





Retirement satisfaction as a quantified outcome of superior financial literacy: An empirical investigation

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Abstract

The purpose of the study is to create a viable and customised retirement planning system with financial literacy as the driver to achieve retirement adequacy and retirement satisfaction, taking into account the increasing financial needs of retirees. Perception regarding retirement choices necessitates sufficient self-efficacy to implement retirement portfolio decisions. Despite transformation in the way retirement is looked at, planning for retirement has taken a backward stride as individuals concentrate on their present needs rather than a holistic approach to life. The study implemented an online self-administered questionnaire for 770 participants using convenience sampling from India's two major IT hubs, Bangalore and Chennai. The data samples were analysed using Partial Least Squares Structural Equation Model (PLS-SEM). The study evidenced a strong association between superior financial literacy and retirement planning and identified five essential financial behaviours, such as savings attitude, borrowing pattern, investment decision, insurance allocation, and spending behaviour, that strongly influence individual retirement planning. These behaviours lay the foundation for retirement readiness, lowered debt anxiety, and greater risk-bearing capacity. The results further reveal that individual's satisfaction levels are significantly influenced by retirement adequacy. Therefore, it is imperative to formulate a well-structured retirement plan to attain retirement adequacy and satisfaction.

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1. Introduction

Financial markets are a testament to the cabalistic growth of financial instruments, enabling individuals to choose the best alternatives among numerous growing options in the market, contributing to economic growth. Financial literacy, mainly the salience and significance of financial education concerning the financial products available in the market, services rendered, and activities performed (Sun, Yuen, Zhang, & Zhang, 2020) plays a decisive role in enabling individuals, to choose appropriate financial products (Bianchi, 2018). Financial literacy in India has significantly increased as a result of technological improvements and media

coverage. From mobile banking to online payments, the number of digital payment transactions has expanded from 1,004 crores (10.04 billion) in 2016-17 to 5,554 crores (55.54 billion) in 2020-21 (Indian Brand Equity Foundation-IBEF). The Government of India's initiatives, such as the National Mission for Financial Inclusion (NMF1) and the Pradhan Mantri Jan DhanYojana (PMJDY), have extended universal banking services to all unbanked Indian households. This consistent progress indicates the progress in India's financial literacy, which is an active contributor to investment (Hasan, Popp, & Oláh, 2020) and fundamental to financial self-efficacy, building strong links to the advancement of India's financial systems, with dramatic implications for financial decision-making, economic development, and reducing unemployment (Pompei & Selezneva, 2021). Financial planning for retirement is a segment where an appreciable number of population fall short of their ideal goals. Retirement, which is a significant and life changing event, requires consistent decision-making and suitable adjustments based on prevailing economic and social conditions (Wang & Wanberg, 2017) throughout an individual's lifetime. The successful ageing perspective postulates that the quality of decisions made throughout adulthood has a significant effect on the quality of life after retirement. Considering the expectations of the retirees, an individual requires 70-110% of their income earned during active employment, which is the income earned during active employment period before retirement (Yeung & Zhou, 2017).

Retirement planning in India, to a greater extent, is an individual-level activity as compared to developed European countries (Frank et al., 2023) where the process of planning for retirement and the portfolios for savings are primarily handled by one's company pension fund manager or the government. India's Retirement Index (on a scale of 0 to 100) is 44 (India Retirement Index Study-Max Life), with a small percentage of the population specifically planning for their old age or saving for retirement, which can be linked to a deeply ingrained culture of dependency. We should take cross-cultural influence as it has shaped the cognitive processes of reliance in Indian youths, leading them to become more independent and socially isolated (Frank et al., 2023). Under such a cultural shift, it is imperative to plan for a retirement corpus with sound financial planning to live a dignified and comfortable retirement life.

Designing a post-retirement income begins with comparing monthly income requirements to existing cash and determining whether there is a satisfactory meeting ground (Herrador-Alcaide, Hernández-Solís, & Topa, 2021). Individual investors are responsible for retirement planning because India lacks a formal retirement benefit system (Dewi, Febrian, Effendi, & Anwar, 2020). The Employees Provident Fund (EPF), a statutory retirement savings of 12% of salary each by employee and employer, and the Gratuity Fund, a statutory retirement contribution by the employer are below or at par with the inflation rates in India. However, there is no guarantee that gratuity and pension funds adequately cover inflation (Estrada & Kritzman, 2019).

Research on retirement planning has shown that it typically takes an Indian employee 35 to 40 years to accumulate wealth and savings from their employment, a process that is influenced by changes in personal and financial commitments. Though the social security schemes introduced by the Indian government in the form of low-pay premium insurance and pension policies with higher interest rates have tried to positively bridge the gap, offering financial prosperity, Çera, Ajaz Khan, Mlouk, and Brabenec (2021) argue that the time lag between the retirement planning and the actual retirement makes it difficult to predict human behaviour. The present needs of individuals supersede the unforeseen future, necessitating superior financial knowledge that caters to the current financial obligation while giving due consideration to the future investments. This study attempts to bridge this gap through financial literacy, which focuses on individuals' financial needs and tailors retirement planning to achieve financial adequacy and satisfaction by addressing the following objectives:

1. To investigate the role of financial literacy in retirement planning.
2. To explore the impact of retirement planning on retirement adequacy.
3. To assess the role of retirement planning on retirement satisfaction.

2. Literature Review

Life satisfaction from the perspective of individual finance depends on the level of financial security, which is contingent on financial behaviour. Even though financial knowledge positively influences financial decisions, the key difficulty arises due to procrastination of financial planning process, as it necessitates foreseeing future needs when they are still non-existent, implying a deferral of rewards. Financial behaviour further affects well-being (Vable, Gilsanz, Nguyen, Kawachi, & Glymour, 2017) and inconsistent behaviour may cause financial difficulties.

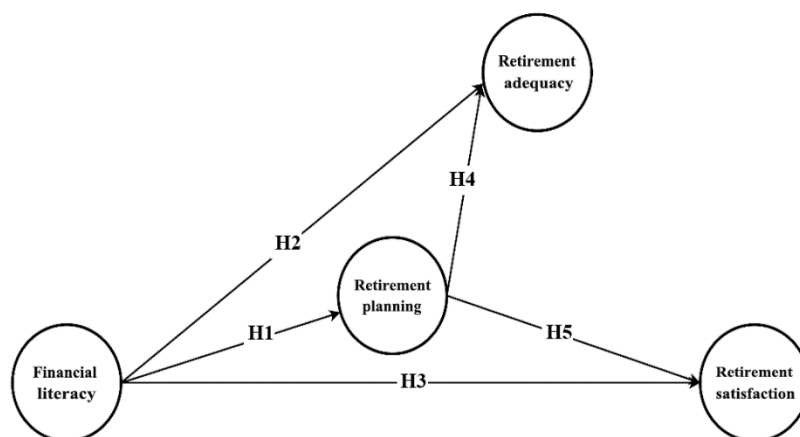


Figure 1. Conceptual framework.

