

**RETIREMENT FINANCIAL PLANNING FOCUSING
NATIONAL PENSION SYSTEM AMONG STATE
GOVERNMENT EMPLOYEES IN KERALA**

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DECLARATION

I hereby declare that the work presented in the thesis entitled "**Retirement Financial Planning Focusing National Pension System Among State Government Employees in Kerala**" is based on the original work done by me under the guidance of Dr. Princy Francis and has not been included in any other thesis submitted previously for the award of any degree. The contents of the thesis are undergone plagiarism check using iThenticate software at C.H.M.K. Library, University of Calicut and the similarity index found within the permissible limit. I also declare that the thesis is free from AI generated contents.



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SUDHEESH T V

Abstract of the Ph.D. Thesis

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This study investigates the effectiveness of the National Pension System (NPS) among state government employees in Kerala with a particular focus on financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS. The transition from the old pension scheme to the market-linked NPS has shifted the responsibility of retirement security to individuals highlighting the critical role of financial preparedness. The study evaluates the performance of pension fund managers and various pension schemes under NPS, assesses beneficiary perspectives and examines the interrelationship between financial literacy, retirement planning behaviour, financial dependence on NPS and retirement confidence. Using a structured questionnaire, primary data were collected from NPS beneficiaries employed in state government including aided and other public sector undertakings in Kerala. Through various statistical analysis including mediation and moderation models, the study explores how retirement financial planning mediates the relationship between financial literacy and retirement confidence and how financial dependence on NPS moderates this pathway.

The findings provides empirical insights for policymakers, pension fund regulators and financial educators to strengthen the effectiveness of the NPS and enhance retirement security and confidence among its beneficiaries. It also highlights the importance of integrating personalised retirement planning tools and advisory services within the NPS framework to foster proactive financial behaviour. By addressing these gaps, NPS can evolve into a more inclusive and empowering retirement system that ensures long term financial well-being for all the beneficiaries of NPS.

Keywords: National Pension System, Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence.

പിഎച്ച്.ഡി. പ്രബന്ധത്തിന്റെ സംഗ്രഹം

കേരളത്തിലെ സംസ്ഥാന സർക്കാർ ജീവനക്കാർക്കുള്ള നാഷണൽ പെൻഷൻ സിസ്റ്റം അടിസ്ഥാനമാക്കിയുള്ള റിട്ടയർമെന്റ് ഫിനാൻഷ്യൽ പ്ലാനിംഗ്

സുധീഷ് ടി വി

ഗവേഷണ വിദ്യാർത്ഥി (പാർട്ട് ടൈം)

വാണിജ്യ ഗവേഷണ വകുപ്പ്
എംഇഎസ് അസോബി കോളേജ്
പി. വെമ്പല്ലൂർ, തൃശ്ശൂർ

ഡോ. പ്രിൻസി ഫ്രാൻസിസ്

അസിസ്റ്റന്റ് പ്രൊഫസർ, ഗവേഷണ ഉപദേശിക
വാണിജ്യ ഗവേഷണ വകുപ്പ്
എംഇഎസ് അസോബി കോളേജ്
പി. വെമ്പല്ലൂർ, തൃശ്ശൂർ

കേരളത്തിലെ സംസ്ഥാന സർക്കാർ ജീവനക്കാരിൽ ദേശീയ പെൻഷൻ പദ്ധതിയുടെ (എൻ.പി.എസ്) ഫലപ്രാപ്തി വിലയിരുത്തുന്നതിനാണ് ഈ പഠനം നടത്തപ്പെട്ടത്. ഇതിൽ ധനകാര്യ സാക്ഷരത, വിരമിക്കൽ സാമ്പത്തിക പദ്ധതികരണം, വിരമിക്കൽ വിശ്വാസം, പെൻഷൻ വ്യവസ്ഥയിൽ സാമ്പത്തിക ആശ്രയം എന്നീ പ്രധാന ഘടകങ്ങൾക്കാണ് പ്രധാന ശ്രദ്ധ നൽകിയിരിക്കുന്നത്. പഴയ പെൻഷൻ പദ്ധതിയിൽ നിന്ന് വിപണി ബന്ധിതമായ എൻ.പി.എസ് ലേക്ക് മാറിയതോടെ, വിരമിക്കൽ സുരക്ഷയ്ക്കുള്ള ഉത്തരവാദിത്വം വ്യക്തികളിലേക്കായിട്ടാണ് മാറിയത്, ഇത് സാമ്പത്തിക ഒരുക്കത്തിന് പ്രാധാന്യം കൂടുതൽ വെളിപ്പെടുത്തുന്നു. പെൻഷൻ ഫണ്ടുകളുടെ പ്രകടനവും വിവിധ എൻ.പി.എസ് പദ്ധതികളുടെയും ഗുണനിലവാരവും വിലയിരുത്തുകയും, ഉപഭോക്താക്കളുടെ കാഴ്ചപ്പാടുകളും ഉൾക്കൊള്ളിച്ചാണ് പഠനം രൂപകൽപ്പന ചെയ്തിരിക്കുന്നത്. ധനകാര്യ സാക്ഷരതയും വിരമിക്കൽ പദ്ധതികരണ രീതികളും എൻ.പി.എസ് മേൽ ധാരാളിത്വവും വിരമിക്കൽ വിശ്വാസവും തമ്മിലുള്ള പരസ്പരബന്ധങ്ങൾ പഠനത്തിലൂടെ അന്വേഷിക്കപ്പെടുന്നു. സംസ്ഥാന സർക്കാർ, എസ്റ്റിമേറ്റ് സ്ഥാപനങ്ങൾ, പൊതു മേഖല സ്ഥാപനങ്ങൾ എന്നിവയിൽ ജോലി ചെയ്യുന്ന എൻ.പി.എസ് ഗുണഭോക്താക്കളിൽ നിന്ന് സാങ്കേതികമായി തയ്യാറാക്കിയ ചോദ്യാവലി മുഖേന പ്രാഥമിക ഡാറ്റ ശേഖരിച്ചു. മീഡിയേഷൻ, മോഡറേഷൻ മോഡലുകൾ ഉൾപ്പെടെയുള്ള സംഖ്യാത്മകവിശകലനങ്ങൾ ഉപയോഗിച്ച് ധനകാര്യ സാക്ഷരതയും വിരമിക്കൽ വിശ്വാസവും തമ്മിലുള്ള ബന്ധത്തിൽ വിരമിക്കൽ പദ്ധതികരണം എങ്ങനെ ഇടനിലക്കാരനാകുന്നു എന്നും എൻ.പി.എസ് മേൽ ധാരാളിത്വം ആ പാതയെ എങ്ങനെ സ്വാധീനിക്കുന്നു എന്നും വിശകലനം ചെയ്യുന്നു.

പഠനഫലങ്ങൾ എൻ.പി.എസ് ലെ ഫലപ്രാപ്തി മെച്ചപ്പെടുത്താനും പൊതുമേഖല ജീവനക്കാരുടെ വിരമിക്കൽ സുരക്ഷയും ആത്മവിശ്വാസവും വർദ്ധിപ്പിക്കാനും പോളിസി നിർമ്മാണകർ, പെൻഷൻ ഫണ്ടുകൾ നിയന്ത്രിക്കുന്നവർ, ധനകാര്യ വിദ്യാഭ്യാസവിതരണ ഏജൻസികൾ എന്നിവർക്കുള്ള പ്രായോഗിക സൂചനകളാണ് നൽകുന്നത്. അതോടൊപ്പം വ്യക്തിഗതമായ വിരമിക്കൽ പദ്ധതികൾ രൂപീകരിക്കാൻ സഹായിക്കുന്ന ഉപകരണങ്ങളും സേവനങ്ങളും എൻ.പി.എസ് ഘടനയിൽ ഉൾപ്പെടുത്തേണ്ടതിന് പ്രാധാന്യവും ഉന്നയിക്കുന്നു. ഈ പോരായ്മകൾ പരിഹരിക്കുന്നതോടെ എൻ.പി.എസ് കൂടുതൽ സമാവേശപരവും കഴിവേറിയതുമായ ഒരു വിരമിക്കൽ സുരക്ഷാ സംവിധാനമായി വികസിക്കാൻ സാധ്യതയുണ്ട്. ഇത് എല്ലാ ഗുണഭോക്താക്കൾക്കും ദീർഘകാല സാമ്പത്തിക ക്ഷേമം ഉറപ്പാക്കാൻ സഹായിക്കും.

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LIST OF ABBREVIATIONS

AGFI	–	Adjusted Goodness of Fit Index
AMOS	–	Analysis of Moment Structures
ANOVA	–	Analysis of Variance
APY	–	Atal Pension Yojana
ASP	–	Annuity Service Provider
AVE	–	Average Variance Extracted
CFA	–	Confirmatory Factor Analysis
CFI	–	Comparative Fit Index
CG	–	Central Government
CGMS	–	Central Grievance Management System
CMIN	–	Chi-square Minimum Value
CR	–	Composite Reliability
CRA	–	Central Recordkeeping Agency
CSRF	–	Composite Subscriber Registration Form
DA	–	Dearness Allowance
DB	–	Defined Benefit
DC	–	Defined Contribution
DF	–	Degrees of Freedom
EEE	–	Exempted Exempted Exempted
EFA	–	Exploratory Factor Analysis
FAQ	–	Frequently Asked Questions
FD NPS	–	Financial Dependence on National Pension System
FLIT	–	Financial Literacy
GFI	–	Goodness of Fit Index
GST	–	Goods and Services Tax
HDFC	–	Housing Development Finance Corporation
HSD	–	Honestly Significant Difference
ICICI	–	Industrial Credit and Investment Corporation of India
IRDAI	–	Insurance Regulatory and Development Authority of India

KMO	–	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
KYC	–	Know Your Customer
LIC	–	Life Insurance Corporation
MSV	–	Maximum Shared Variance
NAV	–	Net Asset Value
NFI	–	Normed Fit Index
NPS	–	National Pension System
OPS	–	Old Pension System
PF	–	Provident Fund
PFCF	–	Pension Fund Code
PFM	–	Pension Fund Manager
PFRDA	–	Pension Fund Regulatory and Development Authority
POP	–	Point of Presence
PPF	–	Public Provident Fund
PRAN	–	Permanent Retirement Account Number
PSCD	–	Pension Scheme Code
RC	–	Retirement Confidence
RCM	–	Rotated Component Matrix
RFP	–	Retirement Financial Planning
RMSEA	–	Root Mean Square Error of Approximation
SEM	–	Structural Equation Modeling
SG	–	State Government
SNO	–	State Nodal Officers
SPSS	–	Statistical Package for the Social Sciences
SRMR	–	Standardized Root Mean Square Residual
VAF	–	Variance Accounted For

Chapter - 1

INTRODUCTION

1.1 Introduction

The National Pension System (NPS) is a social security system that was introduced by the Central Government in 2004. It is a newly restructured defined contributory pension scheme that offers market-linked returns to pensioners and applies to all India service officers on or after 01st January 2004. Kerala State Government adopted this pension scheme and implemented it for the appointments made on or after 01st April 2013. Any employee belonging to the private sector or is self-employed can also avail the new pension system. It is a Government-sponsored pension system that was initially launched in January 2004 for Government employees and in 2009 for all employees including private sector (Kumar & Mishra, 2017).

The National Pension System has emerged as a key instrument for ensuring financial stability post-retirement as it offers a regulated, market-linked and flexible retirement savings option for individuals (PFRDA, 2023; OECD, 2022; Sharma & Singh, 2020). However, the performance of pension fund managers and the comparative effectiveness of different pension schemes under the NPS remain areas that require systematic evaluation to optimise financial outcomes for beneficiaries (Kumar & Mishra, 2017). Understanding the perspectives of NPS beneficiaries is essential in assessing the system's overall impact, trust and efficiency in meeting retirement needs (Dhar, 2019).

Financial literacy and retirement financial planning play a significant role in shaping an individual's preparedness for post-retirement life. However, variations in financial knowledge, retirement financial planning behaviour and financial dependence on NPS across different socio-economic demographics raise concerns about disparities in retirement confidence. While financial literacy is generally associated with higher confidence in retirement (Lusardi & Mitchell, 2011), the extent to which retirement financial planning mediates this relationship remains underexplored (Rothwell & Muench, 2014). Additionally, financial dependence on NPS may act as a moderating factor that influences how retirement planning affects retirement confidence thereby shaping overall financial security outcomes (Kothari & Singh, 2015).

In light of these critical factors, this study aims to evaluate the performance of pension fund managers and various pension schemes under NPS, analyse beneficiaries' perspectives and assess the impact of financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS. By examining the mediating role of retirement financial planning and the moderating effect of financial dependence on NPS, this research tries to provide valuable insights for policymakers, organisations, individuals and other stakeholders in enhancing retirement preparedness and improving the effectiveness of the NPS.

National Pension System offers two accounts to its beneficiaries – Tier 1 and Tier 2. Among these, Tier 1 is a compulsory account that is open for beneficiaries in the organised sectors. Tier 2 accounts are the accounts that can be opened by all Indian citizens who have completed 18 years of age. Tier 1 account is an account meant mainly for saving for retirement. The minimum contribution required at the time of opening a Tier 1 account is ₹100 and the minimum contribution required per year is ₹1000. The basic advantage of the Tier 1 system is that it offers triple tax exemptions to the subscribers. Under Sec 80 C deduction of up to ₹150,000, an additional tax deduction of ₹50,000 under Sec 80CCD (1B) and the tax exemption of employers' contributions towards the system under 80CCD (2) (Kumar & Mishra, 2017).

Tier 2 account is a voluntary saving facility. Here the subscriber is free to withdraw from his account. In this case, there is no limit for minimum contribution per year and there is no requirement to maintain a maximum balance in this account. The minimum contribution required for opening an account is ₹1000 and the minimum subsequent contribution amount required is ₹250 to keep the account active. Tier 2 accounts under the National Pension System are generally not eligible for tax benefits as per the Income Tax Act, 1961; however, an exception is made for Central Government employees who opt for a three-year lock-in period allowing them to claim deductions under Section 80C (PFRDA, 2018; Income Tax Department, 2023).

The records show that 88 percent of total NPS is accounted for by Government sectors. Both the Central Government and State Government also account for 35 percent of the number of subscribers under NPS (PFRDA, 2023; NPS Trust, 2023). In the NPS, both Central Government employees and State Government

employees contribute 10 percent of their monthly salary (10% of Basic pay plus DA) towards their pension fund with the same contribution from the State Government but the employer's contribution in the case of Central Government employees is 14 percent (Kothari & Singh, 2015).

1.2 Statement of the Problem

The transition from the Old Pension System (OPS) to the National Pension System (NPS) in India has significantly altered the retirement landscape for government and private sector employees. Unlike the Old Pension System which provided a guaranteed pension based on the last drawn salary and years of service, the NPS is a defined contribution scheme wherein the returns are market-linked and not guaranteed. This shift has introduced a new dimension of financial uncertainty for employees, many of whom lack adequate financial literacy to navigate this complex system. As the responsibility of ensuring a secure retirement has increasingly shifted to the individual, the role of financial awareness, investment knowledge and structured retirement planning has become more crucial than ever. However, many employees are not equipped with the necessary tools or knowledge to make informed decisions about their retirement savings under the NPS. The lack of preparedness can negatively impact their financial confidence and overall well-being post-retirement. Furthermore, existing literature tends to focus primarily on the structural and administrative aspects of various pension reforms, often overlooking the psychological and behavioural dimensions such as financial confidence and preparedness.

Although financial literacy has been widely recognised as a key factor of retirement confidence (Boisclair et al., 2017), the mediating role played by retirement financial planning in this relationship is not yet fully understood. Additionally, the extent to which individuals rely on the National Pension System for their retirement income may influence how retirement planning affects their retirement confidence thereby shaping their overall preparedness for financial security in post-retirement. Therefore, this study attempts to overcome the gap by examining how financial literacy, reliance on the NPS and strategic retirement financial planning collectively influence employees' retirement confidence about their financial security after retirement. Given these gaps, this study seeks to comprehensively assess the financial

preparedness of NPS beneficiaries by examining the interconnections between financial literacy, retirement financial planning, financial dependence on NPS and confidence in retirement. The study provides better insight into improving pension fund management, enhancing financial literacy programs and formulating policies that strengthen retirement security under the NPS.

1.3 Research Questions

The present study seeks to explore critical dimensions of the National Pension System (NPS) by addressing key research questions related to its performance, beneficiaries' perspectives and the psychological and financial preparedness for retirement. It aims to investigate how financial literacy, retirement financial planning and financial dependence on NPS collectively influence retirement confidence among its beneficiaries. The present study aims to emphasise the following research questions:

1. How does the performance of different pension fund managers and pension schemes under the NPS compare in terms of returns?
2. What are the overall perspectives of NPS among the beneficiaries of NPS?
3. What are the level of financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS among the beneficiaries of NPS?
4. How does retirement financial planning mediate the relationship between financial literacy and retirement confidence among the beneficiaries of NPS?
5. Does financial dependence on the National Pension System moderate the relationship between retirement financial planning and retirement confidence among the beneficiaries of NPS?

1.4 Objectives of the Study

The broad objective of the present research is to examine the effectiveness and impact of the National Pension System on the financial preparedness of its beneficiaries in Kerala. In order to achieve this, the following specific objectives have been formulated to evaluate pension fund performance, understand beneficiary

perspectives and explore the roles of financial literacy, retirement financial planning and financial dependence on NPS in shaping retirement confidence.

1. To evaluate the performance of pension fund managers and assess the comparative performance of various pension schemes under the National Pension System (NPS).
2. To know the perspectives of the NPS among the beneficiaries of NPS.
3. To assess the financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS among the beneficiaries of NPS.
4. To examine how retirement financial planning mediates the relationship between financial literacy and retirement confidence among the beneficiaries of NPS.
5. To examine the moderating effect of financial dependence of NPS on the relationship between retirement financial planning and retirement confidence among the beneficiaries of NPS.

1.5 Hypotheses of the Study

In the course of executing the present study, the following hypotheses were formulated and tested in alignment with the research objectives to ensure the statistical validation of empirical data and accomplishment of the research objectives.

Objective 1 - To evaluate the performance of pension fund managers and assess the comparative performance of various pension schemes under the National Pension System (NPS)

H1 : There is a significant difference in the performance of pension fund managers under NPS.

H2 : There is a significant difference in the performance of pension schemes under NPS.

Objective 2 - To know the perspectives of the NPS among the beneficiaries of NPS

H3 : There is a significant difference in the awareness of NPS among the beneficiaries of NPS.

H3a: There is a significant difference in the awareness of NPS between male and female beneficiaries.

H3b: There is a significant difference in the awareness of NPS among the beneficiaries from different educational backgrounds.

H3c: There is a significant difference in the awareness of NPS among the beneficiaries from different years of experience.

H3d: There is a significant difference in the awareness of NPS among the beneficiaries from different employment sectors.

H3e: There is a significant difference in the awareness of NPS among the beneficiaries from different salaried classes.

H4 : There is a significant difference in the challenges faced by the beneficiaries of NPS.

Objective 3 - To assess the financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS among the beneficiaries of NPS

H5 : There is a significant difference in financial literacy among the beneficiaries of NPS.

H6 : There is a significant difference in retirement financial planning among the beneficiaries of NPS.

H7 : There is a significant difference in retirement confidence among the beneficiaries of NPS.

H8 : There is a significant difference in financial dependence on NPS among the beneficiaries of NPS.

Demographic differences in Financial Literacy:

H5a : There is a significant difference in financial literacy between male and female beneficiaries of NPS.

H5b : There is a significant difference in financial literacy among NPS beneficiaries from different educational backgrounds.

H5c : There is a significant difference in financial literacy among NPS beneficiaries from different years of experience.

H5d : There is a significant difference in financial literacy among NPS beneficiaries from different employment sectors.

H5e : There is a significant difference in financial literacy among NPS beneficiaries from different salaried classes.

H5f : There is a significant difference in financial literacy among NPS beneficiaries from different monthly gross total income.

Demographic differences in Retirement Financial Planning:

H6a : There is a significant difference in retirement financial planning between male and female beneficiaries of NPS.

H6b : There is a significant difference in retirement financial planning among NPS beneficiaries from different educational backgrounds.

H6c : There is a significant difference in retirement financial planning among NPS beneficiaries from different years of experience.

H6d : There is a significant difference in retirement financial planning among NPS beneficiaries from different employment sectors.

H6e : There is a significant difference in retirement financial planning among NPS beneficiaries from different salaried classes.

H6f : There is a significant difference in retirement financial planning among NPS beneficiaries from different monthly gross total income.

Demographic differences in Retirement Confidence:

H7a : There is a significant difference in retirement confidence between male and female beneficiaries of NPS.

H7b : There is a significant difference in retirement confidence among NPS beneficiaries from different educational backgrounds.

H7c : There is a significant difference in retirement confidence among NPS beneficiaries from different years of experience.

H7d : There is a significant difference in retirement confidence among NPS beneficiaries from different employment sectors.

H7e : There is a significant difference in retirement confidence among NPS beneficiaries from different salaried classes.

H7f : There is a significant difference in retirement confidence among NPS beneficiaries from different monthly gross total income.

Demographic differences in Financial Dependence on NPS:

H8a : There is a significant difference in financial dependence on NPS between male and female beneficiaries of NPS.

H8b : There is a significant difference in financial dependence on NPS among NPS beneficiaries from different educational backgrounds.

H8c : There is a significant difference in financial dependence on NPS among NPS beneficiaries from different years of experience.

H8d : There is a significant difference in financial dependence on NPS among NPS beneficiaries from different employment sectors.

H8e : There is a significant difference in financial dependence on NPS among NPS beneficiaries from different salaried classes.

H8f : There is a significant difference in financial dependence on NPS among NPS beneficiaries from different monthly gross total income.

Objective 4 - To examine how retirement financial planning mediates the relationship between financial literacy and retirement confidence among the beneficiaries of NPS

H9 : Retirement financial planning is influenced by financial literacy among the beneficiaries of NPS.

H10 : Retirement confidence is influenced by retirement financial planning among the beneficiaries of NPS.

H11 : Retirement confidence is influenced by financial literacy among the beneficiaries of NPS.

H12 : The effect of financial literacy on the retirement confidence is mediated by retirement financial planning among the beneficiaries of NPS.

Objective 5 - To examine the moderating effect of financial dependence of NPS on the relationship between retirement financial planning and retirement confidence among the beneficiaries of NPS

H13 : Financial dependence on NPS moderates the relationship between retirement financial planning and retirement confidence among the beneficiaries of NPS.

