the only methods to diagnose a nontrivial number of analysis problems. Based on that, this article intends to adopt back translation combined with the pretesting method of expert reviews and cognitive interviews to obtain the translated questionnaire which is clearer to respondents.

The data collection of the final survey will be conducted for three months. Due to Covid-19, this study will distribute questionnaires online using “Wenjuanxing”. The reason for this strategy was that the survey could cover a large geographical area which fulfills the requirement of the scope of the sample. To encourage participation, the researcher also provides a monetary reward as a token of appreciation to the respondents.

The data analysis process involves assigning data to the constructs and establishing links between the constructs. The data collected from the completed questionnaires will be analyzed using a series of processes. First, the data will be processed (edited, coded, classified) and then keyed in as input to the SPSS statistical software. Second, the same software will be used to run the descriptive analysis. Third, the prediction capability of the structural model and the link between constructs will be examined using SmartPLS 4.0 software.

4. Conclusion

As members of the baby boom generation continue to leave the workforce, pension fund systems will become increasingly strained. Therefore, the relative significance of personal savings will take on additional importance. To that end, high-quality financial planning for retirement will become one of the keys to successful aging in contemporary society, which needs further research. Applying the CWO model and supported by image theory and the 3M Model, this research attempts to investigate the psychological factors influencing individuals' financial planning for retirement.

Even though there is more than a decade's worth of empirical work that has examined the aspects of the CWO model, the empirical evidence supporting this model still is fragmentary and insufficient. Therefore, this study can verify and enrich the model from a non-Western perspective. By developing an understanding of the interaction of psychological traits with financial literacy, financial market regulators and consumer policymakers in China can get a better understanding of FPR behavior.

However, regarding the pretest methods, despite the value added by expert reviews and cognitive interviews, the potential advantages of this approach must be weighed against practical costs (time and material or personnel resources) and constraints, which will be especially challenging in the resource-leaning environment of evaluation. The restricted resources that characterize FPR evaluations will constrain the power of pretesting designs. For example, because of financial constraints, the payment to experts involved in the translation and pretest method of the questionnaire is limited. It may reduce the accuracy of the final survey because of the number of experts invited. Similarly, cognitive interviews need respondents to participate in face-to-face interviews. To encourage participation, the researcher also provided a monetary reward as a token of appreciation to the respondents which is limited by financial constraints.

In addition, due to the early developmental stage of the research area in China, there are some limitations in future research. First of all, most of the literature review is from Western countries, especially in the USA and Spain, whether the results of data analysis can support the hypothesis remains to be seen. Moreover, most studies on the CWO model have been conducted based on a quantitative approach. There is a need for more clarity on FPR behavior by applying qualitative or mixed methods in future research to provide comprehensive insights into the relationship between psychological factors and FPR.

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