The above framework (Figure 1) depicts the impact of financial literacy on individuals' retirement planning, the tactics and skills that determine adequacy, and the impact of quantified retirement planning on retirement satisfaction. Despite the fact that the likelihood of financial literacy's effect on individuals in the same way is marginal (Lusardi, Mitchell, & Oggero, 2020) financial knowledge manifests into behaviour (Sayinzoga, Bulte, & Lensink, 2016). This in turn enables them to design their finances in such a way that they can manage daily expenses, maintain an emergency fund, plan for their children's education, and prepare for their immediate post-retirement years (Goyal & Kumar, 2021).

2.1. Financial Literacy for Retirement Planning

Financial literacy is adjuvant to gaining a competitive edge since it influences an individual's financial decision-making by focusing on financial planning, wealth accumulation, annuities, and debt management. It includes financial education, guiding individuals to avoid financial hazards like frivolous and extravagant spending and living on borrowed money (Struckell, Patel, Ojha, & Oghazi, 2022) thus enabling appropriate financial plans (Waheed, Ahmed, Saleem, Din, & Ahmed, 2020). Empirical studies on financial literacy have focused on short-term behavioural tendencies (Xiao, Ahn, Serido, & Shim, 2014; Zolait, 2014) which are driven by circumstantial evidence of poor financial knowledge, infrequent financial consultation, inadequate financial skills, and lack of financial advice.

It should be noted that literacy in finance improves self-efficacy, which is positively associated with the planning for retirement (Lusardi & Mitchell, 2014). Generally, individuals may have the requisite internal capacities, but the lack of external conditions in society prevents them from adequately managing funds and planning for retirement (Hoffmann & Plotkina, 2021). Retirement planning enhances the financial capability as it incorporates the ability to act on favourable opportunities and develop financial capability during retirement. Therefore, the study re-examines the association between financial literacy and retirement planning in the Indian context through the following hypothesis:

H₁: Financial literacy significantly influences individual retirement planning.

2.2. Financial Literacy for Retirement Adequacy

Zimmer et al., 2015 The life-cycle model determines a retired individual's utility by their ability to purchase goods and services, as demonstrated by their present income and accumulated net worth (Kulathunga, Ye, Sharma, & Weerathunga, 2020). Individuals who plan and make conscious decisions about retirement are more likely to achieve a higher level of adequacy and satisfaction during retirement. Financial planning for retirement adequacy requires rationalizing the future based on anticipated needs (Topa, Lunceford, & Boyatzis, 2018). Studies in this direction have shown the association of retirement adequacy with financial literacy and planning (Gettings & Anderson, 2018), along with social, psychological, and physical aspects for better subjective well-being during retirement (Noone, Stephens, & Alpass, 2009). Individuals achieve adequacy through their commitment to retirement planning, with financial literacy serving as the influencing factor.

The traditional notion of a profession as a straight and unbroken path is giving way to more diversified perspectives (De Vos & Van der Heijden, 2017). A late career phase involves new and diverse professional actions based on an individual's adequacy quotient, blurring the line between employment and retirement. This can be substantiated by the view that retirement is no longer the end of one's career but a phase of it, through various forms of full- or part-time employment to ensure that there are adequate resources available during retirement. To evaluate this, we hypothesize that there is a strong association between financial literacy and retirement adequacy, and propose the following hypothesis:

H₂: Financial Literacy significantly influences individuals Retirement Adequacy.

2.3. Financial Literacy for Retirement Satisfaction

Retirement satisfaction is projected to be associated with retirement well-being, which can be achieved through suitable planning for retirement, which is adjuvant of superior financial literacy. Systematic and scientific planning positively affects behaviour and empowers individuals to identify inventories for a satisfied retirement life expectation. Financial literacy is intended to improve the overall level of financial well-being during retirement, which necessitates difficult decisions and trade-offs even before retirement age. It supports comprehending the retirement process by allowing one to assess existing resources (Froidevaux, Hirschi, & Wang, 2018) and develop methods for organising an appropriate lifestyle after retirement (França & Hershey, 2018). It helps people make decisions about retirement and its repercussions, such as happiness and well-being (Kerry, 2018; Seiferling & Michel, 2017). The continuity theory hinges on the understanding that individuals prefer a smooth transition from working life to retirement without much compromise, observing the consistency in activities for enhanced financial sustainability and satisfaction (Chauhan & Dey, 2020). The irrefutable fact of career construction by an individual, however different they are, is that they would have a significant interest in the earnings and their accumulation, considering the dynamics of their life themes (Yeung & Zhou, 2017). It is imperative that any deviation from post-retirement sustainability requires appropriate planning for enhanced retirement satisfaction, which is crucial for a retired individual, thus hypothesizing:

H_s: Financial Literacy significantly influences individuals Retirement Satisfaction.

2.4. Retirement Planning to Achieve Retirement Adequacy

Positive transition towards retirement is critical for maintaining physical and psychological well-being (Yeung & Zhou, 2017). Adequacy in retirement suggests psychological comfort with retirement life. Identifying protective variables for positive adjustment is critical for achieving post-retirement adequacy (Yeung, 2013) because it is a function of overall resources that determines retirees' ability to manage transitional obstacles, affecting their physical and psychological well-being after retirement. The beneficial effects of mental and social resources on post-retirement well-being (Muratore & Earl, 2015; Noone et al., 2009) further enhance retirement preparedness and confidence, thus contributing to better post-retirement outcomes (Liu, Bai, & Knapp, 2021). To improve retirement adequacy, the study explains the importance of retirement planning through the following hypothesis:

H_s: Retirement Planning significantly influences individuals Retirement Adequacy.

2.5. Retirement Planning to Achieve Retirement Satisfaction

Retirement satisfaction emphasizes the role of individual resources and planning (Froidevaux et al., 2018) in determining perceptions of adequacy and contentment. It is an essential predictor of well-being and quality of life (Amorim, Franca, Lima, & Martins, 2020). Life satisfaction is positively influenced by retirement (Adawi, Ferrara, & Malik, 2023) as it can be a period where individuals can engage in activities that they value, which provides them with the satisfaction of goal fulfilment (Ugwu, Ajele, & Idemudia, 2024). Studies evidence individuals' retirement incentives to significantly affect their partners labour force decisions (Atalay, Barrett, & Staneva, 2019), health (Müller & Shaikh, 2018), and well-being due to changes in financial conditions and non-monetary factors (Luhmann, Orth, Specht, Kandler, & Lucas, 2014). According to studies, the creation of practices, regulations, and research should take into account a variety of resources, with a focus on primary resources such as health and finance, which have a bigger impact on adequacy and well-being. To evaluate this, we propose the following hypothesis:

H_s: Retirement Planning significantly influences individuals Retirement Satisfaction.