1.6 Need and Significance of the Study

The National Pension System is a market linked social security scheme that offers regular pension after retirement thereby playing a vital role in ensuring financial security. It provides individuals with an opportunity to invest and accumulate small savings over time which can be converted into a lump sum and regular income through an annuity plan upon retirement (PFRDA, 2023; Chaurasia, 2019; World Bank, 2017). This study focuses on the demographic of NPS beneficiaries in terms of savings and investment and has attempted to assess the views regarding the utilisation of this pension system for financial planning and investment. The research on the National Pension System is critical for multiple reasons. As India's population ages and the reliance on state pension systems becomes less sustainable due to financial constraints faced by the government for various reasons, so personal retirement savings have become essential. The NPS offers a structured framework for individuals to invest in their retirement but understanding its performance and the perspectives of its beneficiaries and assessment on these factors can lead to improved outcomes and better policymaking.

- **Understanding the Performance of NPS Fund Managers and Schemes:** Different pension fund managers offers varying returns and it is important to assess which pension fund manager and scheme perform the best to guide investors in making informed decisions. Pension schemes are long-term commitments, so understanding their performance ensures that individuals can maximise their retirement corpus while considering factors like risk tolerance and fund manager credibility (Kumar & Mishra, 2017).
- **Perspectives of NPS Beneficiaries:** A significant gap exists in understanding how beneficiaries perceive the NPS and its role in their retirement planning. Insights from beneficiaries can help in identifying areas of improvement and determining whether the current NPS offerings meet their expectations. Given the complexity of pension planning, such perceptions can shape future policies or interventions (Dhar, 2019).
- **Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on NPS:** Financial literacy is a crucial factor in determining the success of retirement planning. Research

suggests that individuals with higher financial literacy are better equipped to make sound retirement planning decisions (Lusardi & Mitchell, 2011). Assessing financial literacy among NPS beneficiaries along with the relationship between financial planning and retirement confidence and reliance on NPS can lead to better-targeted financial education programs and investment advice tailored to the needs of retirees (Agarwal & Yadav, 2017). Understanding these influences within the context of NPS can provide insights into how different demographic groups approach retirement planning and whether there is a need for specialised systems to cater to these segments (Nair & Venkatraman, 2016).

- **Retirement Financial Planning as a Mediator:** By investigating how retirement financial planning mediates the relationship between financial literacy and retirement confidence, the study can provide a detailed understanding of the factors that contribute to a confident retirement outlook (Lusardi & Mitchell, 2014; Hershey, Jacobs-Lawson, & Austin, 2013; Noone, Stephens, & Alpass, 2010). This can guide financial advisors, policy makers and fund managers in crafting strategies that enhance retirement readiness (Rothwell & Muench, 2014).
- **Moderating Effect of NPS Dependency:** The dependence on NPS for retirement income might differ across beneficiaries and understanding how this dependency affects their retirement confidence can help in identifying areas of improvement within the system. The study could explore whether greater financial independence outside of NPS leads to better retirement confidence and how financial dependence on NPS could be mitigated (Kothari & Singh, 2015).

This research is essential as it will provide valuable insights into the performance of NPS systems, beneficiaries' perspectives and the underlying financial behaviours that influence retirement confidence. By understanding these elements, this study can inform better investment strategies, policies and financial education programs ultimately fostering greater financial security for retirees in Kerala in the context of NPS. Besides, the study is useful for the Government to review the pros and cons of functioning and improving the performance level of the NPS from the ultimate beneficiaries of NPS.

1.7 Scope of the Study

The scope of the present study is centered on a comprehensive analysis of the National Pension System (NPS) in the context of its performance, beneficiary's perspectives and the financial preparedness with a particular focus on government employees in Kerala. As the NPS has evolved into a vital instrument for securing post-retirement financial stability, it is essential to evaluate both its operational efficiency and its impact on the financial well-being of its beneficiaries. This study focuses on key components such as the comparative performance of pension fund managers and pension schemes under NPS, perspectives of its beneficiaries, financial literacy, retirement financial planning and financial dependence on the system that collectively influence retirement confidence.

The research specifically targets NPS beneficiaries within government-organised sectors including State Government employees, employees of aided institutions and public sector board or corporations in Kerala. Although the study excludes private sector employees, the findings are relevant for understanding how public sector subscribers interact with the NPS and how their preparedness for retirement can be improved through targeted interventions. The primary data collection for the study was conducted over a period of six months from July 2024 to December 2024. Furthermore, the study adopts a behavioural finance perspective by analysing how financial literacy translates into retirement confidence through the mediating role of retirement financial planning. It also explores how varying degrees of dependence on NPS moderate the relationship between retirement planning and overall retirement preparedness of individuals. By doing so, the study not only contributes to academic literature but also offers actionable insights for policymakers, pension fund regulators and financial institutions seeking to enhance the effectiveness of pension systems and strengthen financial security for future retirees.

1.8 Operational Definitions

1. National Pension System (NPS)

The National Pension System (NPS) is a government-sponsored, market-linked, defined contribution pension system introduced in 2004 for Central Government employees and extended to all Indian citizens in 2009 (PFRDA, 2023; Government of India, 2004; Sane & Thomas, 2015). In this study, NPS

refers specifically to the retirement system applicable to government employees in Kerala who subscribed after its implementation (PFRDA, 2023).

2. **Pension Fund Manager**

Pension Fund Managers are licensed entities appointed by the Pension Fund Regulatory and Development Authority (PFRDA) to manage the investments of NPS subscribers (PFRDA, 2023; Sane & Thomas, 2015; OECD, 2022). Their performance is evaluated based on the returns generated across different NPS investment schemes (Ramaswami & Sahu, 2021).

3. **Pension Scheme**

Pension Scheme of NPS refers to the retirement savings plan under the National Pension System measured through features like account type, contribution pattern, choice of fund manager and knowledge of benefits and withdrawal rules (PFRDA, 2023).

4. **NPS Beneficiaries**

Individuals enrolled in the National Pension System who make regular contributions to build their retirement corpus. This includes Central and State Government employees, private sector employees and self-employed individuals (Kumar & Mishra, 2017).

5. **NPS Subscribers**

Any person or individual who is 18 years of age or older and has opened an account under the National Pension System is referred to as an NPS Subscriber. (Source: Pension Fund Regulatory and Development Authority, 2021).

6. **Tier 1 Account**

The compulsory retirement account under NPS designed primarily for long-term savings with tax benefits and withdrawal restrictions. It forms the core of the NPS and is eligible for tax exemptions under Sections 80C and 80CCD (1B) of the Income Tax Act (PFRDA, 2023; Income Tax Department, 2022).

7. **Tier 2 Account**

A voluntary savings facility under NPS that provides flexibility in contributions and withdrawals but lacks the tax incentives of Tier 1. It is meant for short-term investment and liquidity needs (PFRDA, 2023).

8. **Financial Literacy**

Financial literacy refers to the knowledge and understanding of financial principles and concepts that enable individuals to make informed and effective financial decisions (Lusardi & Mitchell, 2014; OECD, 2016; Remund, 2010). In this study, it refers to the awareness of NPS beneficiaries about budgeting, investments, retirement savings and risk management (Lusardi & Mitchell, 2011; Agarwal & Yadav, 2017).

9. **Financial Strategies**

A financial strategy is a comprehensive approach to managing financial resources oriented towards long-term goals and grounded in a clearly defined vision aimed at achieving financial security and growth (Gitman & Zutter, 2015; Brigham & Ehrhardt, 2016; Kaplan & Norton, 2004).

10. **Financial Planning**

Financial planning means assessing the current financial situation of an individual or employee, identifying future financial goals and determining various methods to achieve those goals (Source: CFP Board, 2020).

11. **Retirement Planning**

The process of preparing for an employee's life post-retirement by determining the amount of money required, the timing of withdrawals and identifying the appropriate financial tools and strategies to ensure financial security after retirement (Garman, E.T., & Fogue, R.E., *Personal Finance: A Practical Approach*, 2009).

12. **Retirement Financial Planning**

The process of setting retirement goals and strategically allocating resources to ensure adequate income after retirement. It includes evaluating savings, investment returns and expected expenses (Rothwell & Muench, 2014).

13. Investment Option

An investment option refers to the choices available to investors for allocating funds into various financial instruments such as stocks, bonds and mutual funds with the expectation of generating returns in the future (Bodie, Kane, & Marcus, 2018; Gitman & Zutter, 2015; Mayo, 2017).

14. Financial Dependence on NPS

The extent to which individuals rely on the NPS as their main or sole source of retirement income. Higher dependency indicates fewer alternative savings or income sources (Kothari & Singh, 2015).

15. Retirement Confidence

An individual's belief in their financial preparedness for retirement. It reflects perceived sufficiency of retirement savings, investment adequacy and the ability to maintain a stable lifestyle post-retirement (Lusardi & Mitchell, 2014; Nair & Venkatraman, 2016).

16. Life Cycle Fund

A type of investment fund in which the proportion of equity, bonds and corporate securities varies depending on the subscriber's age, gradually becoming more conservative as the subscriber approaches retirement (Source: Soni, M., Investment Management: An Introduction, 2014).

1.9 Period of Study

The primary data collection for the study was conducted over a period of six months from July 2024 to December 2024. During this time, responses were gathered from National Pension System beneficiaries employed in various State Government departments including those in Government-aided institutions and Public Sector Boards/Corporations in Kerala.

1.10 Limitations of the Study

Every research study is bound by certain limitations that may affect the generalizability, accuracy or scope of its findings. Recognising these constraints is essential for understanding the context and reliability of the results. The present study also encounters several such limitations related to its methodology, data

sources and scope of participant selection. These limitations are outlined below to provide a clearer perspective on the potential factors that may influence the study's outcomes.

- A key limitation of the study is the possibility of inconsistent or biased responses from participants along with the general drawbacks of using a questionnaire such as limited response depth and potential misunderstandings of the questions.
- The study is particularly limited to the Government sector and samples have been taken from the State Government employees including aided and public sector board/corporations. Private sector employees were excluded. Thus, the findings of the study will be mainly applicable to Government-organised sectors.
- A portion of financial data gathered for the present study is secondary in nature. In such a case, the study brings all the limitations intrinsic to secondary data and financial information. Various accounting and statistical tools broadly used for the present study have their own limitations.
- The researcher has employed a scaling technique as part of the study methodology. Consequently, the inherent limitations of this technique are applicable to the study.

Despite the presence of above limitations, the researcher has made all efforts to avoid bias and ensure rightness in data collection.

1.11 Chapter Scheme of the Thesis

The thesis is divided into eight chapters:

Chapter 1 : Introduction

Chapter 2 : Review of Literature

Chapter 3 : Research Methodology

Chapter 4 : A Theoretical Overview of National Pension System

Chapter 5 : Performance Analysis of Pension Fund Managers and Pension Schemes under NPS

Chapter 6 :Analysis of NPS Beneficiaries' Perspectives, Assessing Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on NPS with Mediating and Moderating Roles of Retirement Financial Planning and Financial Dependence on NPS

Chapter 7 : Findings and Conclusion

Chapter 8 : Recommendations of the Study

Chapter 1: Introduction

This chapter introduces the context, the research problem and relevance of the study on the National Pension System. It outlines the research questions, objectives, hypotheses, need and significance of the study, scope, operational definitions, period of study and limitations setting the foundation for a systematic exploration of the effectiveness and beneficiary perspectives on the NPS particularly in the context of retirement financial planning and retirement confidence.

Chapter 2: Review of Literature

This chapter critically reviews existing national and international literature related to pension systems, financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS. It highlights key theories, models and research gaps of the study. The review establishes the basis for the proposed hypotheses and justifies the need for empirical investigation within the Indian NPS in Kerala context.

Chapter 3: Research Methodology

This chapter details the research design, sampling strategy, population, data collection instruments and methods of analysis employed in the study. It outlines the development and validation of the structured questionnaire, explains the use of descriptive and inferential statistics and elaborates on the application of Structural Equation Modeling (SEM) to test the mediating and moderating effects in the research model.

Chapter 4: A Theoretical Overview of National Pension System

This chapter provides a comprehensive theoretical background of the NPS including its evolution, institutional framework, regulatory environment under PFRDA and its operational architecture. It also compares the NPS with traditional pension systems, elaborates on the role of various intermediaries and situates the system within broader retirement policy discourse in India.

Chapter 5: Performance Analysis of Pension Fund Managers and Pension Schemes under NPS

This chapter evaluates the performance of various Pension Fund Managers (PFMs) and investment schemes available under the NPS. Key performance indicators such as returns and fund efficiency are analysed over time. The chapter provides an evidence-based assessment of how investment performance may influence beneficiaries' trust, adoption and financial confidence.

Chapter 6: Analysis of NPS Beneficiaries' Perspectives, Assessing Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on NPS with Mediating and Moderating Roles of Retirement Financial Planning and Financial Dependence on NPS

This core analytical chapter presents the results of empirical data analysis related to the study's objectives. It examines beneficiaries' perspectives on the NPS, levels of financial literacy, retirement financial planning behaviours, retirement confidence and reliance on NPS for retirement. The chapter employs Structural Equation Modeling (SEM) to explore the mediating role of retirement financial planning between financial literacy and retirement confidence and the moderating role of financial dependency in shaping retirement confidence.

Chapter 7: Findings and Conclusion

This chapter presents the key findings of the research linking them back to the original hypotheses and objectives. The chapter also concludes

with a critical interpretation of the results highlighting the contributions of the study to the academic field and pension policy discourse.

Chapter 8: Recommendations of the Study

Based on the findings, this chapter offers actionable recommendations for NPS beneficiaries, PFRDA, policymakers, organisations, government and other stakeholders to enhance the effectiveness of the NPS and suggests strategies to improve financial literacy and retirement financial planning among its beneficiaries. It also discusses the implications of these findings in light of the existing literature and theoretical framework. The chapter concludes with directions for scope of future research.

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Chapter - 2

REVIEW OF LITERATURE

2.1 Introduction

A comprehensive review of literature is essential to frame the theoretical and empirical foundations of the present study titled “Retirement Financial Planning Focusing National Pension System among State Government Employees in Kerala” which aims to evaluate in the context of the National Pension System in Kerala. Over the past two decades, the transition from the defined benefit structure of the Old Pension System to the market-linked defined contributory framework of National Pension System has prompted significant academic and policy discussions. This shift not only altered the structure of pension systems in India but also introduced new financial responsibilities and decision-making roles for employees, making financial literacy and retirement planning increasingly crucial areas of inquiry.

2.2 Organisation of Review of Literature

For the purpose of discussion, the available literatures relevant to the present research has been presented in five sections. They are shown below.

Section A - National Pension System

Section B - Financial Literacy

Section C - Retirement Financial Planning

Section D - Retirement Confidence

Section E – Financial Dependence on National Pension System

2.2.1 Section A – National Pension System

Over the years, extensive research has been conducted on the National Pension System (NPS) to examine its design, effectiveness, sustainability and challenges in India's evolving retirement landscape. The academic exploration of India's National Pension System (NPS) began to gain momentum around the mid-2010s reflecting growing policy attention towards pension reforms. Early investigations highlighted structural inefficiencies and user dissatisfaction. **Eronimus (2015)** focusing on Tamil Nadu revealed that many subscribers were dissatisfied with the NPS and preferred the earlier defined-benefit system often participating only because it was mandatory. In the same year, **Rajasekhar et al. (2016)** offered a comparative analysis of NPS-Lite

and the Atal Pension Yojana (APY), pointing out the schemes' failure to consider the saving patterns of unorganised workers, recommending enhancements like mobile payment options and discouraging premature account closures. Subsequent analyses delved into investment performance and structural issues. **Ananth and Gurunathan (2016)** evaluated the performances of Tier 1 and Tier 2 accounts, observing initial negative returns and suggesting more investor incentives. **Kamath and Patel (2017)** carried out cost-benefit analyses showing the NPS's advantages in terms of market-linked annuities, tax exemptions and low processing fees. Their case studies emphasized that age, tenure and government policies significantly influence the plan's benefits.

Harish Chander (2017) assessed seven Pension Fund Managers (PFMs) handling corporate debt portfolios under NPS, employing robust statistical tools such as Jensen's Alpha and Sharpe Ratio. The study found that LIC PF and HDFC PF underperformed relative to benchmarks, whereas ICICI PF demonstrated superior returns. Around the same time, awareness became a key research focus. **Aruna Kapoor (2018)** studied investor knowledge and satisfaction in Delhi, finding that respondents were mostly aware of account types, contributions, and returns, though they favoured offline enrolment modes. The complexity and flexibility of NPS were further addressed by **Gordon and Natarajan (2018)**, who noted the options available for fund management and investment patterns, making NPS more attractive to subscribers. **Seethal and Menaka (2018)** reinforced this sentiment by highlighting tax reforms like GST removal on annuities and tax exemptions, making NPS a preferred tool for retirement planning.

By 2019, more nuanced issues like portfolio composition were under scrutiny. **Gupta and Gupta (2019)** examined the public's trust in various asset classes under NPS, noting a higher preference for government securities over equities. **Swami et al. (2019)** offered insights into NPS implementation for central government employees, underlining the importance of the Point of Presence (PoP) mechanism and regulatory roles of central authorities. The COVID-19 pandemic triggered new discussions. **Malayala Manorama Daily (2020)** reported that the NPS allowed partial withdrawals during the pandemic for treatment purposes, although the same was not extended to APY members. Around this time, **Jain (2020)** provided a comprehensive overview of NPS eligibility and registration rules, highlighting its shift from a defined

benefit to a defined contribution model applicable to residents aged 18 to 65. Taxation became a significant issue in 2020, as reported by **The Economic Times (2020)**, which noted that employer contributions exceeding ₹7.5 lakhs annually would be taxable, along with interest and dividend accruals above permissible limits. **Research Desk (2021)** flagged concerns about market-linked volatility and limitations in liquidity, though it clarified that 60% withdrawals from Tier 1 accounts were tax-free. In-depth analyses of fund manager performance and structure continued with **Bodhgire (2021) and Abdulazeez (2021)**, both of whom used ANOVA to analyse variations in returns across PFMs. Their findings emphasized differential performance among fund managers and revealed persistent gaps in awareness among government employees. **Maheshwari and Bhutada (2021)** took a macro-level approach, examining fiscal sustainability and structural inconsistencies in India's pension architecture, especially with respect to extending coverage to the unorganized sector.

Mohanty (2022) offered a comprehensive sectoral overview, stressing the need to improve pension literacy and extend NPS to more private-sector workers. His statistics showed a threefold increase in subscribers and a fourfold growth in assets between 2017 and 2022, largely driven by APY and NPS expansions. **Ghosh and Saha (2022)** critically compared NPS with mutual fund Systematic Investment Plans (SIPs), highlighting structural and tax-related differences and assessing NPS's role in meeting the socio-economic needs of India's aging population. Recent studies increasingly focus on sector-specific evaluations and strategic integration. **Mehta and Saini (2023)** examined NPS's utility for gig economy workers and highlighted the absence of employer contributions as a major limitation. **Tiwari and Sharma (2023)** noted similar gaps in financial inclusion for informal workers, citing rural infrastructure and digital access as barriers. **Agarwal and Patel (2023)** found that while NPS increased savings for many, low-income workers still had limited savings rates. **Chand and Gupta (2023)** documented the evolution of NPS from a voluntary scheme to a more inclusive and mandatory system for various workforce segments, attributing rising appeal among youth to the 2023 policy and administrative reforms.

Further integration efforts were studied by **Patel and Joshi (2024)**, who examined the synergy between APY and NPS. They found that combining government subsidies with NPS mechanisms could boost financial inclusion. **Gupta and Iyer (2024)** evaluated the long-term sustainability of NPS, warning about the

return volatility from market-linked investments, despite its cost efficiency. **Jadhav and Deshpande (2024)** compared India's NPS with global models in Chile and Australia, noting a gap in financial products for informal sector workers, despite India's efficient administrative model. Finally, **Sharma and Singh (2024)** concluded the recent literature with a study on NPS's effectiveness in retirement preparedness. Their comparison between consistent and non-contributing participants showed improved readiness among subscribers, though social security gaps remained, especially for freelancers and gig workers.

2.2.2 Section B – Financial Literacy

The exploration of financial literacy as a vital element of personal financial well-being and retirement planning has evolved significantly over the past two decades. Early foundational research emphasised its correlation with wealth accumulation and retirement preparedness. **Lusardi and Mitchell (2007)** were among the first to empirically establish that individuals with higher financial literacy were more likely to engage in retirement planning which directly contributed to better wealth outcomes. Similarly, **Bucher-Koenen and Lusardi (2011)** reviewed various financial education programs and concluded that targeted financial literacy initiatives positively influenced individual financial behaviour and stability. As research advanced, the link between financial literacy and household decision-making became clearer. **Roji (2012)** highlighted how financial knowledge not only fosters wealth accumulation but also plays a decisive role in shaping retirement planning decisions. **Steinmeier (2012)** supported this by showing that literacy around pensions and social security served as a bridge between numeracy and overall household wealth. Meanwhile, **Lusardi (2012)** raised concerns over the alarming rates of financial illiteracy among elderly populations' particularly elderly women and called for robust educational interventions to mitigate associated vulnerabilities like poor debt management and susceptibility to fraud.

In subsequent years, scholars examined the psychosocial dimensions of financial literacy. **Taft (2013)** demonstrated a relationship between financial well-being and literacy, finding that factors such as gender, marital status, and education influenced financial competence. **Murphy (2013)** further identified positive correlations between religiosity, psychological satisfaction, and financial knowledge

among older adults, emphasising the socio-psychological roots of financial behaviour. With the rise of technology and globalization, researchers started focusing on how different populations interacted with financial tools and systems. **Samek, Matthews, and Hubbard (2016)** highlighted the effectiveness of digital resources in improving users' understanding of complex concepts like compound interest. **Brown, Kapteyn, Luttmer, and Mitchell (2017)** noted that cognitive limitations hinder individuals' ability to make optimal annuity-related decisions, which in turn affected retirement outcomes. In the same year, **Lusardi, Michaud, and Mitchell (2017)** illustrated through a theoretical model how financial literacy disparities contribute to wealth inequality, calling for educational interventions tailored to low-income and less-educated populations.

As attention turned to cross-national and demographic variations, comprehensive reviews such as the one by **Bucher-Koenen, Lusardi, Alessie, and van Rooij (2018)** underscored the need for financial education programs that address the unique needs of different groups. Similarly, **Kaiser and Menkhoff's (2018)** meta-analysis found a strong positive correlation between financial literacy and responsible financial behaviour such as saving and investing, reinforcing the effectiveness of well-structured educational interventions. **Lusardi (2019)** provided an in-depth global review, reiterating the widespread gaps in financial knowledge and advocating for policy-driven education reforms. In the Indian context, **Saritha (2019)** examined employee saving patterns and found that variables like age, education, and income significantly influenced financial literacy, whereas gender and sector (public vs. private) determined the propensity to invest and save. Recent studies have begun to emphasize how financial literacy interacts with cultural, digital and systemic factors. **Anderloni and Bongini (2020)** conducted a systematic literature review identifying key determinants of financial literacy, namely income, age and education, while also calling for future research targeting understudied groups. **Lusardi and Mitchell (2021)** again emphasized the foundational role of financial literacy in promoting savings, investment, and debt management, urging the implementation of widespread financial education programs. Similarly, **Lusardi and Hasler (2021)**, using data from the 2021 National Financial Capability Study, advocated for focused interventions to improve literacy concerning interest rates, inflation, and risk diversification.