3. Empirical Evidencing and Testing

This study emphasizes retirement satisfaction of individuals through superior financial literacy and systematic retirement planning to empirically validate the hypothesis formulated. The research has evaluated satisfaction based on: First, superior financial literacy being the primary influencing factor, Second, systematic retirement planning impacting retirement satisfaction; and finally, retirement adequacy achieved through financial literacy and retirement planning leading to retirement satisfaction in individuals.

3.1. Sample and Data Description

The study adopted positivist philosophy with a deductive approach suitable for retirement planning as it focused on the satisfaction quotient of individuals through the mediation of retirement planning. We gave due consideration to the existing studies. Primary data was collected by self-administered questionnaire among 770 active working individuals from IT and ITES sectors in India's silicon cities of Bengaluru and Chennai. The questionnaire was comprised of well-designed, closed-ended questionnaires using a 5-point "Likert scale" from "Strongly disagree"-"Strongly agree" and was distributed online.

3.2. Testing Methods and Procedure

The study used 'Partial Least Squares - Structural Equation Model' (PLS-SEM) (Hair, Sarstedt, Matthews, & Ringle, 2016; Hair Jr, Matthews, Matthews, & Sarstedt, 2017) and analysed the data using Smart PLS-4 software (Henseler, Ringle, & Sarstedt, 2015). To facilitate algorithm convergence, the study used the stop criteria of 1.10^{-5} , which also serves as the threshold value for the purpose. PLS-SEM is recommended as the most reliable and highly appropriate model in complex scenarios to analyse the constructs and the corresponding data in order to achieve the purpose of dependent variable. Likewise, our study used retirement planning as the mediating construct to mediate between the exogenous variable financial literacy and endogenous variables retirement adequacy and retirement satisfaction.

Table 1. Measurement model loadings, validity, and reliability.

Latent variable	Elements that the indicator capture	Outer loadings	Indicator reliability	Composite reliability	AVE
Financial literacy	FL1	0.849***	0.711	0.939	0.818
	FL2	0.781***	0.610		
	FL3	0.865***	0.748		
	FL4	0.921***	0.848		
Retirement adequacy	RA2	0.769***	0.591	0.917	0.695
	RA3	0.862***	0.743		
	RA4	0.898***	0.806		
	RA5	0.844***	0.712		
	RA6	0.713***	0.508		
	RP1	0.841***	0.555		
RP2	0.817***	0.667			
RP3	0.914***	0.835			
RP4	0.832***	0.692			
Retirement satisfaction	RS1	0.762***	0.581	0.861	0.569
	RS2	0.769***	0.591		
	RS3	0.774***	0.599		
	RS4	0.745***	0.555		

Note: *** $p < 0.01$.
(FL: Financial literacy, RA: Retirement adequacy, RP: Retirement planning, RS: Retirement satisfaction).

A simple regression model with a latent construct as the independent variable and a specific indicator as the dependent variable estimates the outer loadings to determine the absoluteness of the indicators. The outer loading threshold for all indicators is more than 0.70 (Table 1) for reflective models (Henseler, Ringle, & Sarstedt, 2012). The communality of each individual item was confirmed by assessing indicator dependability, which had a threshold value of 0.50 (Hair Jr et al., 2017) suggesting that a given idea explains at least 50% of the variance in its constituents. All components indicate dependability, with values greater than 0.50 (Table 1). The study also looked at composite reliability to establish internal consistency, and the ideal values were typically equal to or more than 0.80 (Daskalakis & Mantas, 2008) as seen in our analysis (Table 1). We use the Average Variance Extracted (AVE) approach to assess convergent validity (Naylor, Gordon, & James, 2012) with a threshold value of more than 0.50. The AVE values for all exogenous and endogenous latent variable constructs in our investigation show convergent validity (Table 1).

Table 2. Discriminant validity by Fornell-Larcker criterion.

Latent variable	Financial literacy	Retirement adequacy	Retirement planning	Retirement satisfaction
Financial literacy	0.904			
Retirement adequacy	0.380	0.833		
Retirement planning	0.410	0.456	0.853	
Retirement satisfaction	0.671	0.608	0.539	0.754

The Fornell and Larcker (1981) criterion is used to check the discriminant validity of each construct. It compares the square root of AVE to other latent variables. The values in Table 2 support the measurement model's discriminant validity, which occurs when the square root of all latent constructs exceeds their correlation with all other latent constructs.

Table 3. Hypothesis testing and f² and q² effects.

Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	t- value	P-values	f ²	q ²
Financial literacy to retirement adequacy	0.232	0.232	0.043	5.406	0.000	0.358	0.129
Financial literacy to retirement planning	0.410	0.411	0.044	9.393	0.000	0.351	0.438
Financial literacy to retirement satisfaction	0.542	0.543	0.045	12.102	0.000	0.006	0.129
Retirement planning to retirement adequacy	0.361	0.363	0.049	7.352	0.000	0.062	0.246
Retirement planning to retirement satisfaction	0.317	0.316	0.046	6.868	0.000	0.913	0.377

The study used cross-validated redundancy method and Stone-Geisser’s q² value (Geisser, 1974; Hair Jr et al., 2017; Stone, 1974) to measure the predictive relevance of the model. This indicates the goodness of the path model in predicting the original observed values (Table 3). The values of q² of the research are arrived at using blindfolding procedures, and the observed values, which are above ‘zero’, indicate predictive relevance, demonstrating predictability with the used constructs.

4. Empirical Results

4.1. Evaluation of Measurement and Structural Model

The reflective model of our study used validation of outer loading, indicator reliability, composite reliability, and AVE (Table 1) for evaluation. For measuring discriminant validity, Fornell-Larcker criterion, (Fornell & Larcker, 1981; Hair Jr et al., 2017) was used. The values of discriminant validity in the reflective constructs, namely financial literacy 0.904, retirement adequacy 0.833, retirement planning 0.853 and retirement satisfaction 0.754, establish the discriminant validity of the constructs (Table 2), making each construct necessary and important to achieve satisfaction during retirement. The hypothesis used in the study resulted in the path value and empirical t-value exceeding the threshold values of 0.20 and 1.96, respectively (Table 3). This substantiates the validity and acceptance of all the hypotheses adopted in the study.

The threshold values of the effect sizes f² and q² state that the effect sizes of 0.35 have a large effect, 0.15 has a medium effect and 0.02 has small effect sizes, respectively (Cohen, 1988). The q² effect on the impact of retirement planning on retirement satisfaction 0.377 and the impact of financial literacy on retirement planning 0.438 observed in our study is significantly large. However, the study showed medium effect on the relationship between financial literacy to retirement adequacy 0.136, financial literacy to retirement satisfaction 0.129 and retirement planning to retirement adequacy 0.246 (Table 3). The f² effect size of financial literacy on retirement adequacy 0.358, financial literacy on retirement planning 0.351, retirement planning on retirement satisfaction 0.913 is observed to be high. The study observed weak relationship between financial literacy and retirement satisfaction 0.006 (Table 3). This indicates the predictive relevance, demonstrating predictability with the used constructs.

4.2. Mediator Analysis

The mediator of the study ‘retirement planning,’ is analysed to measure the mediating effect of the exogenous variable ‘financial literacy’ on the endogenous latent variables, retirement adequacy and retirement satisfaction.

Table 4. Effect of mediating construct.

Effect ->	Direct	Indirect	Total	VAF	Mediation
Figure 2	0.361***	0.411***	0.772***	0.391	Partial
Figure 3	0.303***	0.410***	0.713***	0.172	Partial

Note: ***p < 0.01.

The indirect effect (0.411), direct effect (0.361) and VAF (0.391) shows significant mediating effect and validates hypothesis 4, which explored the consequences of retirement planning’s intervention in the liaison between financial literacy and retirement adequacy (Hair Jr et al., 2017) (Figure 2, Table 4).

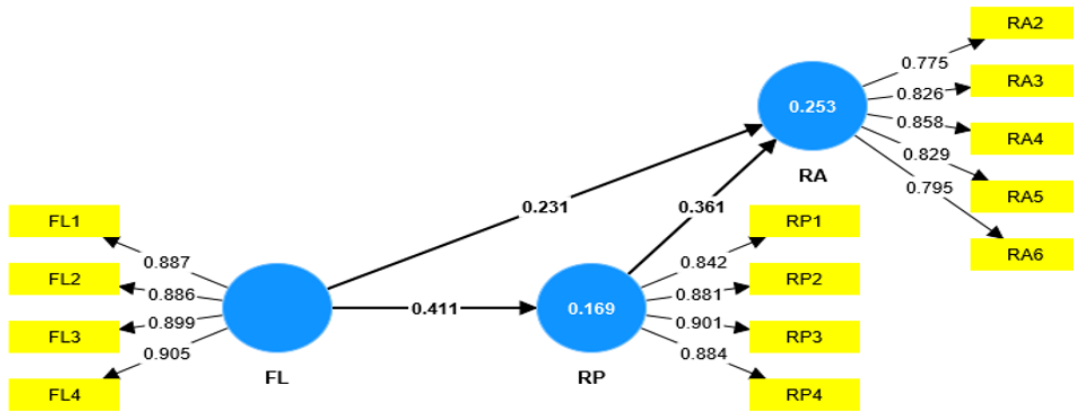


Figure 2. Mediation effect of retirement planning between financial literacy and retirement adequacy.

In the second mediator effect, even though the VAF is 0.172, we see a high-impact indirect effect (0.410) along with a significant direct effect (0.303) (Figure 3, Table 4). Therefore, we can interpret this to conclude that the retirement planning construct partially mediates the relationship between financial literacy and retirement satisfaction, thereby substantiating hypothesis 5.

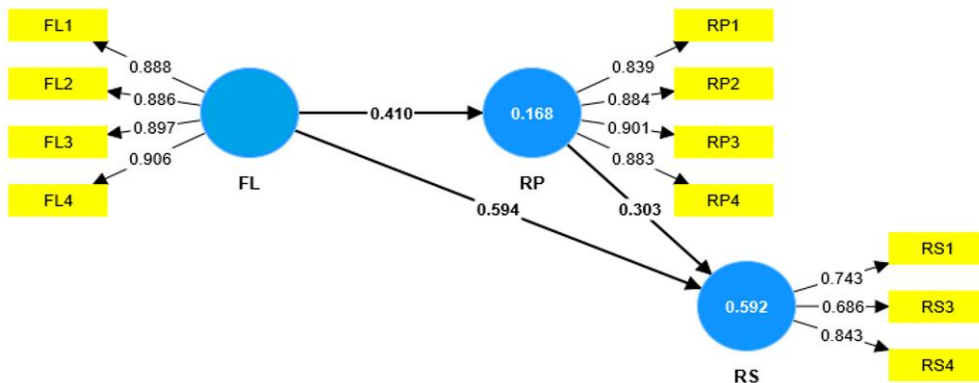


Figure 3. Mediation effect of retirement planning between financial literacy and retirement satisfaction.

4.3. Importance Performance Matrix Analysis (IPMA)

The IPMA (Figure 4) measured the relative "importance" on the X axis, revealing the overall influence, i.e., if one construct has a greater overall effect than another, it is more significant. On the Y axis, "performance" is measured, i.e., a construct with higher mean value indicates higher performance and good measurement paths, as stated by Hair Jr, Sarstedt, Hopkins, and Kuppelwieser (2014); Völckner, Sattler, Hennig-Thurau, and Ringle (2010) and Schloderer, Sarstedt, and Ringle (2014).

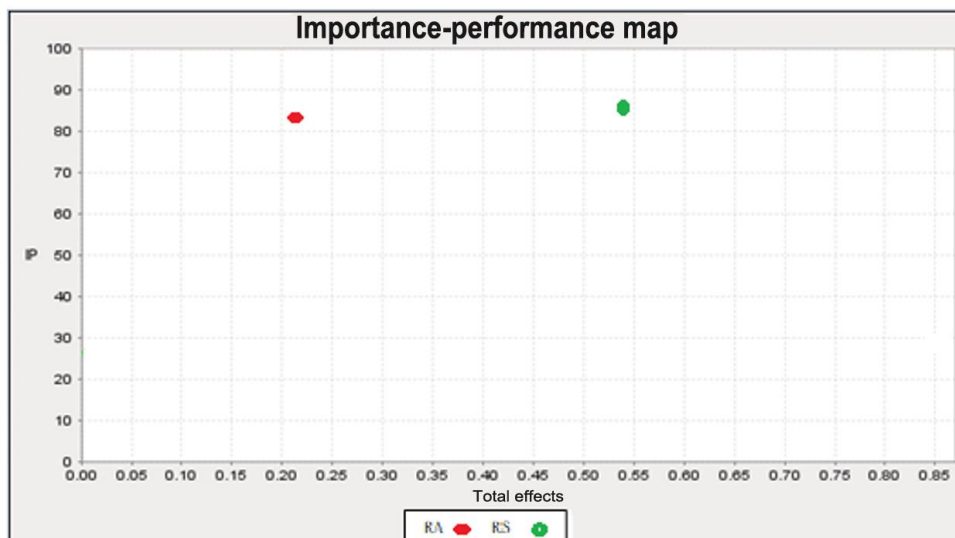


Figure 4. Importance performance matrix analysis.