Ozdemir (2022) expanded the conversation to educational policy, proposing the integration of financial literacy as a life skill in school curricula, arguing that early exposure promotes lifelong financial well-being. **Singh and Patel (2023)** critically evaluated the outcomes of Indian financial inclusion programs like the Atal Pension Yojana (APY) and Pradhan Mantri Jan Dhan Yojana (PMJDY), revealing persistent gaps in financial literacy, especially among rural women and the elderly. Other 2023 studies focused on income and regional disparities. **Patel and Khan (2023)** reported that low-income households in India exhibited lower financial literacy levels, resulting in poor savings and high debt levels. **Ghosh and Sahu (2023)** noted that even financially knowledgeable households often preferred short-term investments due to low trust in financial institutions. **Smith and Harris (2023)** emphasised the growing importance of digital financial literacy, noting that although fintech tools increased access to financial education, usage remained uneven due to digital divides among older and lower-income populations.

Recent research in 2024 has taken a more psychological and intervention-based approach. **Davis and Lee (2024)** explored the role of behavioural biases like present bias in undermining retirement planning, even among financially literate individuals. They proposed automated savings mechanisms and behavioural nudges as potential remedies. **Thomas and Roberts (2024)** examined government-led financial education initiatives across countries and found that nations with robust educational policies reported better retirement readiness. **Mitchell and Johnson (2024)** focused on debt management in the U.S., showing that financially literate individuals were more likely to avoid high-interest debt, though younger adults still struggled due to short-term financial stressors. **Amin and Iqbal (2024)** highlighted the gendered nature of financial literacy in South Asia, identifying cultural and structural barriers that limit women's financial competence.

2.2.3 Section C – Retirement Financial Planning

Retirement financial planning has evolved considerably over the past two decades, moving from foundational concepts to more sophisticated behavioural, economic and technological integrations. The historical progression of literature on this topic reflects an increasing recognition of the psychological, economic and institutional factors influencing individuals' preparedness for life after employment.

The earliest study in this area by **Krishnamoorthy (2012)** examined retirement planning behaviour among Malaysian workers, emphasising the importance of professional financial guidance and goal-setting. He concluded that when individuals consciously think about their post-retirement life, they are better prepared to meet future financial needs and avoid distress in retirement. A couple of years later, **Adeyale (2014)** shed light on two critical challenges facing defined contribution retirement plans, namely, the uncertainty of life expectancy and inconsistent employee contributions. The study found that retirement planning outcomes are often more affected by age and gender than by income level, recommending early and consistent savings behaviour to offset longevity risk. During the same year, **Nadaf (2014)** explored the socioeconomic and mental health implications of voluntary retirement schemes. The findings suggested that such schemes are successful only when truly voluntary, and that unskilled workers often neglect retirement planning. Investing without adequate financial knowledge was found to lead to dissatisfaction in later life. By 2016, the literature began addressing behavioural and knowledge-related factors. **Dhanalakshmi (2016)** examined attitudes toward retirement insurance products offered by banks, stressing the importance of corpus accumulation and the role of financial advisers in guiding individuals toward attractive product features, such as tax benefits and surrender value. Similarly, **Bansilal (2016)** found that cultural, social, and economic conditions influence retirement preparedness. The study concluded that although institutional and family support may be insufficient, Indian cultural values encourage disciplined long-term savings. Recognising the role of psychological factors, **Yadav and Shalini (2017)** introduced a psycho-social dimension to retirement planning. Their study found that individuals who planned for retirement in advance reported lower cognitive strain and relied on both formal mechanisms and informal family-based strategies to prepare for the future. **Giron, Martellini, Milhau, Mulvey, and Suri (2018)** contributed a notable financial innovation by applying Goal-Based Investing (GBI) to retirement planning. Their model proposed two portfolios: a "Goal-Hedging Portfolio" (GHP) to secure essential income, and a "Performance-Seeking Portfolio" (PSP) to optimize long-term gains. This dual-portfolio strategy aimed to hedge risks while meeting retirement goals. The field took a more integrative and organisational turn with **Kumar, Tomar, and Verma (2019)**, who conducted a systematic literature review focusing on organisational, demographic, and psychological factors. Their review

highlighted key research gaps, especially the need to explore how cognitive and emotional elements influence retirement decisions. The role of psychological preparedness was further emphasized by **Vakil (2020)**, who found that retirement intentions are shaped by psychological readiness, financial literacy, pension availability, education, and marital status. The study concluded that such factors collectively influence the retirement age and financial security of salaried individuals. **Shinde (2021)** reinforced the necessity of early financial education in preparing for retirement. Her systematic literature review proposed that retirement planning is more effective when initiated early in one's career and supported by structured financial literacy programs tailored to career stages.

A global perspective was introduced by **Ghadwan, Ahmad, and Hanifa (2022)** through an integrative systematic review of retirement planning models. They emphasized the need for customised and flexible planning approaches that reflect individual preferences and life circumstances to ensure retirement security. The theoretical dimension advanced further in 2023, with **Satish Kumar and Tomar (2023)** applying the Theory of Planned Behaviour (TPB) to retirement financial planning. Their model highlighted how attitudes, subjective norms, and perceived behavioural control collectively shape individuals' planning behaviour and offered a new framework to understand financial preparedness. Empirical evidence of financial literacy's impact came from **Chavez and Lopez (2023)**, who found that American workers with higher financial literacy were more likely to make informed decisions regarding asset allocation and participate in employer-sponsored plans like 401(k)s. Exploring employer incentives, **Chang and Yang (2023)** discovered that matching contributions by employers significantly increased employees' willingness to contribute to retirement plans. This finding emphasised the power of organizational policies in encouraging savings.

In the context of national schemes, **Thompson and Roberts (2023)** examined the effectiveness of compulsory pension plans, such as India's National Pension Scheme (NPS). While such schemes raised overall savings rates, their success depended largely on public trust and perceptions of institutional efficiency. Simultaneously, **Nguyen and Roberts (2023)** examined the influence of AI-powered financial planning applications. They found that tools offering budgeting, goal-setting, and investment monitoring capabilities significantly improved retirement planning

outcomes, especially among younger users. A critical lens on gender was brought in by **Patel and Kumar (2023)**, who noted that Indian women particularly those with lower education levels and working in informal sectors were significantly underrepresented in formal retirement planning. The study emphasised the urgent need for gender-sensitive financial education initiatives. As behavioural interventions became more central to the discourse, **Lee and Wang (2024)** investigated the relationship between financial anxiety and retirement planning. They found that individuals with high financial anxiety were more likely to delay or avoid making financial decisions altogether, which negatively affected their retirement readiness.

Sweeney and Ghosh (2024) explored how income disparities impact retirement planning behaviour. They discovered that while high-income earners engage in structured planning, low-income individuals face barriers such as lack of financial literacy and disposable income, contributing to poor retirement outcomes. Focusing on automatic enrolment mechanisms, **Keller and Singh (2024)** demonstrated that while auto-enrolment in employer-sponsored plans significantly increased participation, most employees stuck to default contribution rates, which often fell short of actual retirement needs. Finally, **Harrison and Clark (2024)** examined how tax-deferred retirement accounts influenced retirement saving behaviour. They found that individuals who benefited from reduced tax burdens were more likely to actively contribute to their retirement accounts, underscoring the influence of public policy on financial behaviour.

2.2.4 Section D – Retirement Confidence

The concept of retirement confidence has evolved significantly over the past two decades shaped by financial literacy, socio-economic factors, behavioural interventions and technological advancements. Early foundational studies underscored the psychological and economic roots of retirement confidence.

Thaler and Benartzi (2004), in their pioneering “*Save More Tomorrow*” program, demonstrated how behavioural nudges such as automatic escalation of retirement savings could counteract procrastination and poor planning, thereby boosting both retirement savings and confidence. Around the same time, **Friedberg and Webb (2005)** observed that individuals with higher incomes and education levels showed greater retirement confidence, as they had better access to financial resources

and a stronger grasp of retirement planning. Similarly, **VanDerhei, Copeland, and Choi (2005)** highlighted that individuals with access to retirement planning tools and financial advisors were more confident about achieving their retirement goals due to improved financial knowledge. **Schoenbaum (2005)** introduced the notion that policy uncertainty especially around Social Security can severely impact retirement confidence, particularly among those near retirement. This was echoed by **Agnew and Szykman (2005)**, who explored how the way retirement choices are framed can influence a person's confidence. Clear and actionable retirement advice helped individuals feel more capable of achieving their goals.

In the following years, research deepened the connection between financial literacy and retirement confidence. **Hershey, Henkens, and Van Dalen (2010)** emphasized that individuals with higher financial literacy felt more prepared and assured about retirement. **Lusardi and Mitchell (2011)** further supported this link, finding that financially literate individuals were more likely to plan for retirement, evaluate investment opportunities, and feel confident in their future preparedness. The psychological dimension of retirement confidence was explored by **Moore and Mitchell (2012)**, who found that optimism and perceived control over financial decisions were strongly correlated with confidence. **Blanchett and Kaplan (2013)** contributed to the discourse by examining income inequality, revealing that lower-income individuals typically had reduced confidence due to concerns about income volatility.

By the mid-2010s, researchers began addressing demographic differences. **Hughes and McGrath (2013)** discovered that higher income and saving levels contributed to stronger retirement confidence, especially among high earners. **Karamcheva and Bateman (2018)** drew attention to millennial anxieties, noting that student debt and scepticism about the future of employer retirement benefits and social security were diminishing retirement confidence in younger cohorts. **Ghilarducci et al. (2019)** added that an individual's outlook on their financial future significantly affects their confidence, those with a positive outlook felt more secure about retirement. Around the same time, the Employee Benefit Research Institute, **Copeland & Greenwald (2020)**, found that access to employer-sponsored retirement plans consistently correlated with higher levels of retirement confidence, reinforcing the institutional impact on retirement preparedness. In the aftermath of COVID-19

pandemic, the global economy faced disruption, and recent studies captured this shifting landscape. **Scholtz and Cowley (2021)** reported that baby boomers expressed higher retirement confidence due to access to defined-benefit pension plans. Meanwhile, **Liu, Bai, and Knapp (2022)** offered a comprehensive view of older adults in Hong Kong, concluding that multidimensional planning spanning financial, psychological, and social domains enhanced post-retirement well-being and indirectly supported confidence.

A surge of research in 2023 and 2024 addressed newer societal and technological dynamics. **Brown and Davis (2023)** examined how post-pandemic economic volatility reduced retirement confidence, particularly among near-retirees and younger individuals facing inflation and job instability. **Harrison and Wu (2023)** highlighted the importance of financial literacy delivered via online platforms, especially for younger workers who exhibited higher confidence after financial education. However, they also noted that older adults were less likely to engage with these tools, contributing to persistent confidence gaps. **Park and Lopez (2023)** identified unique challenges for Millennials and Gen Z namely, student loans, housing unaffordability and general economic uncertainty which collectively reduced their retirement confidence. **Morris and Carpenter (2023)** pointed out that gender disparities and employment interruptions (e.g., caregiving responsibilities) adversely affected women's retirement confidence, recommending equal pay and family leave policies as potential remedies. **Anderson and Smith (2023)** reinforced the role of institutional support, finding that automatic enrolment and employer-sponsored retirement plans significantly improved workers' retirement confidence. **Fisher and Long (2023)** addressed the role of emotional states, showing that retirement-related anxiety and fear of outliving savings could lower confidence, especially among those nearing retirement. They emphasized that financial counselling could mitigate these fears.

The impact of financial crises was revisited by **Krueger et al. (2024)**, who found that market downturns reduced retirement confidence, particularly for individuals with undiversified portfolios and low financial literacy. **Zhao and Kim (2024)** introduced a technological perspective, showing that frequent use of retirement planning apps and digital tools, especially by younger workers, was positively associated with confidence in retirement decision-making. **Johnson and Auld (2024)**

shed light on how structural inequalities, such as lower wages and limited retirement plan access, contributed to lower retirement confidence among minority and low-income populations. Meanwhile, **Levine et al. (2024)** emphasised that women who received gender-specific financial advice reported significantly higher retirement confidence than those who received general guidance. Finally, **Miller and Clark (2024)** emphasised the role of mental health and optimism in retirement confidence. Their findings revealed that individuals with higher emotional well-being were more likely to feel confident in reaching their retirement goals, while financial anxiety regardless of actual readiness could severely undermine confidence.

2.2.5 Section E – Financial Dependence on National Pension System

Over the past few decades, the financial dependence of individuals on national pension systems (NPS) has attracted considerable scholarly attention especially as demographic shifts, economic instability and the decline of employer-sponsored pensions have pushed state-run pension plans to the forefront of retirement security debates.

Early concerns regarding the adequacy and reach of pension schemes were highlighted in the Indian context by **Gupta and Kumar (2019)**, who critically assessed the National Pension System (NPS) and emphasized that while the scheme has potential as a structured retirement planning tool, several issues such as complex investment options and regulatory barriers undermine its effectiveness. Supporting this statement, **Sharma and Singh (2020)** pointed out that widespread unawareness and limited financial literacy among Indian investors significantly reduce participation in the NPS, thus limiting its capacity to ensure financial security for retirees.

Recent studies have further elaborated on the systemic limitations and socio-economic disparities that shape dependence on public pension systems. **Singh and Kumar (2023)** explored the extent of financial reliance on the NPS in India, revealing that despite increasing coverage, many contributors enrol late or contribute insufficient amounts resulting in inadequate retirement income. This situation is particularly concerning for lower-income groups and informal sector workers who lack alternative retirement provisions. International comparisons have provided additional insights into how pension system structures and contribution mechanisms

influence financial dependence. **Chavez and Matthews (2023)** analysed the impact of defined benefit versus defined contribution models in OECD countries, concluding that defined benefit plans by offering guaranteed pay-outs reduce reliance on personal savings, whereas defined contribution systems increase the burden on individual financial planning. **Davis and Roberts (2023)** added that people from socio-economically disadvantaged backgrounds, especially rural residents and women, tend to rely more heavily on national pension schemes due to their limited capacity to accumulate independent retirement savings.

Further exploration into the trust and sustainability of pension systems underscores how institutional confidence influences financial reliance. **Jensen and Lee (2023)**, through a study on Danish retirees, demonstrated that higher public trust in pension systems enhances seniors' financial security, reducing their dependence on personal resources. Similarly, **Jackson and Moore (2024)** noted that in the United States, regions with low public trust in government institutions observed greater interest in private pensions or personal savings, reflecting scepticism about the long-term reliability of state-run pensions. The global economic landscape also plays a pivotal role in shaping retirement behaviour. **Mitchell and Green (2024)** examined how various countries adapted their pension policies in response to financial crises and demographic changes. They found that such adjustments often led to greater dependence on national pensions, particularly among those affected by economic downturns. **Harrison and Clark (2024)** studied the volatility risks associated with government-managed pension investments in Australia and New Zealand, noting that individuals who rely solely on these systems are highly vulnerable to market fluctuations, especially when investment risks are shared between the state and contributors.

Gender disparities in financial dependence were explored by **Nguyen and Ali (2024)**, who argued that women are more likely to depend on public pension schemes due to lower lifetime earnings, career interruptions for caregiving, and longer life expectancies. These findings underscore the need for gender-responsive reforms in pension policy design. Policy discussions about the structural adequacy of pensions were extended by **Thompson and Lewis (2024)**, who evaluated the sustainability of European state pension systems in light of ageing populations and economic stress. They emphasized the importance of reforming pension financing models to ensure

long-term viability without compromising coverage or benefit levels. Finally, **Patel and Sen (2024)** provided a broader perspective by analysing pension adequacy in developed nations such as the UK and Canada. Their findings revealed that while state pensions offer a foundational layer of income security, retirees often require supplemental income through personal savings or private pensions to maintain a comfortable standard of living.

2.3 Research Gap

- **Limited Evaluation of Pension Fund Performance in NPS:** Existing studies focus on pension fund management in general but there is limited research on the comparative performance of different pension fund managers and schemes within the NPS framework. There is a need to assess how fund managers performance impacts retirement outcomes and the financial well-being of its beneficiaries.
- **Lack of Understanding of Beneficiaries Perspectives of NPS:** While pension reforms and policies are frequently discussed, limited research explores how NPS beneficiaries perceive the scheme in terms of accessibility, transparency and satisfaction. The extent to which beneficiaries trust and rely on the NPS for their retirement security remains an underexplored area.
- **Inadequate Research on Financial Literacy and Retirement Planning among NPS Beneficiaries:** Most studies on financial literacy and retirement planning focus on the general population rather than NPS beneficiaries specifically. There is a lack of empirical evidence linking financial literacy with retirement planning behaviour and confidence among the individuals enrolled in NPS.
- **Unexplored Mediating Role of Retirement Financial Planning:** While financial literacy is acknowledged as a key factor in retirement confidence (Lusardi & Mitchell, 2011), the role of retirement financial planning as a mediator in this relationship has not been extensively studied among NPS beneficiaries. There is a need to explore how effective planning transforms financial knowledge into greater retirement confidence.
- **Lack of Studies on the Moderating Role of Financial Dependence on NPS:** Financial dependence on NPS is a critical factor yet its role in

moderating the relationship between retirement financial planning and confidence has not been thoroughly investigated. Understanding this moderating effect could help policymakers and fund managers design better financial education programs and policy interventions to enhance retirement security.

These research gaps highlights the need for a comprehensive study that evaluates pension fund performance, explores beneficiaries' perspectives and examines the intricate relationships between financial literacy, retirement planning, retirement confidence and financial dependence on NPS. Addressing these gaps will contribute to better pension fund management, improved financial literacy initiatives, retirement planning, retirement confidence and enhanced policy measures for the National Pension System.

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Chapter - 3

RESEARCH METHODOLOGY

3.1 Introduction

The present study seeks to evaluate the effectiveness of the National Pension System (NPS) in enhancing the retirement financial planning and confidence particularly in state government employees in Kerala. The research adopts a systematic methodological approach to explore the multifaceted aspects of retirement financial planning with a specific focus on pension fund performance, financial literacy, retirement confidence and financial dependence on NPS among its beneficiaries in the context of National Pension System. The methodology is designed to capture both quantitative and qualitative dimensions enabling a comprehensive assessment of the system's impact on financial well-being of post-retirement aspirations (PFRDA, 2023; Rani & Sahu, 2021).

Based on the nature of the research objectives, a descriptive and explanatory research design was employed for the study. This design facilitates an in-depth examination of the operational efficiency of pension fund managers, the perspectives of beneficiaries towards NPS and the interrelationships between key financial variables influencing retirement readiness. The study also adopts a correlational and causal-comparative framework to explore the mediating role of retirement planning in the relationship between financial literacy and retirement confidence as well as the moderating effect of financial dependence on NPS (Creswell, 2012).

A structured questionnaire was used as the primary tool for data collection targeting a representative sample of NPS-enrolled state government employees including Government aided institutions and public sector undertakings such as boards and corporations across Kerala. This methodological framework ensures empirical rigor and provides valuable insights for policy formulation and pension reform initiatives.

3.2 Research Design

The present study titled "Retirement Financial Planning Focusing National Pension System among State Government Employees in Kerala" adopts a research design that is both descriptive and explanatory in nature. The descriptive aspect of the study aims to systematically portray the characteristics, perceptions and behaviours of NPS subscribers particularly in relation to financial literacy, retirement planning and

financial dependence on the system. It provides a clear understanding of the demographic and financial profile of the targeted population.

Simultaneously, the explanatory component of the study seeks to explore and clarify the causal relationships among key constructs such as financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS. It involves hypothesis testing using quantitative techniques particularly Structural Equation Modeling (SEM) to assess the direction and strength of these relationships. Primary data were collected through structured questionnaires from selected NPS beneficiaries in Kerala and the data was subjected to rigorous statistical analysis using various statistical tools. By integrating both descriptive and explanatory elements, the study provides a comprehensive understanding of the factors influencing retirement preparedness and the effectiveness of the National Pension System in meeting the long-term financial needs of state government employees in Kerala.

3.3 Sources of Data

The researcher has utilised a combination of both primary and secondary data sources for the study.

3.3.1 Secondary Data

Secondary data for the study were extracted from various sources such as published reports of PFRDA, NPS Trust, NSDL, annual reports, Government publications, research publications, dissertations, journals, doctoral theses, newspapers, research reports, working papers, articles, books in connection with the area of the study, websites of the Department of Treasuries Kerala and others.

3.3.2 Primary Data

The primary data for this study were collected using a well-structured questionnaire administered to selected National Pension System beneficiaries among state government employees in Kerala. This includes employees from state government departments, aided institutions and public sector undertakings such as boards and corporations. These NPS subscribers form the core target population of the research providing first-hand insights into various aspects of retirement financial planning.

3.4 Sample Design

3.4.1 Population

The population of the study comprises National Pension System beneficiaries of the state government employees including government - aided and public sector board or corporation in Kerala. As per the data available from the Kerala State Treasury Department and National Pension System Trust 2024 statistics, the total number of NPS subscribers among the state government employees including government aided and public sector board or corporation stands at 2,18,294 (Treasury Department Kerala, 2024; NPS Trust, 2024).

3.4.2 Sample Size Estimation

The population of the research work is considered to be finite and Yamane's sample size formula for finite population have been applied to calculate the sample size. The population of the study which comprises NPS beneficiaries among state government employees in Kerala is 2,18,294 (Kerala State Treasury Department, 2024). According to Yamane's sample size formula, sample size is calculated as follows:

$$\text{Sample size (n)} = N / (1 + N * e^2)$$

Where:

n = Required sample size

N = Population size

e = Margin of error (level of precision), e.g., 0.05 for 95% confidence level (Yamane, 1967).

After substituting the values, e = 0.05 and N = 2,18,294, the required sample size obtained is give below by applying Yamane's formula:

$$n = 2,18,294 / (1 + 2,18,294 * 0.05^2)$$

$$n = 2,18,294 / (1 + 2,18,294 * 0.0025)$$

$$n = 2,18,294 / (1 + 545.735)$$

$$n = 2,18,294 / 546.735$$

$$n = 399.23 = 399$$

Therefore required sample size is 399.

However to enhance the representativeness and statistical robustness of the study and to accommodate any non-response or incomplete data, the sample size was slightly increased to 420 respondents instead of 399. This ensures more reliable generalisation of the findings across the wider population of NPS subscribers in the state. Thus the sample size of 420 is both methodologically sound and practically feasible aligning with standard guidelines for social science research and ensuring a high level of confidence in the study results.