IPMA analysis shows that a unit increase in financial literacy’s performance would increase the performance of retirement adequacy from 81.323 to 81.555 and performance of retirement satisfaction from 84.816 to 85.177, respectively. Likewise, one-unit increase in retirement planning’s performance would increase the performance of retirement adequacy from 81.323 to 81.640 and performance of retirement satisfaction from 84.816 to 85.358, respectively (Table 5). This indicates the influence of financial literacy on variable retirement planning in order to achieve retirement adequacy and satisfaction.

Table 5. Total effects and index values of latent constructs.

Construct relationship	Importance (Total effects)	Performance (Index values)
Financial literacy to retirement adequacy	0.232	81.323
Retirement planning to retirement adequacy	0.317	
Financial literacy to retirement satisfaction	0.361	84.816
Retirement planning to retirement satisfaction	0.542	

4.4. FIMIX-PLS and Multi-Group Analysis

The unobserved heterogeneity is measured using FIMIX-PLS (Hair et al., 2016; Hair Jr et al., 2017; Sarstedt, Becker, Ringle, & Schwager, 2011), which is required to overcome invalid interpretation due to the heterogeneity of the data (Jedidi, Jagpal, & DeSarbo, 1997). The segments (large and small) show significant dissimilarity in the results. The association between the mediating construct of the study, retirement planning, and the endogenous construct, retirement satisfaction, is significantly stronger (0.991) in segment 2 as compared to segment 1 (0.452). Further, the association of retirement planning with retirement adequacy is higher (0.951) in segment 2 when compared to segment 1 (0.425). The association between the exogenous variable financial literacy and endogenous variable retirement adequacy is stronger in segment 2, resulting in 0.973 when compared to the values of segment 1 (0.438). Evaluating the relationship between financial literacy and retirement satisfaction, the study identified a significantly stronger relationship of 0.854 in segment 2 when compared with the measured value of 0.494 in segment 1. The relationship between retirement adequacy and retirement satisfaction is, however stronger in segment 1 (0.417) as compared to segment 2 (0.384) (Table 6).

Table 6. Two-segment solution - FIMIX-PLS results.

Particulars	Relations	1 st segment	2 nd segment	\Delta12	t-value Bangalore [MGA]	t-value Chennai [MGA]
Relative segment size	-	0.65	0.47		-	
Path coefficient	FL-RA	0.438***	0.973***	0.472	26.754***	15.604***
	RP-RA	0.425***	0.951***	0.496	27.360***	12.146***
	FL-RS	0.494***	0.854***	0.494	17.268***	9.764***
	RP-RS	0.452***	0.991***	0.342	14.460***	13.192***
	RA-RS	0.417***	0.384**	0.411	17.441***	12.178***
R ²	RP	0.218	0.849			
	RA	0.235	0.835			
	RS	0.266	0.872			
Total effects	FL-RA	0.438	0.973	0.472	26.754***	15.604***
	RP-RA	0.425	0.951	0.496	27.360***	12.146***
	FL-RS	0.591	0.664	0.494	19.168***	7.533***
	RP-RS	0.452	0.991	0.342	14.460***	13.192***
	RA-RS	0.417	0.384	0.411	17.441***	12.178***

Note: ***p < 0.01
 FL: Financial literacy, RA; Retirement adequacy, RP; Retirement planning, RS; Retirement satisfaction).

The total effects show similar results and concur with the results of the patch coefficients of segments 1 and 2 except for the relationship between financial literacy and retirement satisfaction, where segment 2 is stronger at 0.664 in comparison with segment 1 (0.591) (Table 6). The R² values are higher in segment 2 for the construct’s retirement planning (0.849), retirement adequacy (0.835), and retirement satisfaction (0.872) as compared to segment 1, thus substantiating the validity of the research between the locations i.e., Bangalore and Chennai.

5. Discussion

Managing retirement is a critical developmental task that includes social and psychological disassociation from employment, as well as the creation of a satisfying post-retirement (Van Solinge & Henkens, 2008).

Financial sustainability through retirement requires adequate retirement planning that incorporates skilled awareness of the rising cost of living, timely investment decisions, and insightful management of income (Weckroth, Kemppainen, & Dorling, 2017). Retirement planning in India is a self-oriented task. An average Indian takes their entire employment years to build wealth and savings from employment (Shobha & Amrutha, 2021). The social security schemes introduced in India through insurance and pension policies which can be easily utilised by individuals, yielding returns higher than the average interest on deposits have tried to close the gap and point in the right direction, offering financial prosperity to individuals (Parvin & Panakaje, 2022).

Our study personalized the concept of adaptability from the career construction theory, which focuses on the quality of being able to change effortlessly through financial literacy. Through personal interviews and literature reviews, we recognized five essential behaviours of financial literacy (Figure 5) viz., savings attitude, borrowing pattern, investment decision, insurance allocation and spending behaviour. These behaviours define an individual's attitude towards savings, investments, and spending (Nalin & França, 2015). Individuals need to fine-tune these behaviours (Hauff, Carlander, Gärling, & Nicolini, 2020) through consistent pedagogical initiatives through delivery options such as webinars, e-learning, and in-person teaching, as it contributes to wealth accumulation. The urgency of retirement planning stems from the expectation of achieving adequacy and satisfaction during retirement (Frank et al., 2023) which can be achieved through optimum utilisation of retirement inventories and thereby achieving retirement wellbeing.

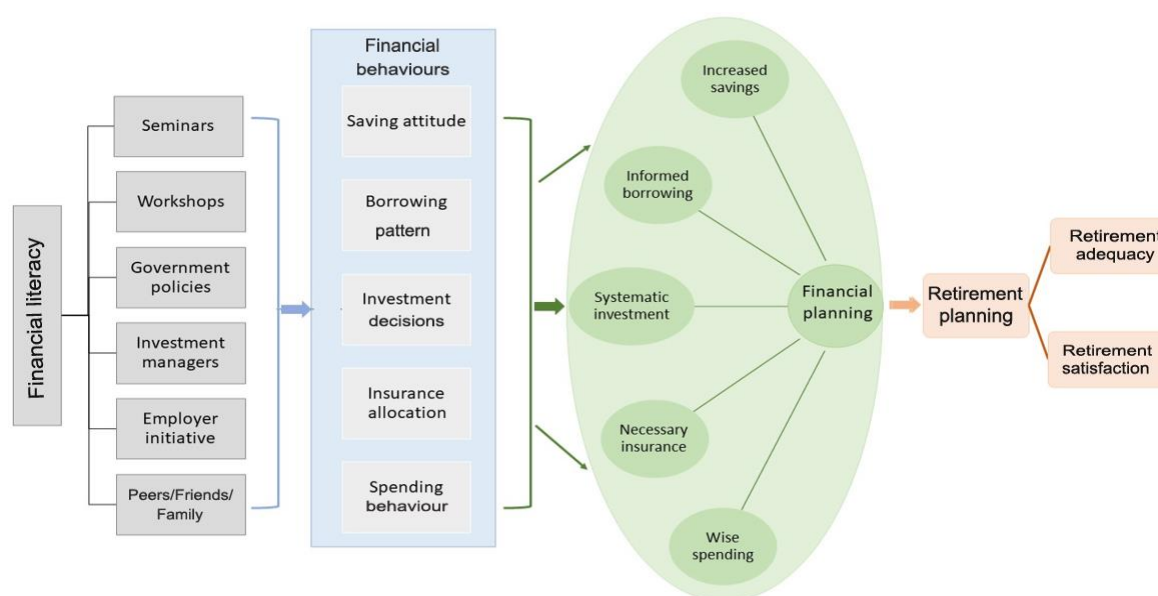


Figure 5. Essential behaviours of finance for adequate and satisfied post-retirement life.

Incoherent decisions regarding retirement are often due to poor retirement planning, which is directly correlated with inadequate financial literacy. Studies elucidate that a comfortable retirement income is estimated to be 70-110% of the current income. Advancement in technology has elongated the life span, increasing the number of pensioners (Topa et al., 2018) in the society. Early planning with a well-structured portfolio allows individuals to have a strong and protective shelter during retirement. It is of paramount importance that policymakers along with financial and academic institution take the initiatives to encourage individuals to plan for retirement at the beginning of their careers, thus creating financial efficacy in the society. Further, this facilitates retirement adequacy, which, from the point of view of resources, analyzes the association among resources and the circumstances at a macro, organizational, work, and individual level (Wang & Wanberg, 2017). It should be noted that the changes in post-retirement well-being are closely related to the changes in the total retirement resources over time (Yeung & Zhou, 2017) and maintaining well-being is crucial due to prolonged years in retirement.

The managerial implications of the study stem from its contribution to our understanding of the empirical validity of the assumptions about the impact of financial literacy on building a self-sufficient efficacious life post-retirement. The study recommends that corporations ensure that all individuals have access to appropriate and sustainable investment strategies. Default investment strategy should be established for individuals who are unable to choose suitable retirement products. They should also offer multiple investment horizons and risk profiles to assess and monitor the appropriateness of diverse investment strategies. Financial education techniques should be implemented, with a focus on developing awareness and information about the significance of saving enough for retirement, the various options available, and longevity risk that can be achieved through marketing campaigns.

The findings further contribute to the emerging literature on retirement adequacy and retirement satisfaction, focusing on the wealth accumulation criterion. First, and perhaps most importantly, we provide

empirical evidence for retirement planning as the key mediator, which is substantiated by the total effects and index values of the latent constructs of retirement adequacy 81.323 and retirement satisfaction 84.816. We further outline the path to successful retirement planning and highlight the importance of rational thinking (Kiliyanni & Sivaraman, 2018) to analyse the key factors that contribute to adequacy and satisfaction during retirement.

Retirement should not be a difficult time for an individual; rather, work and career should be replaced by leisurely activities, which the individual enjoys but and cannot partake in during their younger career-oriented years. For better planning and contentment post-retirement, financial literacy is the cornerstone. Our study has identified a mismatch between what people think they know and objectively measured financial knowledge. This wide gap between people's perceptions of finances and their knowledge can be reduced significantly by a diligent need to learn and be financially literate.

6. Conclusion

Asset-rich but cash-poor is certainly not a situation to look forward to in the golden years. Our study determines how retirement planning priorities activities to achieve retirement adequacy, and satisfaction. By examining the relationship between financial literacy, retirement planning, retirement adequacy, and retirement satisfaction, the study sought to analyse the strength of the relationship between these constructs. The findings supported our hypothesis and revealed that superior financial literacy, retirement planning, and retirement adequacy significantly influences retirement satisfaction. The transition to retirement should provide individuals with the opportunity to replace work with leisure, thereby, enabling retirees to engage in activities that keep them content.

Retirement planning facilitates the awareness of issues related to retirement and assesses the available resources to establish strategies and develop them by determining the quantum of resources needed to live comfortably throughout the retirement years and bridging the mismatch of objectively measured financial knowledge. Sound retirement planning helps to monitor the health of the portfolio and reduce the risk of interest drain or lower return due to volatility of market conditions by reinvesting the amount allocated to those plans that have higher returns, thus enabling individuals to live comfortably throughout retirement.

7. Limitation

First, we limited the research to two major IT and ITES hotspots in India. Data was collected using a convenience sample strategy. Generalising the findings to the Indian context may not be acceptable because these hubs are often located in Indian metropolises, which are rather well developed in comparison to many other cities, resulting in regional differences and the danger of missing an appropriate purpose.

Second, the common source bias (Podsakoff, MacKenzie, & Podsakoff, 2012) is another limitation of this study. This is due to the fact that the data for the dependent and independent variables are sources from the same location, and therefore there might be a greater degree of influence in the relationship between the exogenous and the endogenous variables. This has naturally exerted an adverse impact on endogeneity.

7.1. Scope for Future Research

We created the structural model with contributions from the Indian population in mind, with a focus on IT and ITES personnel in metro areas. A future study could include global variables and expand on the hierarchy model. In a hierarchical component model, constructs are utilised in two layers, typically using the second order. As a result, the researcher incorporates both higher-and lower-order structures into the study. The research will start with lower-order structures and progress to higher-order ones. Further, lower-order constructs will be part of the measurement model, and the higher order constructs will be used for structural model. Though financial behaviours are essential indications of an individual's financial literacy, varied behaviours can be found by broadening the scope to multiple industries. A comparative comparison of different sectors of the economy may provide more clarity for government decisions and policymaking. This may provide a better understanding of the impact of positive financial habits on retirement planning.

References

- Adawi, A., Ferrara, I., & Malik, S. M. (2023). Effect of retirement on life satisfaction in Canada: Evidence from the 2008–2009 Canadian community health survey—healthy aging. *Canadian Public Policy*, 49(S1), 48–75. <https://doi.org/10.3138/cpp.2022-037>
- Amorim, S. M., Franca, L. H., Lima, M. P., & Martins, L. F. (2020). Satisfaction in retirement: A comparison between Brazil and Portugal. *Mackenzie Administration Magazine*, 21, eRAMG200103.
- Atalay, K., Barrett, G. F., & Staneva, A. (2019). The effect of retirement on elderly cognitive functioning. *Journal of Health Economics*, 66, 37–53. <https://doi.org/10.1016/j.jhealeco.2019.04.006>
- Bianchi, M. (2018). Financial literacy and portfolio dynamics. *The Journal of Finance*, 73(2), 831–859. <https://doi.org/10.1111/jofi.12605>
- Çera, G., Ajaz Khan, K., Mlouk, A., & Brabenec, T. (2021). Improving financial capability: the mediating role of financial behaviour. *Economic Research-Ekonomska Istraživanja*, 34(1), 1265–1282. <https://doi.org/10.1080/1331677X.2020.1820362>