3.4.3 Sampling Method

To ensure adequate representation and manage the diversity of the target population, a multi-stage sampling technique was adopted for selecting a total of 420 respondents for the study. This method was chosen to efficiently address the large and heterogeneous population of NPS beneficiaries in Kerala. This method also helps to ensure effective representation of NPS beneficiaries across various geographical regions and administrative levels in Kerala. This approach facilitated the selection of respondents in a structured hierarchical manner while maintaining feasibility and ensuring that the sample reflects the diversity of the target population. In the first stage, Kerala was stratified into three geographical regions North (covers Kasargod, Kannur, Wayanad and Kozhikode), Central (covers Palakkad, Thrissur, Ernakulam, Idukki and Malappuram) and South (covers Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta and Kottayam) based on administrative and demographic classifications (Government of Kerala, 2024). From each region, one district was randomly selected. The selected districts are Kozhikode (North), Palakkad (Central) and Thiruvananthapuram (South) ensuring a balanced regional representation. In the second stage, three sub-treasuries from each selected district were chosen using the lottery method. The chosen sub-treasuries are Feroke, Perambra and Payyoli (Kozhikode); Alathur, Nemmara and Ottappalam (Palakkad); and Attingal, Nedumangad and Neyyattinkara (Thiruvananthapuram). They act as focal administrative units for NPS salary disbursements and monitoring, making them ideal for capturing relevant data from local NPS subscribers.

In the third stage, within the jurisdiction of each selected sub-treasury, three government departments were chosen using convenience sampling. This selection was based on the criteria such as accessibility, department size and willingness to participate. Departments such as General Education, Health Services, Land Revenue, Public Works, Forest, Excise, Agriculture, Higher Secondary Education, Collegiate Education, Local Self Government Department (LSGD), Scheduled Caste Development, Police and KSEB were commonly represented. Finally in the fourth stage, purposive sampling was applied to select respondents from each department ensuring that only eligible NPS subscribers (i.e., employees who joined in service on or after 01.04.2013) were included (PFRDA, 2023).

In total, 420 respondents of NPS beneficiaries were surveyed across the selected departments proportionately distributed across the three regions on the basis of NPS subscriber's population density are as follows:

Table 3.1 - Number of State Government Employees under NPS in Kerala

Region	District	Number of NPS Subscribers
North Kerala	Kasargod	9,646
	Kannur	16,871
	Wayanad	6,960
	Kozhikode	18,671
Central Kerala	Palakkad	16,257
	Thrissur	17,830
	Ernakulam	19,139
	Idukki	9,442
	Malappuram	23,636

South Kerala	Thiruvananthapuram	32,865
	Kollam	13,957
	Alappuzha	12,044
	Pathanamthitta	8,438
	Kottayam	12,538
Total		2,18,294

Source: Compiled through information retrieved from Kerala State Treasury Department, Thiruvananthapuram as per 2024 statistics

Proportional allocation was used to distribute the sample across the three regions based on the population density of NPS beneficiaries as shown below. That is, out of 420 respondents, 100 respondents from North Kerala (52,148 / 2,18,294), 166 from Central Kerala (86,304 / 2,18,294) and 154 from South Kerala (79,842 / 2,18,294).

**Table 3.2 - Number of State Government Employees under NPS in Kerala –
Region wise classification and samples drawn**

Region	Districts covered	Number of NPS subscribers	Number of NPS subscribers drawn as samples
North Kerala	Kasargod, Kannur, Wayanad, Kozhikode	52,148	100
Central Kerala	Palakkad, Thrissur, Ernakulam, Idukki, Malappuram	86,304	166
South Kerala	Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, Kottayam	79,842	154
Total		2,18,294	420

Source: Compiled through information retrieved from Kerala State Treasury Department, Thiruvananthapuram as per 2024 statistics

This structured sampling frame ensured both the feasibility and generalizability of findings in line with the recommendations (Creswell, 2014). Finally, a total of 420 NPS beneficiaries were surveyed from the selected departments proportionately distributed across the three regions of Kerala based on the population density of NPS subscribers ensuring comprehensive representation of the Kerala state.

3.5 Design of the Questionnaire

The questionnaire used in this study is structured to comprehensively examine the retirement financial planning behaviour of state government employees in Kerala with specific emphasis on the National Pension System. It is systematically divided into six major sections: demographic profile, perspectives on NPS, financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS.

Section I - Demographic Profile: This section collects general background information about the respondents including name, gender, age, marital status, area of residence, educational qualification, number of years in government service, employment category, salary classification, designation, monthly income and savings. These variables help in analysing patterns of retirement planning behaviour across various socio-economic and occupational groups (Kothari, 2012).

Section II - Perspectives on NPS: This section explores the respondents' awareness, usage and opinion of the NPS. It includes items related to investment options, account types, fund preferences, voluntary contributions, fund management and withdrawal awareness. Respondents are also asked to evaluate their awareness and challenges on NPS using a seven-point Likert scale (PFRDA, 2023).

Section III - Financial Literacy: This part includes statements designed to evaluate the respondents' self-perceived financial knowledge particularly in areas such as credit, savings, investments, budgeting and risk management. A seven-point Likert scale is used to assess the extent of agreement with each statement reflecting the individual's confidence in managing personal finances (Lusardi & Mitchell, 2011; Atkinson & Messy, 2012; OECD, 2018).

Section IV - Retirement Financial Planning: This section measures the degree to which respondents engage in financial planning activities specifically targeted towards retirement. The items assess retirement savings behaviour, retirement planning, strategic review of retirement goals and expectations of future income sources. Responses are measured on a seven-point Likert scale (Hershey, Jacobs-Lawson, & Austin, 2013; Lusardi & Mitchell, 2007; Noone, Stephens, & Alpass, 2010).

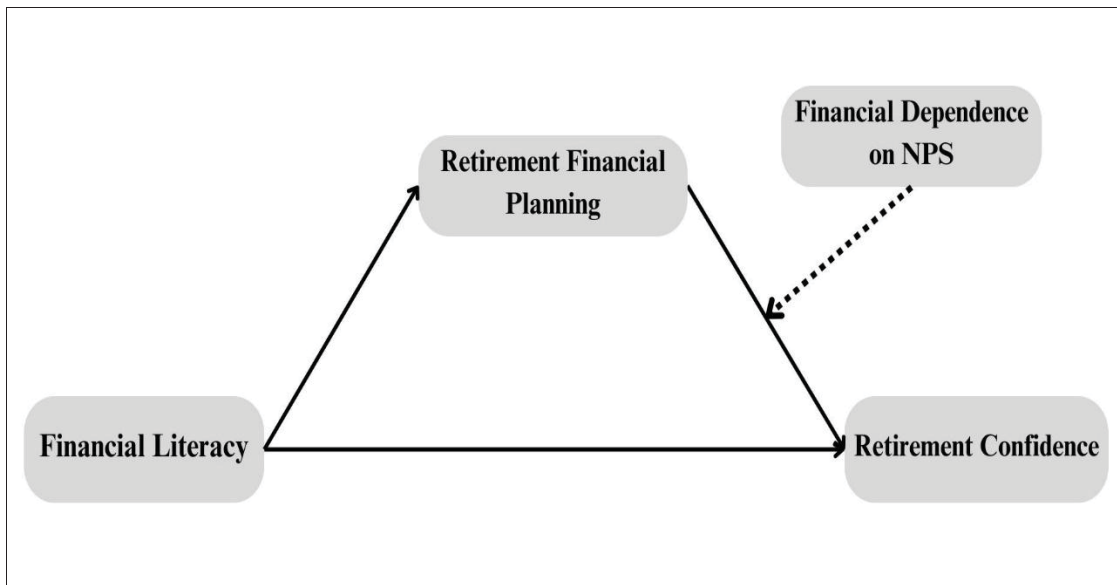
Section V - Retirement Confidence: This section evaluates how confident the respondents feel about their retirement readiness. A set of statements measure their confidence in terms of income sufficiency, financial independence, inflation management and healthcare needs during retirement. Confidence levels are rated on a seven-point Likert scale (Van Rooij, Lusardi, & Alessie, 2012; Hershey & Mowen, 2000; Asebedo & Seay, 2018).

Section VI - Financial Dependence on NPS: This section measures the extent to which individuals rely on NPS as their main source of post-retirement financial support. It includes items reflecting the perceived importance of NPS contributions and the potential challenges that may arise without them. A seven-point Likert scale is used for responses (Gustman & Steinmeier, 2004; Ghadwan et al., 2022).

The questionnaire items were adapted from validated scales and scholarly works (Laborde et al., 2013; Lusardi & Mitchell, 2011; Mudzingiri et al., 2018; Ghadwan et al., 2022; Pande et al., 2024; Wann & Burke-Smalley, 2023; Hasnol et al., 2019; Lee & Law, 2004; Thompson et al., 2022; Ungüren et al., 2024) to ensure construct validity and reliability. Modifications and refinements were made following expert consultation and a pilot study to enhance clarity and contextual relevance. The final questionnaire was distributed along with a covering note that included instructions for completion and assurance of confidentiality.

3.6 Conceptual Model of the Study

Figure 3.1 - Conceptual Model of the Study



Source: Developed by the researcher

The conceptual model depicted above illustrates the intricate relationship between financial literacy, retirement financial planning, retirement confidence and financial dependence on the National Pension System. At its core, the model explores how financial literacy influences retirement confidence both directly and indirectly through retirement financial planning (Lusardi & Mitchell, 2014; Ameriks, Caplin, & Leahy, 2003). Financial literacy equips individuals with the knowledge and skills required to make informed decisions regarding their savings, investments and long-term financial goals (Lusardi & Mitchell, 2014). This in turn enhances the quality of their retirement financial planning which serves as a key mediator in translating knowledge into confidence about future financial security (Rothwell & Muench, 2014). The model also introduces financial dependence on NPS as a moderating variable which may strengthen or weaken the effect of retirement financial planning on retirement confidence (Kothari & Singh, 2015). Individuals with higher dependency on NPS may experience varying levels of confidence based on how robust their financial planning is suggesting that NPS reliance can alter the strength of this relationship. This framework provides a comprehensive basis for evaluating how knowledge, behaviour and dependency interact to influence retirees' perceptions of financial

readiness making it particularly relevant in the India's evolving pension landscape in the context of National Pension System in Kerala.

3.7 Variables Identified for the Study

Independent variable

- Financial literacy

Dependent variable

- Retirement confidence

Mediating variable

- Retirement financial planning

Moderating variable

- Financial dependence on NPS

The present study explores the complex interplay of several variables influencing retirement financial planning among state government employees in Kerala with a specific focus on the National Pension System. Based on an extensive review of literature and the objectives of the study, the key variables identified include one independent variable, one dependent variable, a mediating variable and a moderating variable.

- **Independent Variable - Financial Literacy:** Financial literacy is identified as the independent variable in this study. It refers to an individual's ability to understand and effectively use various financial skills including personal financial management, budgeting and investing (Lusardi & Mitchell, 2011). Numerous studies have confirmed that individuals with higher financial literacy are better equipped to make informed decisions about savings, investments and retirement planning (Laborde, Mottner, & Whalley, 2013; Muteba Mwamba, & Keyser, 2018).
- **Dependent Variable - Retirement Confidence:** Retirement confidence is considered the dependent variable reflecting an individual's perceived financial readiness and security for life after retirement. It encompasses confidence in managing future expenses, sustaining a desired standard of living and handling unexpected financial needs. Prior research has

demonstrated a significant link between financial preparedness and retirement confidence (Hasnol et al., 2019; Lee & Law, 2004).

- **Mediating Variable - Retirement Financial Planning:** Retirement financial planning serves as the mediating variable in the model. It captures the behavioural and cognitive processes through which individuals set retirement goals, evaluate resources and develop strategies to achieve financial security in retirement. It is proposed that financial literacy influences retirement confidence indirectly through enhanced retirement financial planning behaviours (Shieh & Bahl, 2000; Wann & Burke-Smalley, 2023).
- **Moderating Variable - Financial Dependence on NPS:** Financial dependence on NPS is incorporated as a moderating variable to assess how reliance on a single source of retirement income namely, the NPS affects the relationship between retirement financial planning and retirement confidence. Individuals heavily dependent on NPS may experience variations in retirement confidence based on their perception of the system's adequacy and performance (Thompson et al., 2022; Unguren et al., 2024).

These variables are operationalized through validated scales and structured questionnaire items adapted from prior research ensuring both the validity and reliability of the constructs.

3.8 Pilot Study

To ensure the normality, reliability and validity of the research instrument, a pilot study was conducted prior to the final data collection (Johanson & Brooks, 2010). A draft version of questionnaire was initially developed based on the comprehensive review of the literature and aligned with the study's key constructs - financial literacy, retirement financial planning, retirement confidence and financial dependence on the National Pension System. This draft questionnaire was reviewed by subject experts in the fields of commerce, finance and social research to evaluate content validity and provide feedback on the appropriateness, language and structure of the items (DeVellis, 2016). Subsequently, the refined questionnaire was administered to a convenient sample of 60 state government employees including

government aided and board/ corporation sectors in Kerala who are the beneficiaries of NPS. The pilot study facilitated the identification of ambiguous or redundant questions and allowed for an assessment of the general format, flow and comprehensibility of the instrument (Presser et al., 2004). Feedback from the pilot respondents helped in modifying and fine-tuning several items to improve readability and measurement accuracy. This process not only strengthened the final version of the questionnaire but also provided valuable insights into the dimensional structure of the study constructs thereby laying a robust foundation for the main survey (Bryman & Bell, 2015).

3.8.1 Normality Test

Normality testing is a critical preliminary step in statistical analysis especially when applying parametric tests such as ANOVA, Structural Equation Modeling (SEM) etc., which assume that the data follows a normal distribution. In this study, the normality of the data were assessed using descriptive statistics particularly focusing on the skewness values of the measured constructs (Field, 2013).

Table 3.3 - Descriptive Statistics under Normality Test

Constructs/ Variables of the Study	Minimum	Maximum	Mean	Standard Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Standard Error
Financial Literacy	1.75	7.00	4.6762	1.74916	-0.339	0.306
Retirement Financial Planning	1.70	6.90	4.6754	1.81436	-0.413	0.306
Retirement Confidence	1.27	6.80	4.1585	1.65588	-0.324	0.306
Financial Dependence on NPS	1.57	6.71	4.3068	1.71841	0.025	0.306

Source: Primary data

From the table 3.3, it is clear that skewness values are used to evaluate the symmetry of the data distribution. According to Hair et al. (2010), skewness values within the range of ± 1 are generally considered acceptable and indicate an approximately normal distribution. In this study, the skewness values for all four constructs: Financial Literacy (-0.339), Retirement Financial Planning (-0.413), Retirement Confidence (-0.324) and Retirement Financial Dependence on NPS (0.025) fall well within the acceptable range. This implies that the data for each construct is approximately normally distributed. The standard error of skewness (0.306) provides a benchmark to determine if skewness is statistically significant. None of the skewness values exceed twice the standard error further supporting the assumption of normality (Field, 2013).

The results of the normality test confirm that the dataset does not significantly deviate from a normal distribution. This supports the application of parametric statistical techniques in subsequent analyses. The near-normal distributions of the variables also enhance the reliability and validity of the inferences drawn from the study (Kline, 2016; Hair et al., 2019).

3.8.2 Reliability Test

To ensure internal consistency of the measurement scales used in the study, reliability test was conducted using Cronbach's Alpha coefficients (Cronbach, 1951). According to Nunnally and Bernstein (1994), a reliability coefficient of 0.70 or higher is considered acceptable for research purposes.

Table 3.4 - Cronbach's Alpha Reliability Test

Constructs	Cronbach's Alpha	Number of items
Financial Literacy	0.963	8
Retirement Financial Planning	0.975	10
Retirement Confidence	0.987	5
Retirement Financial Dependence on NPS	0.966	7

Source: Primary data

From the table 3.4, it is clear that all the constructs in this study exhibited high reliability exceeding the recommended threshold which indicates a strong level of internal consistency in the responses. The Cronbach's Alpha values for the respective constructs are as follows: Financial Literacy ($\alpha = 0.963$), Retirement Financial Planning ($\alpha = 0.975$), Retirement Confidence ($\alpha = 0.987$) and Financial Dependence on NPS ($\alpha = 0.966$). These high coefficients affirm that the items within each construct are highly correlated and reliably measure the intended dimensions. The scale for Financial Literacy consists of 8 items, Retirement Financial Planning included 10 items, Retirement Confidence was measured using 5 items and Financial Dependence was assessed with 7 items. The reliability analysis thus confirms the robustness of the measurement instrument employed in the study (Field, 2013).

3.8.3 Content Validity

To ensure content validity, each construct in the study - Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on NPS was measured using multi-item scales adapted from well-established and peer-reviewed research literature as shown in table 3.5 below.

Table 3.5 - Content Validity

Constructs	Number of items	Source
Financial Literacy	8	Laborde et al., 2013; Lusardi & Mitchell, 2011; Mudzingiri et al., 2018
Retirement Financial Planning	10	Ghadwan et al., 2022; Pande et al., 2024; Wann & Burke-Smalley, 2023
Retirement Confidence	5	Hasnol et al., 2019; Lee & Law, 2004
Financial Dependence on NPS	7	Thompson et al., 2022; Ungüren et al., 2024

Source: Primary data

Financial Literacy was assessed with 8 items based on frameworks by Laborde et al. (2013), Lusardi and Mitchell (2011) and Mudzingiri et al. (2018) which collectively cover knowledge of basic financial concepts, investment understanding and budgeting awareness. Retirement Financial Planning was measured using 10 items drawn from validated instruments used in studies by Ghadwan et al. (2022),

Pande et al. (2024) and Wann & Burke-Smalley (2023) encompassing goal setting, saving behaviour and retirement readiness. The construct of Retirement Confidence was operationalized with 5 items from Hasnol et al. (2019) and Lee & Law (2004) reflecting perceived adequacy of retirement preparation and financial assurance. Financial Dependence on NPS was evaluated using 7 items adopted from Thompson et al. (2022) and Ungüren et al. (2024) capturing reliance on pensions or others for financial needs in retirement. All items were rated on a 7-point Likert-type scale to capture the intensity of agreement and facilitate nuanced responses. The use of previously validated scales and alignment with the conceptual definitions of each construct establishes strong content validity for the measurement instruments employed in the study. Detailed validity examination process regarding on convergent validity and discriminant validity has been furnished in chapter number six.

3.8.4 Conclusion

The results of the normality, reliability and validity tests confirm that the measurement instrument used in this study is both statistically sound and theoretically robust. The skewness values for all variables, i.e, financial literacy, retirement financial planning, retirement confidence and financial dependence on the National Pension System fell within the acceptable range confirming the normality of the data. All constructs demonstrated high internal consistency with Cronbach's alpha values above 0.96 ensuring strong reliability. Additionally, content validity also supported. These outcomes collectively affirm the suitability of the instrument for further analysis.

3.9 Tools used for Data Analysis

The data analysis for this study involved both primary and secondary sources to comprehensively address the research objectives. Secondary data was utilised to evaluate the performance of pension fund managers and to assess the various pension schemes under the National Pension System by employing various financial performance tools such as the Sharpe Ratio, ANOVA and Kruskal-Wallis test. Primary data was collected through structured questionnaire from NPS beneficiaries to understand their perspectives on NPS, financial literacy, retirement planning behaviour, retirement confidence and financial dependence on NPS. The collected data were processed primarily using Statistical Package for Social Science. Various

statistical tools were applied including descriptive statistics (Such as mean and standard deviation, skewness and kurtosis etc.), One-Sample t-Test, Independent Sample t-Test, ANOVA, Tukey HSD Post Hoc Test and advanced techniques like Structural Equation Modeling using AMOS (Analysis of Moment Structures) to analyse the relationships, mediation and moderating effects among the key variables. This multi-method approach ensures both depth and accuracy in deriving insights relevant to the NPS.

3.9.1 Secondary Data Analysis Tools

a) Sharpe Ratio

The Sharpe Ratio is a widely used tool to evaluate the risk-adjusted performance of investment portfolios including pension funds. In this study, it is used to assess how efficiently pension fund managers and schemes generate returns relative to the risk taken. A higher Sharpe ratio indicates a more favourable risk-return trade-off (Sharpe, 1966). By comparing the Sharpe Ratios of different pension funds and schemes under the NPS, the analysis helps identify which fund manager and scheme deliver better performance after accounting for volatility enabling beneficiaries and policymakers to make informed decisions (Sharpe, 1966).

b) ANOVA (Analysis of Variance)

ANOVA is a statistical test used to compare the mean performance of multiple groups. In the context of this research, ANOVA helps to determine whether there are statistically significant differences in the returns or other performance metrics among the different pension fund managers or pension schemes within the NPS (Kleinbaum et al., 2013). If significant differences are found, it indicates that not all funds perform equally thus justifying further examination of fund-level characteristics (Field, 2013).

c) Kruskal-Wallis Rank Sum Test

The Kruskal-Wallis Rank Sum Test is a non-parametric alternative to ANOVA particularly useful when the data does not meet the normality assumption. For this study, it provides a robust method to compare the performance of pension funds when return distributions are skewed or not normally distributed. It ranks the performance data across groups and tests whether the medians differ significantly. This test adds reliability to the

evaluation of fund managers' performance under diverse market conditions (Siegel & Castellan, 1988).

These tools together provide a comprehensive and statistically sound framework to evaluate the comparative performance of pension fund managers and pension schemes under NPS incorporating both mean-based and rank-based comparisons along with a measure of risk-adjusted return.