- Chauhan, Y., & Dey, D. K. (2020). Does financial literacy affect the value of financial advice? A contingent valuation approach. *Journal of Behavioral and Experimental Finance*, 25, 100268. <https://doi.org/10.1016/j.jbef.2020.100268>
- Cohen, J. (1988). Statistical power analysis for the behavioral science. *Journal of the American Statistical Association*, 84(408), 1096. <https://doi.org/10.2307/2290095>
- Daskalakis, S., & Mantas, J. (2008). Evaluating the impact of a service-oriented framework for healthcare interoperability. *Studies in Health Technology and Informatics*, 136, 285-290.
- De Vos, A., & Van der Heijden, B. I. (2017). Current thinking on contemporary careers: The key roles of sustainable HRM and sustainability of careers. *Current Opinion in Environmental Sustainability*, 28, 41-50. <https://doi.org/10.1016/j.cosust.2017.07.003>
- Dewi, V. I., Febrian, E., Effendi, N., & Anwar, M. (2020). Does financial perception mediating the financial literacy on financial behavior? A study of academic community in central Java island, Indonesia. *Montenegrin Journal of Economics*, 16(2), 33-48. <https://doi.org/10.14254/1800-5845/2020.16-2.3>
- Estrada, J., & Kritzman, M. (2019). Toward determining the optimal investment strategy for retirement. *The Journal of Retirement*, 7(1), 35-42. <https://doi.org/10.3905/jor.2019.1.052>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.2307/3151312>
- França, L. H., & Hershey, D. A. (2018). Financial preparation for retirement in Brazil: A cross-cultural test of the interdisciplinary financial planning model. *Journal of Cross-Cultural Gerontology*, 33, 43-64. <https://doi.org/10.1007/s10823-018-9343-y>
- Frank, D., Singh, R. R., Harrison, A., Bai, G. V., Birau, R., Spulbar, C., & Ninulescu, P. V. (2023). Worker saving attitude towards retirement planning: A study on Indian textile industry. *Industria Textila*, 74(5), 610-617. <https://doi.org/10.35530/it.074.05.202316>
- Froidevaux, A., Hirschi, A., & Wang, M. (2018). Identity incongruence and negotiation in the transition from work to retirement: A theoretical model. *Organizational Psychology Review*, 8(4), 228-255. <https://doi.org/10.1177/2041386619830754>
- Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, 61(1), 101-107. <https://doi.org/10.1093/biomet/61.1.101>
- Gettings, P. E., & Anderson, L. B. (2018). Applying a life course perspective to retirement: A literature review and research agenda for communication scholars. *Annals of the International Communication Association*, 42(3), 224-241. <https://doi.org/10.1080/23808985.2018.1497453>
- Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. *International Journal of Consumer Studies*, 45(1), 80-105. <https://doi.org/10.1111/ijcs.12605>
- Hair, J., Joe F, Sarstedt, M., Matthews, L. M., & Ringle, C. M. (2016). Identifying and treating unobserved heterogeneity with FIMIX-PLS: Part I—method. *European Business Review*, 28(1), 63-76. <https://doi.org/10.1108/eb-09-2015-0094>
- Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107-123. <https://doi.org/10.1504/ijmda.2017.10008574>
- Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106-121. <https://doi.org/10.1108/eb-10-2013-0128>
- Hasan, M. M., Popp, J., & Oláh, J. (2020). Current landscape and influence of big data on finance. *Journal of Big Data*, 7(1), 1-17. <https://doi.org/10.1186/s40537-020-00291-z>
- Hauff, J. C., Carlander, A., Gärling, T., & Nicolini, G. (2020). Retirement financial behaviour: how important is being financially literate? *Journal of Consumer Policy*, 43, 543-564. <https://doi.org/10.1007/s10603-019-09444-x>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2012). *Using partial least squares path modeling in advertising research: Basic concepts and recent issues*. In *Handbook of research on international advertising* (Vol. 576). Cheltenham: Edward Elgar Publishing.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43, 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
- Herrador-Alcaide, T. C., Hernández-Solís, M., & Topa, G. (2021). A model for personal financial planning towards retirement. *Journal of Business Economics and Management*, 22(2), 482-502. <https://doi.org/10.3846/jbem.2020.13978>
- Hoffmann, A. O., & Plotkina, D. (2021). Positive framing when assessing the personal resources to manage one's finances increases consumers' retirement self-efficacy and improves retirement goal clarity. *Psychology & Marketing*, 38(12), 2286-2304. <https://doi.org/10.1002/mar.21563>
- Jedidi, K., Jagpal, H. S., & DeSarbo, W. S. (1997). Finite-mixture structural equation models for response-based segmentation and unobserved heterogeneity. *Marketing Science*, 16(1), 39-59. <https://doi.org/10.1287/mksc.16.1.39>
- Kerry, M. J. (2018). Psychological antecedents of retirement planning: A systematic review. *Frontiers in Psychology*, 9, 302972. <https://doi.org/10.3389/fpsyg.2018.01870>
- Kiliyanni, A. L., & Sivaraman, S. (2018). A predictive model for financial literacy among the educated youth in Kerala, India. *Journal of Social Service Research*, 44(4), 537-547. <https://doi.org/10.1080/01488376.2018.1477699>
- Kulathunga, K., Ye, J., Sharma, S., & Weerathunga, P. (2020). How does technological and financial literacy influence SME performance: Mediating role of ERM practices. *Information*, 11(6), 297. <https://doi.org/10.3390/info11060297>
- Liu, C., Bai, X., & Knapp, M. (2021). Multidimensional retirement planning behaviors, retirement confidence, and post-retirement health and well-being among Chinese older adults in Hong Kong. *Applied Research in Quality of Life*, 1-17. <https://doi.org/10.1007/s11482-020-09901-7>