3.9.2 Primary Data Analysis Tools

a) Descriptive Statistics

Descriptive statistics are statistical tools used to summarise, organise and present data in an informative way enabling researchers to understand patterns and distributions within a dataset (Gravetter & Wallnau, 2016). These statistics typically include measures of central tendency (mean, median and mode), measures of variability (standard deviation, variance and range) and measures of distribution shape such as skewness and kurtosis (Field, 2013). Descriptive statistics are essential in research as they provide a foundational understanding of the sample characteristics before proceeding with inferential analysis (Trochim et al., 2016). By offering a concise numerical summary, these statistics help in simplifying large volumes of data and making them more interpretable.

b) Mean

The mean represents the arithmetic average of responses collected from NPS beneficiaries on various constructs such as financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS. It provides a central value that reflects the general tendency or level of agreement among respondents. In this study, the mean helps to evaluate the overall perception and awareness levels of beneficiaries toward NPS-related aspects (Gravetter & Wallnau, 2009).

c) Standard Deviation

The standard deviation measures the amount of variation or dispersion in the responses from the mean. A low standard deviation indicates that responses are closely clustered around the mean showing consistency in opinions or behaviours among NPS beneficiaries (Field, 2013). A high standard deviation on the other hand indicates greater variability suggesting differing views or

experiences with various aspects under the NPS framework (Gravetter & Wallnau, 2009).

d) One-Sample t-Test

The one-sample t-test compares the sample mean to a known or hypothesised population mean helping determine whether the sample mean significantly deviates from the population mean (Field, 2013). It is applied to examine whether beneficiaries' perspectives or related constructs of the study significantly differs from an expected neutral or benchmark value (e.g., a midpoint on a 7-point scale) (Field, 2013; Pallant, 2016).

e) Independent Sample t-Test

The independent t-test assesses differences in means between two distinct groups (e.g., male vs. female, urban vs. rural beneficiaries) (Field, 2013). This helps to determine whether socio-demographic characteristics influence financial literacy, planning, confidence levels or financial dependence among NPS beneficiaries (Field, 2013; Pallant, 2016).

f) ANOVA (Analysis of Variance)

ANOVA is used to compare mean scores across more than two demographic groups (Field, 2013) (e.g., different age groups or income levels) on key variables such as financial literacy, planning, confidence levels or financial dependence. It tests whether socio-economic differences significantly influence perceptions and behaviours related to retirement planning (Hair et al., 2010).

g) Tukey HSD Post Hoc Test

The Tukey Honestly Significant Difference (HSD) post hoc test is a statistical method employed after obtaining a significant result in ANOVA to determine which specific group means differ from each other (Field, 2013). It is particularly useful for conducting pairwise comparisons while controlling for the family-wise error rate thereby reducing the risk of Type I errors when multiple tests are performed (McDonald, 2014). The Tukey HSD test assumes equal variances and is most robust when group sizes are approximately equal. It calculates adjusted p-values and confidence intervals for all pairwise mean differences making it an effective tool for identifying significant differences across multiple groups (Howell, 2012).

h) Statistical Package for the Social Sciences (SPSS)

Statistical Package for the Social Sciences (SPSS) is a widely used software for quantitative data analysis in academic research. In this study, SPSS was employed for data entry, coding, cleaning and conducting a variety of statistical analyses including descriptive statistics, t-tests, ANOVA, post hoc tests etc. The software facilitated the identification of patterns, group differences and associations among key variables such as financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS. Its user friendly interface and robust statistical capabilities made it a suitable tool for handling the large dataset collected from NPS beneficiaries (Pallant, 2016; Field, 2013).

i) Structural Equation Modeling (SEM) – AMOS

Structural Equation Modeling (SEM) using AMOS (Analysis of Moment Structures) is a powerful technique that examines complex relationships among multiple variables simultaneously allowing researchers to evaluate direct and indirect effects between variables (Byrne, 2016). In this study, SEM is used to test:

- Whether retirement financial planning mediates the relationship between financial literacy and retirement confidence.
- Whether financial dependence on NPS moderates the link between retirement financial planning and retirement confidence.

This approach helps to validate both direct and indirect effects supporting a theory driven analysis of retirement behaviour (Byrne, 2016; Kline, 2015).

These tools together provide a robust and multi-dimensional analysis framework for the primary data enabling the researcher to discover trends, test hypotheses and validate the conceptual model in the context of NPS beneficiaries in Kerala.

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Chapter - 4

A THEORETICAL OVERVIEW OF NATIONAL PENSION SYSTEM

4.1 Introduction

Pension is an important subject of study as it plays a critical role in both working life and retirement. Over the years, the concept of pension has evolved significantly shifting from a simple benefit to an essential tool for social security, retirement and overall financial planning. Pensions are no longer seen solely as a way to provide a steady income after retirement; they are integral in ensuring financial security not just for the individual but for their family as well (Kumar & Mishra, 2017). A well-structured pension plan can help protect the family during the pensioner's retirement years. Society's attitude toward pensions reflects a broader awareness of their importance in both personal and familial financial security (Rajan & Joseph, 2018).

India's pension system has historically been dominated by the Defined Benefit (DB) model under the Old Pension Scheme (OPS) particularly for government employees. This statutory pension system promised post-retirement income security by ensuring a fixed monthly pension typically calculated as a percentage of the last drawn salary and based on years of service. The pension liabilities under this model were entirely borne by the government placing a growing fiscal burden on the exchequer especially with increasing life expectancy and an expanding retired population (Government of India, 2000; Chatterjee, 2010). The scheme provided comprehensive retirement benefits including family pension, dearness relief and commutation benefits which ensured financial stability for public servants after retirement (World Bank, 2004).

In the state of Kerala known for its high human development indicators and relatively large public sector workforce, the OPS played a critical role in ensuring social security for government employees. Kerala's pension expenditure grew steadily over the decades, accounting for a significant share of the state's revenue expenditure. According to the Kerala Economic Review (2020), pension and salary commitments together constituted over 60% of the state's total revenue expenditure in some years raising concerns about long-term fiscal sustainability. The burden of unfunded pension liabilities prompted both central and state governments to consider reforms ultimately paving the way for the National Pension System (NPS) as a shift toward a Defined Contribution (DC) model (Rajaraman, 2006; Ministry of Finance, 2005). The

traditional pension system which existed for many years was a statutory pension system where the employer would contribute a pension after an employee reached the age of 56. However this has now shifted to a defined contribution system where both the employer and the employee contribute to the pension plan until the employee reaches 60. Once the employee turns 60, they begin receiving a monthly pension. There are various pension systems available in India but they primarily fall into two categories: the Statutory Pension System and the Contributory Pension System (PFRDA, 2020).

4.2 Preface to the National Pension System

The National Pension System (NPS) is a voluntary defined contribution retirement savings system introduced by the Government of India in January 2004 for Central Government employees and later extended to all citizens including those in the private sector and self-employed if necessary from 2009 onwards (PFRDA, 2020). It was established to provide a sustainable solution for retirement income in the face of rising life expectancy and increasing financial independence among retirees (Kumar & Mishra, 2017). It is regulated by the Pension Fund Regulatory and Development Authority (PFRDA) aims to instil financial discipline by encouraging individuals to save systematically over the long term (Kumar & Mishra, 2017). The System offers two types of accounts - Tier 1, a mandatory account with tax benefits and restrictions on withdrawal and Tier 2, a voluntary savings facility with flexible withdrawal options (Nair & Venkatraman, 2016). The returns under NPS are market-linked and subscribers can choose from a range of pension fund managers and investment options making it a flexible and transparent retirement planning tool (Kothari & Singh, 2015). The National Pension System (NPS) is the official name for India's government-backed retirement savings scheme regulated by the Pension Fund Regulatory and Development Authority (PFRDA). Originally introduced in 2004 for new central government employees, it was casually referred to as the National Pension Scheme. In 2009, when the scheme was opened to all citizens on a voluntary basis, it was formally renamed the National Pension System to reflect its broader and more inclusive scope (PFRDA, 2023; National Pension System Trust, 2024).

The National Pension System (NPS) was implemented in Kerala as part of a nationwide pension reform initiated by the Government of India. While the central

government introduced the NPS for its employees in 2004, the Government of Kerala adopted the System in 2013 for all state government employees appointed on or after April 1, 2013 (Government of Kerala, 2013). Administered under the oversight of the Pension Fund Regulatory and Development Authority (PFRDA), the system represents a shift from the defined benefit structure of the old pension system to a defined contributory model wherein both the employee and employer contribute to the pension corpus (PFRDA, 2020). In Kerala, the adoption of NPS has been seen as a step towards ensuring long-term fiscal sustainability given the rising burden of pension liabilities under the old system (Rajan & Joseph, 2018).

Despite its structured framework and market-linked returns, the system's rollout in Kerala has faced criticism from employee unions and civil society groups particularly regarding the lack of guaranteed benefits and concerns about post-retirement financial security (George, 2020). However with increasing efforts toward financial awareness and digital integration, NPS in Kerala continues to evolve as a key instrument for retirement planning among government and semi-government employees (Stelten, 2011).

4.3 National Pension System - Concepts and Definitions

The phrase 'National Pension System' combines several ideas. It is really challenging to define. It has been defined variously by many authors. In this case, the national pension system is a social security and pension plan that people utilize to arrange their finances and make investments in order to improve their level of life.

NPS is defined as, "A contributory pension system referred to in Section 20 whereby contributions from a subscriber are collected and accumulated in an individual pension account using a system of points of presence, a central record keeping agency and pension funds as may be specified by regulations" (PFRDA, 2013).

According to Rao (2006), NPS as a social security system and defines "Any kind of collective measures or activities designed to ensure that members of the society meet their basic needs and it is protected from contingencies to enable them to maintain the standard of living concerning social norms."

Patil (2017) states “The national pension system is a unique pension system which offers various benefits to subscribers, the minimum processing charge is one of the best benefits of this system which differs it from all other unit linked pension plans.”

Stelten (2011) describes “A priority for the feature is certainly to foster and extend the promising aggregator network. It is the role of PFRDA to solve the NPS major barriers and provide potential success. Another problem of NPS is the illiteracy of the people in the system. Provide literacy campaigns and establish targeting marketing tools.”

4.4 Statutory Pension System Vs Contributory Pension System

The Statutory Pension System which was in place until 2004, offered lifelong benefits to subscribers during their post-retirement years. Under this System, employees were guaranteed a fixed monthly pension calculated as 50 percent of their last drawn salary. There were no deductions from the monthly salary for this pension contribution and employees were required to have a minimum of 10 years of service to be eligible for a pension. The pension also included periodic increments such as Dearness Allowance twice a year (Kothari & Singh, 2015).

One of the key benefits of this system was the guarantee of lifelong income as the pension was paid out for the rest of the employee’s life. Additionally, the pension amount was based on the last drawn salary and the employer covered all expenses related to pension payments. However the Statutory Pension System came with several drawbacks. It imposed a significant financial burden on the government as the government was responsible for ensuring that pensions were paid and there was no pension corpus set aside to fund these payments. With the increasing life expectancy of retirees, this system became increasingly costly as employees lived longer and continued to receive pensions. As a result, this system was discontinued by the Indian government in 2004.

The new pension system introduced by the Government of India in 2004 is the National Pension System (NPS). Initially, the system was implemented for government employees but it was later extended to the private sector and self-employed individuals in 2009. Unlike the statutory pension system, the NPS does not

guarantee a fixed return but instead focuses on providing a stable, secure income during retirement based on individual contributions. The NPS is administered by the Pension Fund Regulatory and Development Authority (PFRDA) ensuring transparency and oversight.

The NPS has several advantages. For one, it allows employees to withdraw up to 60 percent of their accumulated corpus tax-free at the time of retirement. Additionally, it offers more flexibility in terms of investment choices, the possibility of higher returns and tax benefits. The system operates on an online platform, making transactions transparent and easy to manage. Furthermore, employees can withdraw up to 25 percent of their own contributions for specific financial needs before retirement. However there are also some drawbacks to the new pension system. One of the primary concerns is that the amount of the pension is not guaranteed and depends on the contributions made by the employee throughout their working years. This lack of predictability makes it difficult for individuals to plan their retirement with certainty. Moreover, the system has low awareness among subscribers which affects participation rates and informed decision-making. Additionally, the need for monthly contributions may be challenging for some employees especially those in lower-income groups.

In conclusion, pensions have evolved from a simple retirement benefit to a key component of long-term financial security. While the Statutory Pension System provided fixed, lifelong income for government employees, it came with significant financial burdens that led to its discontinuation. The National Pension System introduced a more sustainable and flexible approach but it also introduced uncertainties regarding the amount of pension and has faced challenges such as limited awareness among subscribers. As retirement planning becomes increasingly crucial in a rapidly changing financial landscape, understanding and choosing the right pension plan is more important than ever.

Table 4.1 - Difference between Statutory Pension System and National Pension System

Points of difference	Statutory Pension System	National Pension System
Meaning	Pension payable under rule D2 (D2: based on eligibility, service period etc.) in connection with Pension act.	Employers and employees together contribute to pension systems.
Tax benefit	No tax benefit to contributories.	EEE benefit 1.)Sec 80 CCD (1) Employers contribution fully exempted - ₹150,000 2.) Additional benefit - ₹50,000 3.)Employers contribution fully exempted
Authority	Central pension processing centres	PFRDA
Family pension	Family provided pension to be the pensioner's family.	No family pension to subscriber's family
Pension amount	50% of last drawn salary	No ensured amount of pension
Various terms	It is otherwise known as OPS	It is otherwise known as NPS or CPS
Contribution	There is no contribution from employees.	It is a contribution system
Minimum guarantee	This system assures a minimum guarantee of pension	This system do not ensure a minimum guarantee of return
Service	Minimum service required to	No specification of minimum

	get pension is 10 years	service
Transactions	It is transferred to employees bank account	It is based on PRAN number(12-digit account number)
System	Defined benefit pension system	Defined contribution pension system

Source: Compiled from various articles

4.5 Models or Variations of the National Pension System

The different models or variations of the National Pension System are listed below.

- **Government Sector Model**

- **Central Government:** With the exception of the military forces, the National Pension System (NPS) was implemented by the central government on January 1, 2004. Therefore, all Central Government personnel employed on or after January 1, 2004 are required to complete NPS (PFRDA, 2020).
- **State Government:** According to notifications from the respective governments, NPS is required for state government employees. The NPS architecture has been accepted and implemented at different times in different states (PFRDA, 2020).

- **All Citizen Model**

The All-Citizen Model was adopted by the National Pension System (NPS) in 2009. Subscribers make inexpensive, tax-efficient contributions to their superannuation fund under this arrangement. Two prerequisites must be met for an Indian citizen, whether they are a resident or not to be eligible for NPS. He or she must be between the ages of 18 and 60 on the day when the POP/POP-SP application is submitted. The subscriber registration form's Know Your Customer (KYC) guidelines should be followed by him or her (PFRDA, 2020).

- **Corporate Sector Model**

Launched in December 2011, the NPS Corporate Sector Model was tailored to meet the demands of different businesses and their workers while staying within the

parameters of their employer-employee relationship. In addition to any legislative provisions, employees might choose to receive NPS as a retirement benefit. Through one of the current POPs, corporates can join NPS (PFRDA, 2020).

The Corporate Model is available to the following organizations:

- Trust/Society
- Proprietorship Concern
- Entities registered under the Companies Act
- Entities registered under various Co-operative Acts
- Registered Partnership firm
- Registered Limited Liability Partnership (LLPs)
- Central Public Sector Enterprises
- State Public Sector Enterprises
- An organisation incorporated under an act of Parliament or a state legislature or by order of the state or central government
- Employees of a business entity can register as NPS subscribers if they are Indian citizens, aged between 18 and 60 years, enrolled by their employer and meet the Know Your Customer (KYC) requirements.

4.6 NPS Accounts and Contribution

The NPS registration procedure consists of the following steps.

Visit the e-NPS website and select the relevant option (individual subscriber, corporate subscriber, Indian citizen or non-resident Indian). → Select the Tier 1 and Tier 2 account under the PAN option. Click to proceed after entering your PAN and choosing Bank (PFRDA, 2023).

Subscribers can choose to open two accounts with NPS for Tier 1 and Tier 2 accounts. While creating a Tier-1 account is required by NPS, creating a Tier-2 account is open-ended and can be done at any moment (PFRDA, 2020).

Tier 1 NPS account is also referred to as a pension account into which the subscriber's regular contributions are credited and invested in accordance with the fund manager or portfolio that the subscriber has selected. It is a restricted and conditional withdrawal account. Subject to the current income tax regulations, the subscriber may claim tax benefits against the contributions made (PFRDA, 2020).

Minimum Tier-1 Contributions:

- ₹500 is required upon account opening and for all subsequent transactions
- ₹1,000 is required annually, minus fees and taxes.
- There is no maximum limit on contributions to a Tier 1 account under the National Pension System (NPS).

Tier- 2 NPS Account, only when the user has an active Tier 1 account in their name is this voluntary withdrawal account permitted. Depending on their demands, the subscriber may take money out of the account as needed. It is referred to as an investment account and members are not eligible to receive any tax advantages for their payments (Rao, 2006; Patil, 2017).

Minimum Tier-2 Contributions:

- A minimum of ₹1000 must be made at account opening and a minimum of ₹250 must be made for each subsequent transaction.
- There is no cap on the maximum contribution for the fiscal year nor is there a minimum requirement (PFRDA, 2020).

The National Pension System mandates contributions from both employees and employers, with specific provisions applicable to Central and State Government employees.

Central Government Employees (except Armed Forces)

Under the NPS framework, Central Government employees are required to contribute 10% of their Basic Pay plus Dearness Allowance (DA) to their Tier-1 NPS account (PFRDA, 2023). Since April 1, 2019, the employer's contribution by the Central Government has been increased to 14% of Basic Pay plus DA thereby

enhancing the retirement corpus (Department of Financial Services, Ministry of Finance, 2019).

These contributions are deposited into the Tier-1 account, which is non-withdrawable until retirement except under specific conditions.

State Government Employees

The Tier-1 account serves as the main pension account under the NPS and is mandatory for all government employees. Meanwhile, the Tier-2 account is optional and functions as a voluntary savings facility without any employer contribution (PFRDA, 2023).

Furthermore, employee contributions qualify for tax benefits under Section 80CCD(1) of the Income Tax Act, 1961 subject to the ₹1.5 lakh limit under Section 80C, while employer contributions are eligible for deductions under Section 80CCD(2) without the ₹1.5 lakh cap but subject to percentage limits of salary (Income Tax Department, 2023).

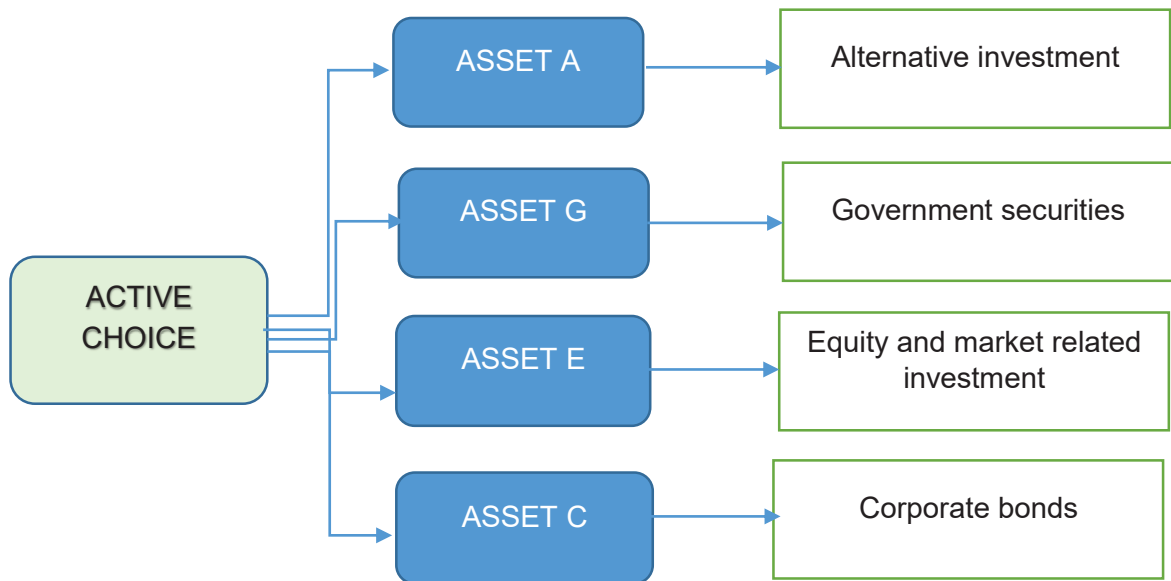
4.7 Investment Options in NPS

For its subscribers, NPS provides a variety of investment alternatives and pension funds. A subscriber may alter their investment choice and asset mix once during a fiscal year in both Tier-1 and Tier-2 accounts. For NPS users, there are two investment options available (PFRDA, 2020).

1. Active Choice

This is determined by the subscribers' individual preferences. The subscriber determines how much to contribute each month. The subscriber has the last say over all investing choices. According to their own preferences, members can actively choose how their contributions are invested thanks to this plan. Asset G, Asset E, Asset A and Asset C are among the funds in active choice (PFRDA, 2020).

Figure 4.1 – Investment Choices under Active Choice



Source: National Securities Depository Limited website

The following lists the maximum allowed investment allocation for each Tier 1 asset class:

Table 4.2 - Maximum allowed investment allocation for each Tier 1 asset class

Asset Class	Cap on Investments
Equity (E)	75%
Corporate Bonds (C)	100%
Government Securities (G)	100%
Alternate Investment Fund (A)	5%

Source: PFRDA, 2021; Economic Times, 2023

The following lists the maximum allowed investment allocation for each Tier 2 asset class:

Table 4.3 - Maximum allowed investment allocation for each Tier 2 asset class

Asset Class	Cap on Investments
Equity (E)	100%
Corporate Bonds (C)	100%
Government Securities (G)	100%

Source: PFRDA, 2021; Economic Times, 2023

Note: Asset Class A is not available for selection under Tier 2

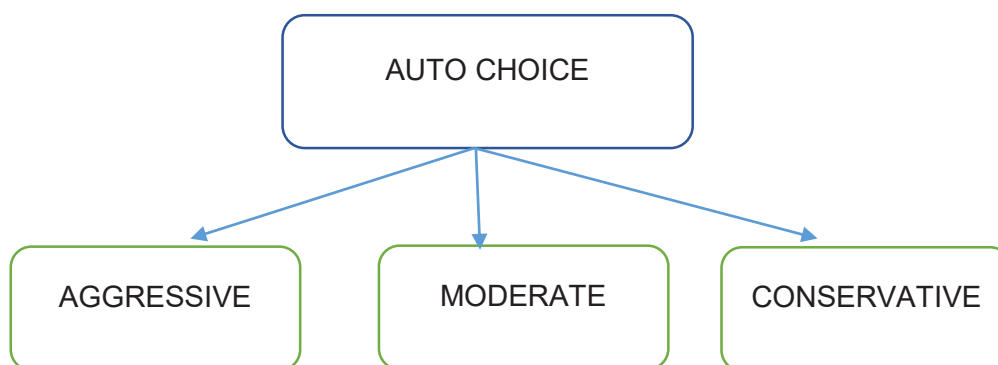
In the case of Active Choice, PFRDA has permitted the choosing of numerous PFMs. Only customers who are affiliated with the business sector and all Indian citizens for Tier-1 accounts and subscribers from all sectors for Tier-2 accounts are able to select from a variety of PFMs.

Up to three PFMs from various asset classes are available for the subscriber to choose from. Nonetheless, the PFM that chose the Alternative Investment Fund (A-System) ought to be from one of the PFMs that were chosen for the other systems. For instance, a subscriber can choose PFM1 or PFM2 or PFM3 for Asset Class A if they are choosing PFM1 for Asset Class E, PFM2 for Asset Class C, and PFM3 for Asset Class G.

2. Auto Choice

Subscribers who lack the necessary skills and expertise to manage their NPS investments have an easier choice with NPS. The Auto Choice option will be used to invest subscribers' money automatically if they are unable or unable to make any decisions on asset allocation. A life-cycle fund would be the best choice in this regard. The percentage of money invested in each of the three asset classes will be decided by a pre-established portfolio based on the subscriber's age. According to PFRDA guidelines, investments are made in a variety of life cycle funds including aggressive, moderate and conservative funds (Kothari & Singh, 2015).

Figure 4.2 - Investment Choices under Auto Choice



Source: National Securities Depository Limited website

a) Aggressive Life Cycle Fund

Subscribers who desire a high level of equity exposure can invest in these funds. Up to the age of 35, the equity component is 75%; after that it drops to 15%. The percentage of investments in corporate bonds up until the age of 35 is actually just 10. The percentage of investment changed to 15 and 20 respectively as the age rose to 40 and 45. The investment is the same at age 50 as it was at age 45. However the ratio of investments tends to decline until the age of 55 (PFRDA, 2020).

Age and the percentage of investments in government securities are positively correlated. The investment percentage rises in tandem with the subscribers' age. With a 5-year age gap, the rise displays the same proportion.

b) Moderate Life Cycle Fund

For equity investments, this life cycle fund offers a maximum of 50% of the entire asset. Up to the age of 35, 50% of the investment is allocated to equity. Following that the amount will be reinvested in government securities and corporate debt with the equity asset allocation declining by 2% annually (ClearTax, 2020).

c) Conservative Life Cycle Fund

Because it offers a cap of 25% of the total assets for equity investment, this fund is known as L25. The exposure to equity investments begins at age 35 and progressively decreases with the subscriber's age (PFRDA, 2020).

4.8 Pension Fund Regulatory Development Authority (PFRDA)

The PFRDA Act was passed on September 18, 2013 and it was established by the Central Government by resolutions dated October 10, 2003 (PFRDA, 2013). The Central Government appoints the authority's chairperson, three full-time members and three part-time members from among individuals with qualifications, moral character and standing (GOI, 2013).

Duties and Powers of PFRDA

- Regulating the National Pension System and approving its corpus, terms and conditions are among the authority's responsibilities.
- Regulating and registering middlemen.

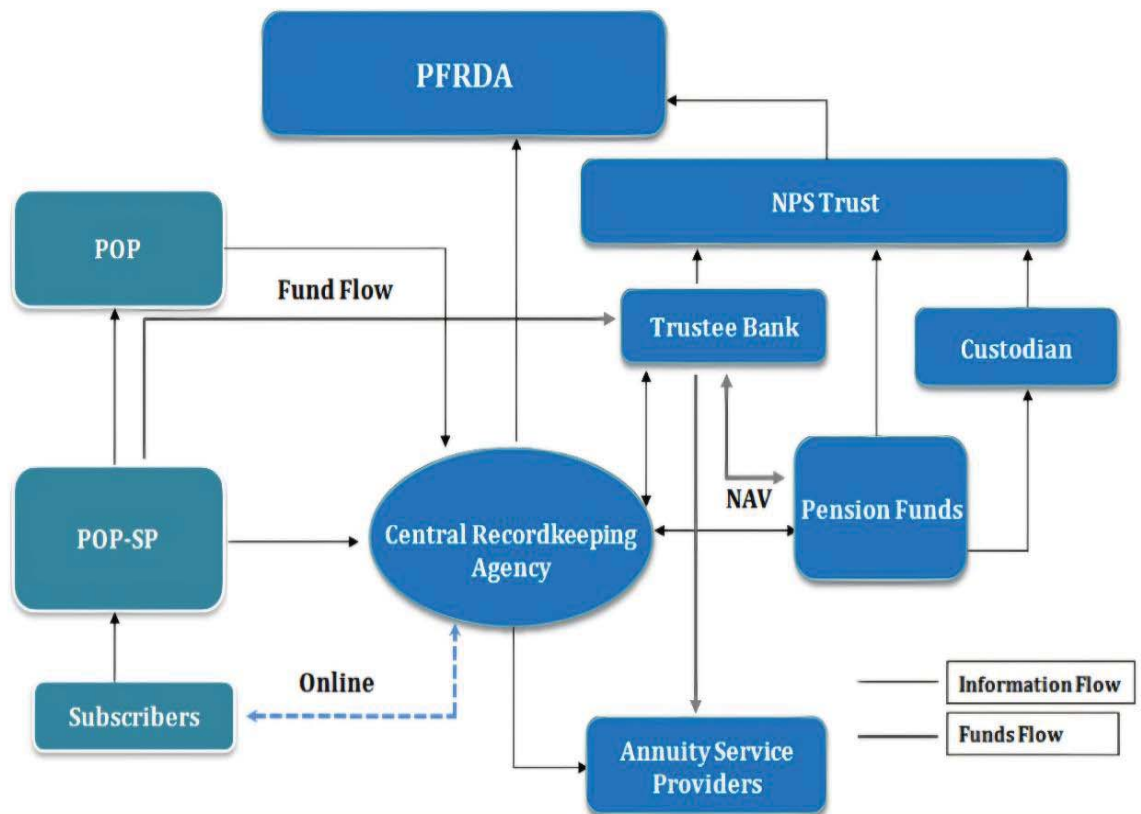
- Granting permission to modify and cancel a certificate of registration and renewal.
- Safeguarding subscribers' interests by developing grievance redress procedures and guaranteeing transaction economy and safety.
- Encouraging professional issues and informing subscribers about the plan (PFRDA, 2022).

4.9 Architecture of National Pension System

National Pension System is a cutting-edge idea founded on global best practices in the pension industry. In order to maximise operational efficiency at a minimal cost, the NPS employs an unbundled model with checks and balances, assigning each function to an organization known for its expertise. To achieve maximum operational efficiency, NPS has a special architecture with built-in checks and balances assigning each function to an organisation known for its expertise (PFRDA, 2021). The NPS architecture's components are as follows:

- NPS Trust - protects the interests of subscribers
- Point of Presence (PoP) - is charge of gathering and allocating subscriber contributions
- Central Recordkeeping Agency (CRA) – controls the information
- Pension Fund Managers (PFM) - optimise and provide returns on subscribers' investments
- Trustee bank - keeps up the banking operations
- Custodian - maintains the assets that the fund managers have acquired (PFRDA, 2021).

Figure 4.3 - NPS Architecture's Components



Source: Compiled from various secondary sources

4.9.1 NPS Trust

In the best interests of subscribers, a trust established under the Indian Trusts Act of 1882 is in charge of managing the NPS money. While NPS subscribers own securities, assets and funds in their own names, pension funds buy the securities on behalf of the trustees (PFRDA, 2015).

The NPS Trust is responsible for overseeing the functional and operational activities of NPS intermediaries including custodians, pension funds, trustee banks, central recordkeeping agencies (CRAs), points of presence (PoPs), aggregators and IRDAI-registered annuity service providers in accordance with the NPS Trust Regulations. It also provides guidance and recommendations to pension funds (PFs) to safeguard subscriber interests, ensures regulatory compliance through independent audits, conducts performance evaluations of pension funds and addresses other supervisory matters (PFRDA, 2015).

Functions of NPS Trust

The Board of Trustees is the legal owner of the National Pension System Trust and has the authority to oversee its assets.

In accordance with PFRDA's directives, the Trust oversees all operational and service-level operations that are under the purview of the National Pension System and is in charge of the other pension plans governed by the PFRDA Act, 2013(PFRDA, 2015; PFRDA, 2017).

The Board of Trustees' obligations fall into the following categories:

- Manage the individual subscriber's pension account under the Trust's name.
- Approve all financial statements required by the National Pension System Trust, such as audit reports, inspection reports, internal audits, compliance reports and other reports mandated by relevant authorities which must be provided by the trust intermediaries.
- The Board of Trustees must oversee and assess all trust operations including the activities of intermediaries such as government nodal offices and other competent authorities involved in fund collection, management, maintaining records and disbursement under the National Pension System along with its rules and regulations.
- It is the responsibility of the Board of Trustees to protect the interests of beneficiaries by regularly monitoring and auditing the trust's operational activities which may include requesting trust information or intermediary reports. The Board can also issue specific instructions when necessary to carry out their routine duties.
- The Board of Trustees serves as a custodian, safeguarding and managing the trust's properties held by intermediaries for the benefit of its subscribers.
- The Board ensures the protection of all assets created under the National Pension System Trust including the trust's interests and the beneficiaries' rights.
- The Board oversees the collection of income due on trust assets and exercises its authority to recover any applicable tax repayments.

Additionally, the Board has the right to retain any income received by the trust for the benefit of subscribers in accordance with the Trust Deed or any relevant regulations, guidelines or directives issued by competent authorities.

- The Board takes appropriate actions regarding all reports submitted by trust intermediaries to ensure consistent compliance with NPS regulations.
- The Board implements a proper system to assist subscribers in exiting the NPS.
- The Board also ensures that subscriber grievances are addressed appropriately in accordance with the Pension Fund Regulatory and Development Authority (Redress of Subscriber Grievance) Regulations, 2015 (PFRDA, 2015).

4.9.2 Point of Presence (PoPs)

An intermediary registered with the Authority under Section 27(3) is known as a Point of Presence (PoP) (PFRDA, 2015). The PoP is a subscriber's initial interaction with NPS. Points of Presence can carry out tasks by electronically connecting to the central recordkeeping agency. Comprising subscriber registration, KYC verification, contribution receipt, receiving and forwarding subscriber instructions and funding subscribers inside the NPS architecture (PFRDA, 2015).

PoP-SPs (Points of Presence–Service Providers) are entities authorized by the Pension Fund Regulatory and Development Authority (PFRDA) to offer NPS-related services to subscribers through their branch networks, functioning as intermediaries between subscribers and the broader NPS architecture (PFRDA, 2021; Kaur & Arora, 2020).

A Point of Presence-Sub-Entity is an organisation that has been approved by the authority to assign any of the duties or obligations of a Point of Presence (PFRDA, 2015).

Functions of Point of Presence (PoP)

A. Registration of Subscribers

PoP / PoP-SP will assist in the registration of subscribers for both Tier 1 and Tier 2 accounts. The registration process involves several steps, which are as follows (PFRDA, 2015):

- **Form Acceptance:** Only the fully completed Composite Subscriber Registration Form (CSRFB) will be accepted from the subscriber, based on a T+1 timeline, where T is the date the form is received.
- **Form Verification:** The form will be thoroughly checked for completeness, including the Date of Birth, the relevant bank details, the nomination, System information, and other necessary details. Additionally, Know Your Customer (KYC) documents will be verified according to the current standards.
- **Form Processing:** All completed forms and supporting documents will be sent to the CRA/CRA-Facilitation Centre (FC) for digital conversion. If the PoP-SP and CRA-FC are in the same location, physical submission will occur; otherwise, the documents will be mailed to the CRA in Mumbai. The documents must be delivered to the CRA/CRA-FC within T+2 days for district-level locations and T+7 days for all other locations.

B. Processing of initial contribution during registration:

- At this stage, the completed NPS Contribution Instruction Slip (NCIS) will be collected along with the application form ensuring that all the subscriber's details are accurate (PFRDA, 2023).
- The cleared funds will be transferred to the Trustee Bank based on a T+1 timeline, after deducting applicable service charges and taxes, and will then be reflected in the subscriber's PRAN.
- Additionally, all relevant documents including the NCIS and supporting transaction records will be retained.

C. Regular Contribution of Subscribers:

- The designated PoP / PoP-SP is responsible for receiving the NCIS from the subscribers and verifying the subscriber's name, PRAN, payment details and other relevant information.
- Additionally, the subscriber contribution details will be uploaded into the CRA system based on a T+1 timeline corresponding to the specific PRAN of the subscribers.
- Lastly, the cleared funds will be transferred to the Trustee Bank on a T+1 basis, after deducting the applicable charges and taxes ensuring the amount is reflected in the respective subscriber's PRAN.

D. Modification of Subscriber Information

The following services are available for NPS subscribers:

Changes to subscribers' personal details can be made within T+1.

- Requests to change the investment System or fund manager will be processed on the same day (T) if received within the specified banking hours. Requests made after banking hours will be processed the following day (T+1).
- Withdrawal requests will be handled on the same day (T) if submitted during banking hours. Requests received after banking hours will be processed the next day (T+1).
- Subscriber shifting requests will be processed on a T+1 basis.
- A printed copy of the account statement will be provided upon subscriber request.
- Requests for duplicate i-pins, PRAN cards and t-pins will be processed within T+1.
- Additionally, all other services outlined by PFRDA will be provided.

Note: T refers to the date on which the request is received.

E. Handling Grievances

The PoP / PoP-SP will manage various grievances related to both subscribers and NPS intermediaries as follows:

- Grievances submitted by subscribers will be entered into the Central Grievance Management System (CGMS) of the CRA daily. These grievances will then be forwarded to the relevant NPS intermediaries for resolution (PFRDA, 2015).
- If a grievance is submitted against any NPS intermediary such as the CRA or Trustee Bank (TB), it will be recorded in the CGMS of the CRA or at the CRA's call centres for further action (PFRDA, 2015).

4.9.3 Central Recordkeeping Agency (CRA)

The Central Recordkeeping Agency (CRA) is an internal system designed to ensure compliance with organisational and operational standards with the goal of safeguarding the interests of NPS subscribers and their assets. The CRA serves as the operational link between the PFRDA and other NPS intermediaries such as Pension Funds, Annuity Service Providers, Trustee Banks and others (PFRDA, 2015). It is responsible for managing recordkeeping, administration and customer service functions for all NPS subscribers (Pension Fund Regulatory and Development Authority, 2015). The CRAs for the National Pension System are:

- Protean eGov Technologies Limited (formerly known as NSDL e-Governance Infrastructure Limited) (Protean eGov Technologies, 2017)
- M/s KFin Technologies Private Limited (KFin, 2017)

Since April 1, 2017, NPS subscribers have been able to switch between CRAs through the interoperability functionality (PFRDA, 2017).

Functions of CRA

- Registering subscribers and issuing their Permanent Retirement Account Number (PRAN).
- Distributing the welcome kit, PRAN Card and IPIN/TPIN to subscribers.
- Storing subscriber records in a digital format.

- Updating subscriber details upon request from the concerned subscribers.
- Defining the operational boundaries within which intermediaries must function under the NPS framework.
- Monitoring the flow of subscriber contributions to their respective PRAN accounts.
- Converting subscriber contributions into individual units in their PRAN account.
- Preparing and sending transaction statements to the relevant subscribers.
- Providing online/electronic access to subscribers for managing their PRAN accounts remotely.
- Offering Call Centre support for subscribers to manage their PRAN accounts.
- Receiving and addressing subscriber grievances through a dedicated portal within the "Central Grievance Management System."
- Facilitating the exit or withdrawal of PRAN subscriptions (PFRDA, 2015).

4.9.4 Pension Fund Managers (PFM) offered by NPS

Pension Fund Managers registered with the PFRDA are responsible for managing the funds invested by NPS subscribers. As intermediaries, Pension Fund Managers receive and accumulate contributions and make payments to subscribers in accordance with PFRDA regulations (PFRDA, 2015). They also serve as a link between various NPS intermediaries and PFRDA to safeguard the interests of the subscribers (PFRDA, 2025). As of March 2025, the Pension Fund Regulatory and Development Authority (PFRDA) has authorized the following 11 Pension Fund Managers (PFMs) to manage investments under the National Pension System (NPS). The Pension Fund Managers (PFMs) appointed under the National Pension System (NPS) include organizations such as SBI Pension Funds Pvt. Ltd., LIC Pension Fund Ltd., UTI Retirement Solutions Ltd., HDFC Pension Management Co. Ltd., ICICI Prudential Pension Fund Management Co. Ltd., Kotak Mahindra

Pension Fund Ltd., Aditya Birla Sun Life Pension Management Ltd., Tata Pension Management Ltd., Max Life Pension Fund Management Ltd., Axis Pension Fund Management Ltd. (Pension Fund Regulatory and Development Authority [PFRDA], 2024) and DSP Pension Fund Managers Pvt. Ltd.(PFRDA 2025).

These PFM's are responsible for managing the contributions of NPS subscribers across various asset classes including equities, corporate bonds, government securities and alternative investment funds. Subscribers have the flexibility to choose their preferred PFM(s) based on performance and investment strategy (PFRDA 2025).

Functions of Pension Funds

- Ensures that subscriber contributions are received through the Trustee Bank chosen by the respective subscribers.
- Begins the process of investing subscriber contributions in various securities, as outlined by the Pension Fund's Board through its investment guidelines under the “Authority and Investment Policy” section.
- Special committees will be established to manage investments and risks.
- System portfolios will be created and evaluated based on the System objectives and prudential exposure limits set by the relevant regulations.
- Ensures the accurate maintenance of all accounting records related to the different Systems managed by the pension funds.
- The net asset value of the Systems will be calculated and sent to the CRA daily to facilitate unit conversion in subscribers' PRAN accounts.
- All operational activities will be reported to the NPS trust at regular intervals.

Overview of Pension Fund Managers (PFMs) Registered Under NPS

- **SBI Pension Funds Private Limited**

A wholly owned subsidiary of the State Bank of India, SBI Pension Funds is designated as the default Pension Fund Manager for government employees

under NPS (PFRDA, 2023). It manages a significant portion of the NPS corpus and is known for its conservative investment approach.

- **UTI Retirement Solutions Limited**

Established in 2007 as a 100% subsidiary of UTI Asset Management Company Ltd., UTI Retirement Solutions was initially appointed to manage pension funds for government employees and later extended its services to all NPS subscribers (UTI Retirement Solutions, 2023).

- **LIC Pension Fund Limited**

Incorporated in 2007, LIC Pension Fund is a subsidiary of Life Insurance Corporation of India. It was among the first companies to be registered with PFRDA to manage pension funds under NPS (PFRDA, 2023).

- **ICICI Prudential Pension Fund Management Company Limited**

A wholly owned subsidiary of ICICI Prudential Life Insurance Company Limited, this Pension Fund Manager (PFM) was incorporated in 2009 and manages pension assets for both government and private sector NPS subscribers (PFRDA, 2023).

- **HDFC Pension Management Company Limited**

Established in 2011 as a subsidiary of HDFC Life Insurance Company Limited, HDFC Pension Management was granted registration by PFRDA in 2013 to manage pension funds under NPS (HDFC Pension, 2023).

- **Kotak Mahindra Pension Fund Limited**

A subsidiary of Kotak Mahindra Asset Management Co. Ltd., this PFM was appointed by PFRDA in 2009 to manage funds under the NPS Trust. It caters to both government and private sector subscribers (Kotak Pension Fund, 2023).

- **Aditya Birla Sun Life Pension Management Limited**

Formerly known as Birla Sun Life Pension Management Ltd., it was incorporated in 2015 as a wholly owned subsidiary of Aditya Birla Sun Life

Insurance Company Limited. It was registered with PFRDA in 2017 to manage pension funds for the private sector (PFRDA, 2023).

- **Tata Pension Management Private Limited**

Tata Pension Management is a wholly owned subsidiary of Tata Asset Management Limited incorporated in 2022. It was registered with PFRDA to manage pension funds under NPS catering to both government and private sector subscribers. (PFRDA, 2022; Tata Pension Management, 2023)

- **Max Life Pension Fund Management Limited**

A subsidiary of Max Life Insurance Company Limited, this Pension Fund Manager (PFM) was incorporated in 2022 and registered with PFRDA to manage pension funds under NPS for private sector subscribers (ClearTax, 2022; PFRDA, 2023)

- **Axis Pension Fund Management Limited**

A subsidiary of Axis Asset Management Company Limited, Axis Pension Fund Management was registered with PFRDA to manage pension funds under NPS offering services to both government and private sector subscribers (ClearTax, 2022; PFRDA, 2023)

- **DSP Pension Fund Managers Private Limited**

DSP Pension Fund Managers is a subsidiary of DSP Investment Managers Pvt. Ltd. It was registered with PFRDA to manage pension funds under NPS focusing on providing investment management services to NPS subscribers incorporated in December 2023 (DSP Pension Fund Managers, 2023)

4.9.5 Trustee Bank

Since July 1, 2013, Axis Bank Ltd has been serving as the trustee bank for the National Pension System (PFRDA, 2023). As per the guidelines and directions issued by the Authority under NPS, the Trustee Bank acts as an intermediary to facilitate the movement of funds and manage daily banking operations. According to operational guidelines, the Trustee Bank receives NPS funds from all Nodal Offices and transfers them to Pension Funds, Annuity Service Providers and other intermediaries (PFRDA, 2015). If a Pension Fund Manager (PFM) receives funds with incomplete or incorrect

information, the Nodal Office returns them to the respective accredited banks for re-crediting to the original source account (PFRDA, 2013). The NPS Trustee Bank accounts are maintained on behalf of NPS subscribers by the NPS Trust (PFRDA, 2013).

Functions of Trustee Bank (TB)

- The trustee bank receives NPS contributions from nodal offices across India with contributions made either physically or online. The Nodal offices are required to provide transaction details including the transaction ID and PAO ID (Pay and Accounts Office ID) for online contributions and submit the Contribution Submission Form (CSF) along with the bank cheque for physical payments (PFRDA, 2015).
- The Trustee Bank verifies the contribution amount from the Subscriber Contribution File (SCF) provided by the Nodal Offices through the CRA system ensuring the transfer amount matches and facilitates timely fund transfers to Pension Fund Managers (PFMs) for investment.
- If there is incomplete or incorrect information about the funds or any discrepancies, the funds will be returned to the respective banks to ensure they are transferred back to the subscriber's source account.
- The Trustee Bank prepares the Fund Receipt Confirmation (FRC) file based on the contribution records from various collecting branches across the country.
- The bank executes the fund transfer process based on instructions from the CRA(s) for settling funds to different entities.
- It facilitates the transfer of funds electronically for disbursements from withdrawal accounts to the subscriber's accounts as per standard instructions.
- The Trustee Bank ensures the upload of statements reflecting the closing balance of its accounts into the CRA system.
- Periodic reconciliation of balances in the CRA-linked accounts of the Trustee Bank is conducted, based on details from the CRA system.

- The Trustee Bank retains activity documents and contribution records from the Nodal Offices to prepare periodic reports as required by PFRDA.
- Additionally, the Trustee Bank ensures the accuracy and validity of the information provided to PFRDA, enabling effective monitoring of operations and fund performance at regular intervals (PFRDA, 2013).

4.9.6 Custodian

The Custodian of the National Pension System (NPS) is the Stock Holding Corporation of India Limited (SHCIL). A custodian is an entity typically a depository participant of a pension System that has been granted a Certificate of Registration as a "Custodian of Securities" by the regulatory authority, in this case, the Pension Fund Regulatory and Development Authority (PFRDA, 2013).

The custodian plays a crucial role in safeguarding the securities, assets, and documents held by the National Pension System Trust. In its capacity, the custodian is primarily responsible for the safekeeping, settlement, record-keeping, receipt and reporting of these assets. This means that the custodian ensures the security and integrity of all assets associated with the NPS including the management and oversight of securities, investments and other financial documents held by the trust (PFRDA, 2013).

In terms of asset management, the custodian is responsible for overseeing the movement of securities in and out of the Pension Fund accounts. This includes the deposit and withdrawal of cash as well as the transfer of other assets between accounts as directed by the fund managers or other intermediaries in the NPS framework (PFRDA, 2013).

Furthermore, the custodian is expected to strictly adhere to the provisions outlined in the PFRDA Act as well as the relevant rules and regulations established under this Act. Additionally, the custodian must comply with the terms of agreements made with the National Pension System Trust and other NPS intermediaries ensuring transparency, accountability and smooth operations within the NPS system. The custodian thus plays an integral role in maintaining the security and efficiency of the NPS infrastructure ensuring the proper management and transfer of assets on behalf of the subscribers (PFRDA, 2013).