- Luhmann, M., Orth, U., Specht, J., Kandler, C., & Lucas, R. E. (2014). Studying changes in life circumstances and personality: It's about time. *European Journal of Personality, 28*(3), 256-266. <https://doi.org/10.1002/per.1951>
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *American Economic Journal: Journal of Economic Literature, 52*(1), 5-44. <https://doi.org/10.2139/ssrn.2260193>
- Lusardi, A., Mitchell, O. S., & Oggero, N. (2020). Debt and financial vulnerability on the verge of retirement. *Journal of Money, Credit and Banking, 52*(5), 1005-1034. <https://doi.org/10.1111/jmcb.12671>
- Müller, T., & Shaikh, M. (2018). Your retirement and my health behavior: Evidence on retirement externalities from a fuzzy regression discontinuity design. *Journal of Health Economics, 57*, 45-59. <https://doi.org/10.1016/j.jhealeco.2017.10.005>
- Muratore, A. M., & Earl, J. K. (2015). Improving retirement outcomes: The role of resources, pre-retirement planning and transition characteristics. *Ageing & Society, 35*(10), 2100-2140. <https://doi.org/10.1017/s0144686x14000841>
- Nalin, C. P., & França, L. H. d. F. P. (2015). The importance of resilience for well-being in retirement. *Paidéia (Ribeirão Preto), 25*, 191-199. <https://doi.org/10.1590/1982-43272561201507>
- Naylor, M. E., Gordon, B. S., & James, J. D. (2012). A societal perspective of sport: Scale development in two settings. *Journal of Global Scholars of Marketing Science, 22*(2), 101-116. <https://doi.org/10.1080/12297119.2012.655140>
- Noone, J. H., Stephens, C., & Alpass, F. M. (2009). Preretirement planning and well-being in later life: A prospective study. *Research on Aging, 31*(3), 295-317. <https://doi.org/10.1177/0164027508330718>
- Parvin, S. R., & Panakaje, N. (2022). Financial prosperity of households through financial literacy, financial management behavior and financial participation: Empirical study. *International Journal of Case Studies in Business, IT and Education, 6*(2), 714-733. <https://doi.org/10.47992/ijcsbe.2581.6942.0228>
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539-569. <https://doi.org/10.1146/annurev-psych-120710-100452>
- Pompei, F., & Selezneva, E. (2021). Unemployment and education mismatch in the EU before and after the financial crisis. *Journal of Policy Modeling, 43*(2), 448-473. <https://doi.org/10.1016/j.jpolmod.2019.09.009>
- Sarstedt, M., Becker, J.-M., Ringle, C. M., & Schwaiger, M. (2011). Uncovering and treating unobserved heterogeneity with FIMIX-PLS: Which model selection criterion provides an appropriate number of segments? *Schmalenbach Business Review, 63*, 34-62. <https://doi.org/10.1007/bf03396886>
- Sayinzoga, A., Bulte, E. H., & Lensink, R. (2016). Financial literacy and financial behaviour: Experimental evidence from rural Rwanda. *The Economic Journal, 126*(594), 1571-1599. <https://doi.org/10.1111/eoj.12217>
- Schloderer, M. P., Sarstedt, M., & Ringle, C. M. (2014). The relevance of reputation in the nonprofit sector: The moderating effect of socio-demographic characteristics. *International Journal of Nonprofit and Voluntary Sector Marketing, 19*(2), 110-126. <https://doi.org/10.1002/nvsm.1491>
- Seiferling, N., & Michel, A. (2017). Building resources for retirement transition: Effects of a resource-oriented group intervention on retirement cognitions and emotions. *Work, Aging and Retirement, 3*(4), 325-342. <https://doi.org/10.1093/workar/wax011>
- Shobha, T., & Amrutha, P. (2021). An exploratory study on the factors affecting retirement planning among working women in the city of Bengaluru. *Indian Journal of Commerce and Management Studies, 12*(1), 01-09.
- Stone, M. (1974). Cross-validated choice and assessment of statistical predictions. *Journal of the Royal Statistical Society: Series B (Methodological), 36*(2), 111-133. <https://doi.org/10.1111/j.2517-6161.1974.tb00994.x>
- Struckell, E. M., Patel, P. C., Ojha, D., & Oghazi, P. (2022). Financial literacy and self employment—The moderating effect of gender and race. *Journal of Business Research, 139*, 639-653. <https://doi.org/10.1016/j.jbusres.2021.10.003>
- Sun, H., Yuen, D. C., Zhang, J., & Zhang, X. (2020). Is knowledge powerful? Evidence from financial education and earnings quality. *Research in International Business and Finance, 52*, 101179. <https://doi.org/10.1016/j.ribaf.2019.101179>
- Topa, G., Lunceford, G., & Boyatzis, R. E. (2018). Financial planning for retirement: A psychosocial perspective. *Frontiers in Psychology, 8*, 310698. <https://doi.org/10.3389/fpsyg.2017.02338>
- Ugwu, L. E., Ajele, W. K., & Idemudia, E. S. (2024). Paradox of life after work: A systematic review and meta-analysis on retirement anxiety and life satisfaction. *PLOS Global Public Health, 4*(4), e0003074. <https://doi.org/10.1371/journal.pgph.0003074>
- Vable, A. M., Gilsanz, P., Nguyen, T. T., Kawachi, I., & Glymour, M. M. (2017). Validation of a theoretically motivated approach to measuring childhood socioeconomic circumstances in the health and retirement study. *PloS One, 12*(10), e0185898. <https://doi.org/10.1371/journal.pone.0185898>
- Van Solinge, H., & Henkens, K. (2008). Adjustment to and satisfaction with retirement: Two of a kind? *Psychology and Aging, 23*(2), 422. <https://doi.org/10.1037/0882-7974.23.2.422>
- Völckner, F., Sattler, H., Hennig-Thurau, T., & Ringle, C. M. (2010). The role of parent brand quality for service brand extension success. *Journal of Service Research, 13*(4), 379-396. <https://doi.org/10.1177/1094670510370054>
- Waheed, H., Ahmed, Z., Saleem, Q., Din, S., & Ahmed, B. (2020). The mediating role of risk perception in the relationship between financial literacy and investment decision. *International Journal of Innovation, Creativity and Change, 14*(4), 112-131.
- Wang, M., & Wanberg, C. R. (2017). 100 years of applied psychology research on individual careers: From career management to retirement. *Journal of Applied Psychology, 102*(3), 546. <https://doi.org/10.1037/apl0000143>
- Weckroth, M., Kempainen, T., & Dorling, D. (2017). Income-based social stratification of life satisfaction in Ireland between 2004 and 2014. *Irish Journal of Sociology, 25*(2), 128-149. <https://doi.org/10.1177/0791603517697326>
- Xiao, J. J., Ahn, S. Y., Serido, J., & Shim, S. (2014). Earlier financial literacy and later financial behaviour of college students. *International Journal of Consumer Studies, 38*(6), 593-601. <https://doi.org/10.1111/ijcs.12122>

- Yeung, D. Y. (2013). Is pre-retirement planning always good? An exploratory study of retirement adjustment among Hong Kong Chinese retirees. *Aging & Mental Health*, 17(3), 386-393. <https://doi.org/10.1080/13607863.2012.732036>
- Yeung, D. Y., & Zhou, X. (2017). Planning for retirement: Longitudinal effect on retirement resources and post-retirement well-being. *Frontiers in Psychology*, 8, 264309. <https://doi.org/10.3389/fpsyg.2017.01300>
- Zolait, A. H. S. (2014). The nature and components of perceived behavioural control as an element of theory of planned behaviour. *Behaviour & Information Technology*, 33(1), 65-85. <https://doi.org/10.1080/0144929x.2011.630419>