Functions of Custodian

- The custodian is responsible for managing and maintaining the System securities on behalf of the NPS Trust in the Demat account.
- It handles various activities related to the Domestic Depository in accordance with the provisions of the Depositories Act, 1996, or as authorized by the Securities and Exchange Board of India (SEBI) (SEBI, 1996).
- Acting on behalf of the NPS Trust, the custodian provides services to safeguard and manage the pension funds within the systems.
- The custodian ensures that any benefits or rights accrued from the invested securities are collected at regular intervals.
- It will inform the trust about any corporate actions affecting the pension funds as and when they occur.
- The custodian is responsible for maintaining and periodically reconciling the securities records.
- Additionally, the custodian will provide Net Asset Value (NAV) calculation services for the pension funds within the systems (PFRDA, 2013).

4.9.7 Annuity Service Providers (ASPs)

An annuity is a financial product that guarantees a specific rate of return on an investment over a set period. The Pension Fund Regulatory and Development Authority (PFRDA) has authorised insurance companies registered with the Insurance Regulatory and Development Authority (IRDA) to provide annuity services to NPS subscribers upon their exit from the system. When a subscriber exits the NPS, they are required to purchase a pension annuity from an approved Annuity Service Provider (ASP) (PFRDA, 2015; IRDAI, 2015). The NPS allows subscribers the flexibility to choose their preferred annuity type and provider. Among the various annuity Systems offered by the ASPs, the subscriber can select the one that best fits their personal requirements (PFRDA, 2015).

NPS subscribers can avail annuity services from the following Annuity Service Providers: Bajaj Allianz Life Insurance Company Limited, Canara HSBC Oriental Bank of Commerce Life Insurance Company Limited, Edelweiss Tokio Life

Insurance Company Limited, HDFC Standard Life Insurance Co. Ltd., ICICI Prudential Life Insurance Co. Ltd., India First Life Insurance Company Limited, Kotak Mahindra Life Insurance Company Limited, Life Insurance Corporation of India, Max Life Insurance Co. Ltd., PNB MetLife India Insurance Co. Ltd., SBI Life Insurance Co. Ltd., Star Union Dai-ichi Life Insurance Co. Ltd. and Tata AIA Life Insurance Company Limited (Pension Fund Regulatory and Development Authority [PFRDA], 2015).

Functions of Annuity Service Providers (ASPs)

In accordance with Regulation 22 of the PFRDA (Exits and Withdrawal under National Pension System) Regulations 2015, an Annuity Service Provider plays a critical role in managing the annuity process for NPS subscribers (PFRDA, 2015). The responsibilities of an ASP are as follows:

A. The primary duties of a registered annuity service provider are outlined below:

- **Facilitating Annuity Payments Upon Exit:** One of the primary responsibilities of an ASP is to ensure that subscribers receive their annuity payments when they exit the National Pension System. This involves ensuring that the subscribers who have accumulated funds in their NPS accounts are provided with a reliable and steady income stream through annuities.
- **Providing Various Annuity Options:** The ASP is responsible for offering a variety of annuity options to suit the needs of the subscribers. At the minimum, it must provide the annuity variants mandated by the concerned authorities. Furthermore, the ASP is expected to regularly introduce new annuity variants, taking into account the evolving needs of the subscribers and market trends and ensuring these options comply with the guidelines stipulated (PFRDA, 2015). This ensures flexibility for subscribers in choosing an annuity plan that best aligns with their retirement goals.
- **Ensuring Regular Annuity Payments:** The ASP is responsible for ensuring that all annuity payments whether monthly or other periodic payments are made in a timely manner to the subscribers based on the

annuity contracts they have purchased under the NPS. These payments are critical for providing subscribers with a continuous income after they retire and the ASP must manage the distribution of funds in accordance with the terms of the annuity contracts.

- **Handling Subscriber Grievances:** The ASP is also tasked with addressing any grievances or concerns raised by the subscribers regarding their annuity contracts. This includes resolving issues related to payment delays, contract terms or any other issues that may arise during the course of the annuity. The ASP must have a structured grievance redressal mechanism in place to ensure that subscriber concerns are handled promptly and effectively.

In summary, the ASP serves a vital role in ensuring that NPS subscribers receive the annuity payments they are entitled to upon their exit from the system. By offering flexible annuity options, facilitating timely payments and addressing subscriber grievances, the ASP ensures that the annuity process under NPS operates smoothly and meets the financial needs of retirees.

B. Primary Communication with Customers Regarding NPS

The Annuity Service Provider (ASP) plays a crucial role in ensuring clear, transparent and effective communication with potential subscribers about the National Pension System and annuity subscriptions. The main functions of communication with customers include the following:

- **Addressing Subscriber Queries about Annuities:** One of the ASP's primary responsibilities is to address any doubts or concerns raised by potential or current subscribers regarding annuity subscriptions. This involves providing detailed explanations about how annuities work within the NPS framework, the various options available and how these annuity products can provide a stable income after retirement. By answering queries comprehensively, the ASP ensures that subscribers are well-informed and confident in their decision to participate in the annuity system.
- **Providing Reliable and Accurate Information:** The ASP is tasked with ensuring that all communication to potential subscribers is accurate and

up to date. To achieve this, the ASP must facilitate the display of authentic and verified information provided by the Insurance Regulatory and Development Authority (IRDA) regarding annuity products. This includes making available any relevant data, guidelines or policies published by IRDA that can help customers make informed decisions. By promoting transparency, the ASP builds trust with subscribers.

- **Offering Subscription Forms and Other Promotional Documents:** The ASP ensures that all necessary application forms, promotional materials and other relevant documents are readily available for potential subscribers who wish to purchase annuities. This includes preparing and making available documents that outline the different types of annuities, the benefits of subscribing to annuities under NPS and any required forms for subscribing to the service. Furthermore, the ASP provides easy access to annuity calculators which allow subscribers to estimate their potential annuity pay-outs based on their individual contributions and other parameters. By offering these tools and resources, the ASP facilitates a smoother and more efficient subscription process for the customer.

In essence, the ASP ensures that all aspects of communication with potential and existing subscribers are transparent, informative and supportive. By addressing queries, offering relevant documents and providing easy-to-use tools like annuity calculators, the ASP helps potential subscribers make well-informed decisions about their retirement planning and annuity subscriptions under the National Pension System (NPS).

C. Subscriber Registration for Annuity Purchase

The Annuity Service Provider (ASP) is responsible for ensuring a smooth and efficient process for subscribers wishing to purchase annuities under the National Pension System (NPS). The key functions associated with the registration of subscribers for annuity purchases include:

- **Providing Necessary Infrastructure for Application Processing:** The ASP must set up the necessary infrastructure to facilitate the receipt of subscription applications along with the prescribed premiums from the

subscribers. This infrastructure must also allow for the issuance of annuity contracts which should only be done after obtaining prior approval from the Insurance Regulatory and Development Authority (IRDA) (IRDAI, 2015).

- **Ensuring Online Access for Annuity Purchases:** The ASP is required to offer subscribers a robust online platform for purchasing annuity products. This platform must be supported by a central record-keeping agency that is registered and regulated by the appropriate authority. The online infrastructure should include the necessary software to facilitate seamless transactions and provide an efficient experience for subscribers.
- **Providing Essential Documentation and Information:** The ASP must ensure that subscribers have easy access to all necessary forms, information on available annuities, and any other required facilities. This information should be available through the central record-keeping agency system or other authorized channels for registration purposes. Subscribers must have access to all relevant documents to make informed choices about their annuity options.
- **Issuing Annuity Contracts Based on Subscriber Preferences:** The ASP is responsible for issuing annuity contracts in line with the preferences indicated by subscribers. These contracts must be issued in compliance with the various standards and regulations set by the IRDA to ensure that subscribers receive the appropriate annuity products based on their individual needs.
- **Distributing Annuity Payments:** Once the annuity contracts are in place, the ASP is responsible for distributing annuity payments as per the subscriber's chosen payment frequency (quarterly, monthly or annually). However, it is important to note that government sector subscribers will receive their annuities on a monthly basis only. The ASP must ensure that payments are made accurately and timely in line with the terms of the contract.
- **Handling and Verifying Annuity Transactions:** The ASP must manage the collection and verification of all subscriber applications for annuity purchases. This includes ensuring that all necessary actions are taken to issue the annuity contracts correctly. The ASP will work closely with the

central record-keeping agency or other authorised entities to verify and process annuity contracts.

- **Reporting Annuity Purchases to the NPS Trust:** The ASP is also required to provide information regarding the annuities purchased by subscribers to both the NPS Trust and the central record-keeping agency. This information must be provided in the prescribed format and within the time intervals set by the NPS Trust to ensure accurate and timely record-keeping.

In summary, the ASP plays a vital role in registering subscribers for annuity purchases, facilitating the processing of applications, issuing annuity contracts, managing payment distributions and ensuring compliance with regulations. The ASP must also maintain close coordination with the central record-keeping agency and NPS Trust to ensure that all processes are handled smoothly and efficiently.

4.10 Pension Schemes offered by NPS

The National Pension System (NPS) offers a range of well-structured Pension Fund (PF) Schemes tailored to meet the diverse investment needs and risk appetites of subscribers. These Schemes are managed by professionally regulated Pension Fund Managers (PFMs), under the oversight of the Pension Fund Regulatory and Development Authority (PFRDA, 2024). The core objective of these Schemes is to enable long-term retirement savings by providing a choice of investment avenues that balance growth with safety.

NPS subscribers can select from various asset classes such as Equity (E), Corporate Debt (C), Government Securities (G) and Alternative Assets (A) - each with Tier-1 (mandatory retirement account) and Tier-2 (voluntary savings account) options (PFRDA, 2022). Additionally, Scheme types differ based on the category of the subscriber including government employees, corporate employees and citizens under the all-citizen model (PFRDA, 2022). Unique Schemes like Atal Pension Yojana (APY), NPS Lite and Tax Saver Scheme (TTS) further broaden the inclusivity and appeal of the NPS framework (Government of India, 2021). As of March 2025, the National Pension Scheme (NPS) offers 14 distinct pension fund Schemes designed to cater to various subscriber categories and investment preferences. These Schemes are

managed by different Pension Fund Managers (PFMs) and are structured to provide flexibility and choice to subscribers (NPS Trust).

- **Scheme - APY** (Atal Pension Yojana)
- **Scheme - Corporate CG** (Corporate Sector - Central Government Pattern)
- **Scheme - SG** (State Government)
- **Scheme - NPS Lite**
- **Scheme - CG** (Central Government)
- **Scheme - G Tier-II** (Government Securities - Tier II)
- **Scheme - G Tier-I** (Government Securities - Tier I)
- **Scheme - E Tier-I** (Equity - Tier I)
- **Scheme - C Tier-I** (Corporate Debt - Tier I)
- **Scheme - E Tier-II** (Equity - Tier II)
- **Scheme - TTS** (Tax Saver Scheme)
- **Scheme - C Tier-II** (Corporate Debt - Tier II)
- **Scheme - A Tier-I** (Alternative Assets - Tier I)
- **Scheme - NPS Tier-II Composite** (Mixed Allocation - Equity, Debt, G-Sec)

Scheme - APY (Atal Pension Yojana)

A government-backed pension Scheme targeted at unorganized sector workers, offering fixed pensions ranging from ₹1,000 to ₹5,000 per month upon retirement. Managed by SBI Pension Fund, LIC Pension Fund and UTI Retirement Solutions (National Pension Scheme Trust, 2024).

Scheme - Corporate CG

Designed for employees of corporate entities that have adopted NPS. It allows both employer and employee contributions, providing tax benefits and flexible investment options (National Pension Scheme Trust, 2024).

Scheme - SG (State Government)

Tailored for state government employees who have joined NPS. It follows a predefined investment pattern as mandated by the respective state governments (National Pension Scheme Trust, 2024).

Scheme - NPS Lite

Aimed at economically disadvantaged sections, offering low-cost pension solutions with simplified account maintenance (National Pension Scheme Trust, 2024).

Scheme - CG (Central Government)

Structured for central government employees, this Scheme follows a specific investment pattern with contributions from both the employee and the government (National Pension Scheme Trust, 2024).

Scheme - G Tier-II

A voluntary savings facility under NPS allowing subscribers to invest in government securities with higher liquidity compared to Tier-I accounts (National Pension Scheme Trust, 2024).

Scheme - G Tier-I

Focuses on investments in government securities, suitable for subscribers with a low-risk appetite seeking stable returns (National Pension Scheme Trust, 2024).

Scheme - E Tier-I

Invests predominantly in equity markets, offering higher return potential with associated market risks, ideal for subscribers with a higher risk tolerance (National Pension Scheme Trust, 2024).

Scheme - C Tier-I

Targets investments in fixed income instruments other than government securities, such as corporate bonds, balancing risk and return (National Pension Scheme Trust, 2024).

Scheme - E Tier-II

Provides exposure to equity markets under the voluntary Tier-II account, allowing for flexible withdrawals (National Pension Scheme Trust, 2024).

Scheme - TTS (Tax Saver Scheme)

Offers tax benefits under Section 80C of the Income Tax Act, with a lock-in period, encouraging long-term retirement savings (National Pension Scheme Trust, 2024).

Scheme - C Tier-II

Invests in corporate debt instruments under the Tier-II account, suitable for subscribers seeking moderate risk and returns (National Pension Scheme Trust, 2024).

Scheme - A Tier-I

Allocates funds to alternative investment assets, including real estate and infrastructure, catering to subscribers with a higher risk appetite (National Pension Scheme Trust, 2024).

NPS Tier-II Composite

A diversified investment option under Tier-II, combining equity, corporate debt, and government securities to balance risk and return (National Pension Scheme Trust, 2024).

4.11 Exit/Withdrawal from the National Pension System

In accordance with the Regulations 2015, subscribers are eligible to exit or withdraw from the National Pension System under various circumstances (PFRDA, 2015). The process and conditions for withdrawal vary depending on the reason for the exit and can be classified under the following categories (PFRDA, 2015):

a) Exit upon Normal Superannuation (Retirement)

When a subscriber reaches the age of superannuation (retirement), they are required to make certain decisions regarding their accumulated pension wealth (PFRDA, 2015). As per the NPS regulations:

- **Annuity Requirement:** The subscriber must invest at least 40% of their accumulated pension wealth into an annuity that will provide them with a monthly pension. The remaining amount can be withdrawn as a lump sum (PFRDA, 2015).

- **Withdrawal Option:** If the full corpus in the subscriber's account is less than or equal to ₹5 lakhs at the time of retirement, they may opt to withdraw the entire amount as a lump sum, bypassing the annuity requirement (PFRDA, 2015).

This provision ensures that subscribers receive a steady stream of income post-retirement, while also offering the flexibility to withdraw a portion of the accumulated funds.

b) Exit upon Death of the Subscriber

In the unfortunate event of the subscriber's death, the withdrawal process is structured to provide for the deceased subscriber's family members or legal heirs (PFRDA, 2015):

- **Annuity Requirement:** A minimum of 80% of the accumulated pension wealth must be invested in an annuity that provides a monthly pension to the subscriber's spouse (PFRDA, 2015).
- **Lump Sum Payment:** The remaining balance of the accumulated pension wealth is paid out as a lump sum to the nominee or legal heir of the subscriber (PFRDA, 2015).
- **Withdrawal Flexibility:** If the total corpus in the account is less than or equal to ₹5 lakhs, the nominee or legal heir may withdraw the entire amount as a lump sum (PFRDA, 2015).
- **Family Pension Option:** If a family member opts for a family pension, the total accumulated pension wealth will be transferred to the Nodal Office Bank Account for settlement in accordance with the Government's directives (PFRDA, 2015).

This ensures that the deceased subscriber's family is supported financially with an annuity arrangement in place for the spouse and flexibility for the heirs to withdraw the funds.

c) Pre-Mature Exit (Resignation or Early Withdrawal)

If a subscriber wishes to exit from the NPS before reaching the age of superannuation (e.g., in case of resignation or premature retirement) the following conditions apply (PFRDA, 2015):

- **Annuity Requirement:** The subscriber must invest at least 80% of the accumulated pension wealth into an annuity which will provide a monthly pension to the subscriber. The remaining balance can be withdrawn as a lump sum (PFRDA, 2015).
- **Withdrawal Option:** If the total corpus in the account is less than or equal to ₹2.5 lakhs, the subscriber has the option to withdraw the entire amount (PFRDA, 2015).

This provides flexibility to subscribers who wish to exit the system prematurely ensuring they still have access to a portion of their accumulated wealth as a lump sum while investing a part of it for retirement income.

d) Partial/Conditional Withdrawal

Partial or conditional withdrawal is allowed under specific circumstances for subscribers who have been in the NPS for a minimum of 3 years. The conditions for partial withdrawals are as follows:

- **Eligibility:**
 - The subscriber must have been a part of the NPS for at least 3 years.
 - The withdrawal amount is capped at 25% of the total contributions made by the subscriber (excluding employer contributions).
- **Permissible Reasons for Withdrawal:**
 - **Children's Higher Education:** The subscriber can withdraw funds for the higher education expenses of their children.
 - **Children's Marriage:** The funds can also be used for the marriage of the subscriber's children.
 - **Residential House or Apartment:** The subscriber can use the funds for purchasing or constructing a residential house or apartment in their own name or in joint ownership with their legally wedded spouse. However, withdrawals are not allowed if the subscriber already owns a residential house or apartment either individually or jointly, other than ancestral property.

- **Medical Treatment:** The subscriber can use the funds to treat specific illnesses affecting themselves, their legally married spouse, children (including adopted children) and dependent parents.

Withdrawal Limits: A subscriber is allowed to make up to 3 partial withdrawals throughout their subscription to the NPS, provided they meet the necessary conditions.

This option allows subscribers to access their accumulated funds for essential life events or emergencies while still maintaining their pension fund for future retirement needs.

In summary, NPS provides multiple options for exit and withdrawal, offering flexibility based on the subscriber's circumstances. Whether it's upon retirement, death, premature exit, or specific life events such as children's education or medical emergencies, the NPS system ensures that subscribers can manage their retirement funds in a manner that aligns with their needs while adhering to the regulations set forth by the PFRDA (PFRDA, 2015).

4.12 Eligibility Criteria in National Pension System

Any Indian citizen, whether a resident or a non-resident, is eligible to join the NPS under the following conditions: The individual must be between the ages of eighteen and sixty years as of the date they submit their application to the Point of Presence (PoP) or PoP Service Provider (PoP-SP) (PFRDA, 2015). To register for the NPS, the subscriber must submit a completed Registration Form along with the necessary KYC documents to their chosen PoP-SP. Upon successful registration, the subscriber will be assigned a unique Permanent Retirement Account Number (PRAN). This PRAN is permanent and will remain the same for the subscriber's entire lifetime allowing them to access and manage their account from anywhere in India (PFRDA, 2015; PFRDA, 2013).

The following documents are required to open an NPS account:

- Two copies of identity proof
- Two copies of address proof
- Proof of date of birth

- A self-declaration stating that the applicant is not already a member of NPS
- A coloured passport-sized photograph (PFRDA, 2015)

Charges in National Pension System

Pension Fund Managers are now permitted to set their own fees with a maximum limit of 0.25 percent, to create a financially sustainable model for their operations. The PFRDA has also recently updated its investment guidelines to enhance the performance of pension fund managers by allowing direct investments in equity and corporate debt rather than through mutual funds, etc. Additionally, new prudential sectoral norms have been introduced for improved risk management (PFRDA, 2023).

The National Pension System provides Indian citizens with an affordable option for retirement planning. With a fee of just 0.0025 percent (based on assets under management) for wealth management, NPS pension funds are among the most cost-effective money managers in the world (PFRDA, 2023). Below are the charges associated with NPS:

Table 4.4 - Revised Pension Fund Manager Charges from April 1, 2021

Slab (₹ in crores)	PFM charges (%)
Up to 10000	0.09
10001-50000	0.06
50001-150000	0.05
150000 and above	0.03

Source: PFRDA 2021

The table above indicates that pension fund manager fees are higher for low-income groups (up to 10,000) compared to other income brackets. It can be concluded that the lowest fees are charged for the group earning above 150000.

Gate Payment way Charges

In the National Pension System (NPS), ‘Gate Payment’ refers to the final settlement of your NPS account when you exit, retire or close the account. Gate payment processing fees are applicable for online contributions and these charges are borne by the customer.

Table 4.5 - Payment Gateway Charges

Sl No	Mode of payment	Gateway charges
1	Rupay debit card	NIL
2	UPI	NIL
3	Net Banking	₹3.5
4	Credit Card	85% of contribution

Source: PFRDA 2021

4.13 Specialties of the National Pension System

- Social Security Scheme:** The National Pension System (NPS) is a voluntary, contribution-based retirement savings system introduced by the Government of India in 2004 (PFRDA, 2004). NPS is designed to provide individuals including private-sector employees and the self-employed with market-linked returns to ensure financial security during retirement. It aims to create a pool of retirement funds for citizens, thus facilitating a more financially secure old age, and is structured to provide flexibility, transparency and portability to the contributors. The system is open to all citizens providing an avenue for everyone to save for retirement.
- Transparency:** One of the most significant advantages of NPS is its transparency. Unlike many other pension systems, NPS operates in a digital ecosystem where all transactions whether contributions, withdrawals or changes are executed online. This means that subscribers have full visibility of their investments and account status. With NPS, subscribers can access detailed information such as the value of their accumulated corpus, the returns from their investments and transaction history. Additionally, the NPS allows tracking of fund performance and offers insights into asset allocation which helps subscribers make informed decisions about their pension savings. This

transparency minimises the risks of mismanagement or fraud and enhances trust in the system.

- **Flexibility:** NPS is designed to be flexible in terms of participation, contributions and investment choices.
 - **Mandatory vs. Voluntary Participation:** For central government employees (excluding armed forces), NPS participation is mandatory if they join after January 1, 2004. For state government employees, participation depends on whether their state has adopted NPS. The effective date for mandatory participation varies by state. For instance, Kerala adopted NPS in 2013. In contrast, NPS is voluntary for private sector employees and self-employed individuals offering flexibility for those who want to opt into the system (PFRDA, 2015).
 - **Contribution Flexibility:** While NPS allows mandatory contributions for employees of the central and state governments, private sector workers and self-employed individuals can choose their level of contribution making it a flexible system based on individual preferences and financial goals (PFRDA, 2015).
 - **Withdrawal Flexibility:** NPS allows partial withdrawals for specific needs like children's education, marriage, treatment for critical illnesses or buying a house. The system provides flexibility to meet individual needs without compromising long-term retirement savings.
- **Combination of Various Systems:** NPS is not just one-size-fits-all; it is a composite system designed to cater to diverse sections of society:
 - **NPS for Government Employees:** As mentioned, participation is mandatory for central government employees (excluding armed forces) and state government employees in states that have adopted NPS. This ensures that public sector employees are provided with a secure retirement option (PFRDA, 2015).
 - **NPS for All Citizens (Unorganised Sector):** This voluntary system is open to all Indian citizens including those in the unorganised sector. It

allows individuals who are not government employees to build a pension corpus for their future (PFRDA, 2015).

- **NPS for Corporate Sector:** This voluntary system is specially designed for employees working in private companies and corporations. It helps create a more financially secure future for corporate employees who may not have a formal pension system in place (PFRDA, 2015).
- **NPS Lite:** NPS Lite is a special system for individuals from vulnerable sections of society. It is a low-cost option designed for those who have a limited income but still wish to secure their retirement. The system is also voluntary and aims to provide pension benefits to the underprivileged (PFRDA, 2015).
- **Individual Pension Account:** One of the key features of NPS is that it is an individual pension account-based system. Each subscriber is issued a Permanent Retirement Account Number (PRAN) which is a unique identifier for tracking their contributions, returns and fund performance. This PRAN remains unchanged for life, even if the individual changes employers or moves to a different city. It allows individuals to accumulate retirement savings and track them across different stages of their career. This individual account system ensures that the responsibility of managing retirement savings lies with the individual providing greater control and transparency over their financial future.
- **Portable Pension Account:** NPS offers portability, meaning subscribers can manage their accounts from anywhere in the country regardless of their employer or location. This is especially beneficial for individuals who change jobs frequently or migrate across different states. The portability of the NPS account allows seamless transitions between sectors (e.g., from central government to corporate sector or state government to central government). This eliminates the need to open new accounts or transfer pension funds when switching jobs or locations ensuring that the retirement savings remain uninterrupted and continue to grow.

- **Switching Facilities:** NPS gives subscribers the flexibility to switch between different fund managers, asset classes or investment systems. If a subscriber is not satisfied with their current fund manager or wants to change their investment strategy (e.g., shifting from equity to debt funds based on market conditions or risk tolerance), they can make the change easily. This flexibility allows individuals to optimise their investments according to their evolving financial goals, market trends or risk appetite.
- **Two-Tier System:** NPS offers two types of accounts that cater to different financial needs:
 - **Tier 1 Account:** This is the primary account for NPS subscribers and is designed to build long-term retirement savings. It is a non-withdrawable account, meaning the funds cannot be accessed until retirement except under specific conditions such as death or disability. The minimum initial contribution to open a Tier 1 account is ₹100 and the minimum contribution per year is ₹1,000. A subscriber can also claim tax benefits of up to ₹50,000 per year under Section 80C of the Income Tax Act (PFRDA, 2015). This account helps build a substantial retirement corpus which is then used to purchase annuities upon retirement.
 - **Tier 2 Account:** This is a voluntary, flexible savings account that allows subscribers to withdraw funds at any time (PFRDA, 2015). It is intended for those who wish to save for short- to medium-term goals while benefiting from the NPS's investment options. There are no mandatory contribution limits for a Tier 2 account but the minimum contribution required to open the account is ₹1,000, and the minimum subsequent contribution is ₹250. Since this account is voluntary, it provides the flexibility to withdraw the accumulated funds as needed without restrictions. However, it does not offer the same tax benefits as the Tier 1 account.
- **Tax Benefits:** One of the attractive features of the NPS is the tax benefits it offers. Contributions to the Tier 1 account are eligible for tax deductions under Section 80C (up to ₹1.5 lakh) and an additional ₹50,000 under Section

80CCD(1B) (PFRDA, 2015). These tax deductions help subscribers reduce their taxable income which in turn lowers their tax liability. This makes the NPS an effective way to save for retirement while also enjoying immediate tax benefits.

In summary, the National Pension System (NPS) is a robust and comprehensive retirement savings system that offers a range of features designed to suit the needs of diverse segments of the population. Its flexibility, transparency, portability and multiple account options make it an attractive and effective way for individuals to plan for their retirement. Whether you are a government employee, a private sector worker or a self-employed person, NPS provides an accessible and reliable means of securing your financial future (PFRDA, 2015).

4.14 Advantages of the National Pension System

- **Flexible System:** The National Pension System offers an exceptionally flexible structure that allows subscribers to customise their investment strategies according to their preferences. With a range of investment options and the ability to choose pension fund managers, subscribers can plan the growth of their investments in a manner that aligns with their financial goals. Importantly, the returns from NPS are completely market-driven, meaning that subscribers' investments are subject to the performance of the financial markets. This market linkage provides the opportunity for potentially higher returns compared to traditional, fixed-income pension systems depending on how the funds are allocated (PFRDA, 2015).
- **Simple System:** The NPS is designed to be easy to understand and use. When a subscriber opens an account, they are assigned a unique Permanent Retirement Account Number (PRAN). This number serves as a lifelong identification for the subscriber, simplifying all future transactions and interactions within the NPS system. The simplicity of this system along with the ease of opening and managing an account makes NPS an accessible and user-friendly option for retirement planning.
- **Choice of Accounts:** The NPS provides flexibility by offering two distinct types of accounts: Tier 1 and Tier 2 accounts allowing subscribers to choose based on their individual needs (PFRDA, 2015).

- **Portable System:** A major advantage of the NPS is its portability. Subscribers can maintain and manage their NPS accounts regardless of changes in jobs or geographic locations. Whether a person moves to a different employer or relocates to a new city, the NPS account remains operational. This portability ensures that individuals can continue contributing to their retirement savings seamlessly without the need to open a new account or transfer funds which provides convenience and continuity for the subscriber.
- **Regulated System:** The NPS is a highly regulated System providing subscribers with confidence and security. All transactions and operations within the NPS are overseen by the Pension Fund Regulatory and Development Authority (PFRDA), a government body responsible for regulating and supervising the pension industry. PFRDA's strict oversight ensures that the NPS is one of the most trusted and transparent retirement savings systems in India. This regulatory framework guarantees that funds are managed in a safe and responsible manner which builds trust among investors.
- **Flexible Investment Options:** The NPS offers a highly flexible investment framework allowing subscribers to select between Auto Choice and Active Choice based on their preferences and risk tolerance (PFRDA, 2015).
- **Tax Benefits:** One of the most significant advantages of the NPS is the EEE (Exempt, Exempt, Exempt) tax treatment which provides substantial tax relief at various stages of the investment process.
- **Long-Term Retirement Planning:** The NPS is particularly well-suited for individuals who are looking to build a significant corpus for retirement. Because contributions to the Tier 1 account are locked until retirement, this encourages consistent saving and investing over the long term. The compound growth potential of investments over time is one of the key advantages of the NPS, as early and regular contributions can lead to substantial wealth accumulation by the time the subscriber reaches retirement age.
- **Low-Cost Structure:** Another notable advantage of the NPS is its cost-effective structure. The system operates with low management fees compared to many other pension and retirement plans. The low administrative and fund management charges help ensure that a greater portion of the subscriber's contributions is invested, maximising the returns over time.

- **Access to Annuity Plans:** Upon reaching retirement, subscribers can use their NPS corpus to purchase an annuity ensuring a steady stream of income after retirement. NPS provides a variety of annuity providers and plans, giving subscribers the flexibility to choose the plan that best suits their income needs and preferences in retirement (PFRDA, 2015).
- **Enhanced Retirement Security:** The NPS is structured to ensure that subscribers build a solid retirement corpus over time. Since contributions are made regularly and the account is non-withdrawable for Tier 1 accounts, it provides the subscriber with a disciplined saving structure that prioritises long-term financial security. This structure ensures that individuals will have enough savings to sustain themselves after retirement.
- **Competitive Returns:** NPS has historically provided attractive returns compared to traditional savings and investment vehicles such as fixed deposits, provident funds and other pension systems. The returns from NPS are market-linked, so they can benefit from the growth of equity and debt markets offering the potential for higher long-term returns. Additionally, the diversified nature of the NPS portfolio helps mitigate the risk of poor performance in any one asset class enhancing the likelihood of more consistent and reliable returns over time.
- **Contribution Flexibility:** The NPS allows subscribers to make contributions at their own convenience with no fixed requirement for minimum contributions. This flexibility is advantageous for individuals who may face fluctuating incomes. They can contribute based on their financial situation ensuring that they continue investing in their retirement without facing penalties for irregular contributions. This adaptability ensures that even individuals with variable cash flow can still take advantage of the system.
- **Low Risk of Default:** The NPS system benefits from robust regulatory supervision by the PFRDA which ensures transparency, efficiency and adherence to guidelines. The government's involvement and the adherence to regulatory standards ensure a low risk of default making it a reliable option for retirement planning. This regulatory framework, combined with the professional fund management offers confidence to subscribers that their money is in safe hands.

- **Government Backing and Trust:** Being a government-backed initiative, the National Pension System provides a level of trust and security that is hard to match. The PFRDA, under the supervision of the Government of India is responsible for overseeing the functioning of the NPS which guarantees that the system operates transparently and with the highest level of accountability. Government backing further assures subscribers that their contributions are safeguarded and that they will not lose their funds.
- **Protection from Market Volatility:** NPS provides an effective way to protect investors from severe market volatility especially with the introduction of risk-based investment options like the Auto Choice plan. In this plan, as individuals grow older, their investments automatically shift from riskier assets such as equities to safer options like debt securities and government bonds. This shift helps to safeguard the fund against market crashes while still benefiting from potentially higher returns when younger. Additionally, the overall cap on equity exposure (50%) reduces the exposure to market swings ensuring a relatively stable growth trajectory.
- **State Government Participation:** Several state governments in India have also adopted the NPS for their employees further enhancing its credibility and reach. State government employees who opt for NPS are provided the same benefits as central government employees including tax benefits and employer contributions. This inclusion by state governments not only increases the adoption of NPS but also showcases its importance as a pension solution for public sector employees.
- **Option to Choose Annuity Provider:** Upon retirement, NPS subscribers can choose from a variety of Annuity Providers. This flexibility allows subscribers to shop for the best available annuity plan based on factors such as return rates, the type of annuity (such as fixed or variable) and the specific terms and conditions provided by the annuity service providers. This choice gives retirees the opportunity to maximise their post-retirement income.
- **Monitoring and Transparency:** The NPS provides transparency by allowing subscribers to regularly monitor their accounts and track the performance of their investments. The online platform offers detailed statements of account which help subscribers stay updated on the status of their funds. This visibility

promotes a sense of control and reassurance as individuals can track their investments and make informed decisions based on their financial goals.

- **Safety of Funds:** The funds invested in the NPS are diversified into a range of instruments such as government bonds, corporate bonds and equities. The professional fund managers ensure that the funds are securely invested and there is a clear framework for the allocation of funds. This diversification spreads risk and provides stability ensuring that the funds are safe from large-scale market crashes.
- **Inclusion of Low-Income Groups:** The NPS is accessible to individuals from all income groups including those in the unorganised sector by allowing them to open accounts with minimal contributions. This inclusivity helps ensure that even individuals with limited income can plan for their retirement enabling broader participation in the retirement savings ecosystem.
- **Financial Literacy Support:** The NPS offers a wide range of tools and resources to help subscribers make informed decisions about their investments. From online calculators to informational brochures, the system is designed to promote financial literacy allowing individuals to better understand the nature of their investments and the risks involved. This support helps empower subscribers to make sound decisions in line with their long-term retirement objectives.
- **Financial Planning for Women:** The NPS is a useful tool for financial planning especially for women who may face career breaks due to reasons such as maternity or family obligations. The flexible contribution schedule and the option to make periodic contributions allow women to save consistently for their retirement even if they face interruptions in their careers. Additionally, women can benefit from NPS's tax incentives and the safety net that comes with a government-backed system.
- **No Upper Limit on Contributions:** Unlike many other pension systems, there is no upper limit on how much can be contributed to the NPS. Subscribers are free to contribute as much as they like subject to their income and financial capacity. This open-ended feature is particularly beneficial for high-income individuals who wish to accelerate their retirement savings and create a more substantial corpus.

- **Encouraging Early Savings:** NPS encourages early saving for retirement by allowing young professionals to start contributing early in their careers. By doing so, they benefit from compounding returns over a longer period leading to a more substantial corpus when retirement time arrives. Starting early can be the key to building a comfortable post-retirement lifestyle and NPS provides the necessary tools to facilitate this.

In summary, National Pension System offers an unparalleled combination of flexibility, security, transparency and tax benefits making it one of the most robust retirement planning tools available. Whether you're a salaried employee, self-employed professional or even someone in the informal sector, NPS accommodates a broad spectrum of individuals with its customizable options and government-backed credibility. With its diverse investment options, ability to generate competitive returns and regulatory safeguards, NPS remains a vital component of retirement planning for millions of people across India.

4.15 Challenges of the National Pension System

- **Uncertainty in Returns:** One of the major challenges of the National Pension System is the lack of guaranteed returns. Unlike traditional investment options such as Employees' Provident Fund (EPF) or bank deposits, NPS does not offer a fixed return on investments. The system's returns are linked to the performance of the stock market and other market-linked securities such as corporate bonds, equities and government bonds. This means that the value of the investment can fluctuate due to market conditions (PFRDA, 2015). While these fluctuations can result in higher returns during favourable market conditions, they can also lead to lower returns or even losses during market downturns. This risk of unpredictability is a significant drawback especially for risk-averse individuals who prefer stability in their investments. The pension received at the time of retirement may therefore be lower than anticipated especially if the stock market experiences a prolonged period of underperformance.
- **Strict Withdrawal Rules:** The withdrawal rules of the NPS are often seen as rigid and restrictive. For instance, when an individual retires, they are required to invest 40% of their accumulated corpus in a pension plan which provides a regular income after retirement (PFRDA, 2015). This mandatory investment

leaves only 60% of the corpus available for withdrawal potentially limiting the amount of money a retiree can access immediately. Additionally, while partial withdrawals are allowed under certain circumstances such as critical illness (e.g., cancer, stroke or kidney failure), marriage or education of children or the purchase/construction of a house, these withdrawals are highly regulated. The subscriber can only withdraw a maximum of 25% of the contributions in these situations and the rules surrounding partial withdrawals can feel restrictive especially if urgent financial needs arise before retirement.

- **Impact of Inflation:** Another significant challenge of the NPS is the impact of inflation over time. Inflation erodes the purchasing power of money which means that the value of the funds accumulated in the NPS may be significantly lower in real terms by the time a person reaches retirement. For example, if a person starts contributing to the NPS at the age of 30, the value of the money they receive at the age of 60 may be much less in terms of purchasing power. The longer the investment period (which could range from 20 to 40 years), the greater the likelihood that inflation will reduce the real value of the returns. This long lock-in period can deter potential investors who are concerned about inflation outpacing the growth of their investments making NPS less appealing as a sole retirement savings vehicle.
- **Retirement Corpus Only Accessible at Retirement:** The NPS system requires that the pension corpus accumulated during an individual's career can only be accessed upon retirement. While this is generally beneficial for long-term financial planning, it also means that individuals are unable to access the majority of their contributions before retirement. This can be a disadvantage for those who may face unforeseen financial emergencies or require liquidity for purposes such as home renovation, healthcare or family needs before retirement. Although partial withdrawals are allowed in certain circumstances, this may not be sufficient for individuals who face financial challenges that don't align with the approved criteria for early withdrawal.
- **Mandatory Employee Contribution:** Unlike some other pension Systems, NPS requires mandatory contributions from the employee. A central government employee is required to contribute 10% of their basic pay, dearness allowance and grade pay to the system, while the employer contributes 14%. Similarly, state government employees must contribute 10%

with the employer matching this contribution. While this mandatory contribution can be beneficial for long-term retirement savings, it may be viewed as a burden for some employees particularly those who already have other financial commitments. Furthermore, for employees in the private sector, the mandatory nature of these contributions may limit their disposable income and flexibility in managing their finances.

- **Market Volatility and Risk:** Another challenge of the NPS is its exposure to market fluctuations. Both the employee's and employer's contributions are invested in market-linked securities which means the value of the fund is subject to the ups and downs of the market. Whether the fund is invested through an Active Choice or Auto Choice, the return depends largely on the performance of equity markets, corporate bonds and other securities. While the potential for high returns exists, the downside is that market volatility can adversely affect the pension corpus especially for those who are more risk-averse. In periods of market downturns, the fund's value can decrease leading to lower-than-expected pension benefits at the time of retirement.
- **Long Lock-In Period:** One of the most significant challenges of the NPS is the long lock-in period associated with it. The system encourages long-term saving and as a result, the contributions made to the NPS are locked until the individual reaches the age of retirement (typically around 60 years). For individuals who start contributing to the system at a young age (e.g., 30 years old), this means that their funds are locked for 30 years or more. This long investment horizon can deter younger people who are looking for more immediate access to their funds or prefer short-term investments. Additionally, this extended lock-in period may lead to a sense of inflexibility, as investors may feel that their money is tied up for too long without the ability to adjust their financial strategies based on changing life circumstances.
- **Limited Investment Choices for Subscribers:** While NPS provides flexibility through Active Choice and Auto Choice options, it still has limited investment choices when compared to other investment avenues like mutual funds, stocks or real estate. Subscribers cannot freely choose individual stocks, bonds or funds for their portfolio. Instead, they are limited to the fund options offered by the authorized pension fund managers (PFMs). While the professional fund managers may help optimise the portfolio based on market

conditions, this lack of complete control over asset allocation might not appeal to investors who prefer to manage their investments actively or those who have specific preferences regarding individual securities.

- **Limited Awareness and Financial Literacy:** One of the challenges faced by the NPS is the limited awareness and financial literacy surrounding the system. Many potential subscribers may not fully understand how the system works or the long-term benefits it offers. This lack of understanding may prevent people from opting for NPS or contributing to it regularly. In addition, some people might not be aware of the tax benefits and other advantages associated with the system which could discourage them from making the most of their retirement savings options.
- **Dependency on Government Regulations:** As NPS is a government-regulated System, it is subject to changes in government policy and regulations. Any modifications in the rules governing the system such as changes in tax benefits, withdrawal conditions or contribution percentages could have a significant impact on the subscriber's investment strategy and return expectations. This dependency on government policies adds an element of uncertainty as any future regulatory changes could potentially affect the benefits and security of the NPS.

In summary, while the National Pension System provides several advantages for long-term retirement savings, it also comes with its fair share of challenges (PFRDA, 2015). These include uncertain returns due to market volatility, rigid withdrawal rules, inflation eroding the value of funds and a long lock-in period. Additionally, the mandatory contribution requirement and limited investment choices may deter some individuals from opting for the system. Nevertheless, for those willing to navigate these challenges and stay committed to a long-term retirement strategy, NPS remains a reliable and secure investment option particularly when combined with other financial planning tools. It is crucial for potential investors to fully understand the risks and constraints of the NPS before making a decision.

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Chapter - 5

PERFORMANCE ANALYSIS OF PENSION FUND MANAGERS AND PENSION SCHEMES UNDER NPS

5.1 Introduction

This chapter provides an in-depth performance analysis of various pension fund managers focusing on evaluations at both scheme level and individual fund manager level. The analysis applies the Sharpe ratio, a well-established financial metric that measures risk-adjusted returns (Sharpe, 1966) allowing for a comprehensive comparison of the efficiency of fund management practices against the inherent risks associated with each scheme. The Sharpe ratio is calculated by taking the difference between the returns of the investment and the risk-free rate and then dividing this figure by standard deviation of the investment returns (Bodie, Kane & Marcus, 2018). This method provides valuable insights into how well the pension fund schemes have performed compared to the amount of risk the fund managers have assumed. A higher Sharpe ratio indicates a more favourable relationship between risk and return showcasing effective fund management (Elton, Gruber, Brown & Goetzmann, 2014). Before looking into the results of this analysis, it is important to outline the specific methodological steps taken throughout the evaluation process. These steps include the selection of relevant pension fund managers and schemes, the collection of performance data and systematic calculation of the Sharpe ratio for each scheme and fund manager following industry-standard analytical practices (Fabozzi & Markowitz, 2011). By detailing these methodologies, the chapter attempts to provide transparency and rigor in the analysis ultimately allowing for a clear understanding of the strengths and weaknesses of different pension fund managers and schemes. The findings will help in informed decision-making process for stakeholders involved in pension fund investments (PFRDA, 2023).

5.2 Data Preparation

In the first step, a comprehensive dataset pertaining to pension funds were gathered focusing on fund managers and various pension schemes spanning from 2015 to 2024 from secondary sources such as Pension Fund Regulatory and Development Authority (PFRDA) and NPS Trust websites. Data such as investment returns which are crucial for evaluating fund performances were gathered (NPS Trust, 2024). Only pension fund managers and schemes with a minimum operational life of five years were selected to ensure consistency, reliability and the availability of sufficient historical performance data (Morningstar, 2022). This criterion helps in

making more meaningful comparisons and evaluations as funds with shorter histories may not provide an accurate reflection of long-term performance trends and risk-return dynamics. To ensure the dataset's integrity, the collected information underwent a thorough cleaning process. This involved identifying and rectifying any inconsistencies such as missing values or outliers and verifying accuracy of the data sources. Additionally, efforts were made to standardise the data format across different schemes and fund managers facilitating seamless analysis in subsequent steps. By the end of this process, the data was structured in a cohesive manner ready for detailed analysis and comparison thereby laying a solid foundation for the following steps of the research.

5.3 Risk-Return Computation

In this step, a thorough analysis was conducted to determine the average return for individual pension fund managers as well as each pension fund scheme. To achieve this, the researcher gathered historical returns data over the selected period allowing to calculate the mean return for each scheme. Next, to assess the level of risk associated with these returns, the standard deviation of the returns was calculated for fund manager and each pension scheme (Reilly & Brown, 2012). The standard deviation serves as a key indicator to volatility highlighting how much the returns deviate from average. A higher standard deviation suggests greater variability in returns indicating a higher level of risk while a lower standard deviation reflects more stable and consistent performance (Bodie et al., 2018). This dual analysis of average return and standard deviation offers a comprehensive view of the risk-return profile for pension fund managers and each pension scheme enabling informed decision-making for investors.

5.4 Calculation of Sharpe Ratio

This step focused on computing the Sharpe ratio which is a critical measure used to assess the performance of different pension fund managers and pension schemes by considering the risks taken to achieve returns. The Sharpe ratio enables the comparison of different pension fund managers and schemes by standardising returns against the risk undertaken. Accordingly the hypothesis H1 and H2 were as follows:

H1: There is a significant difference in the performance of pension fund managers under NPS.

H2: There is a significant difference in the performance of pension schemes under NPS.

To effectively compute the Sharpe ratio, it was first necessary to establish a benchmark for risk-free returns (Damodaran, 2020). For this study, the researcher has selected the government bond yield from 2015 to 2024 as the risk-free rate. This benchmark serves as a comparative baseline allowing to evaluate the excess returns generated by fund managers and various investment schemes. The Sharpe ratio for each fund managers and scheme is derived using the following formula (Sharpe, 1994):

$$\text{Sharpe ratio} = \frac{\text{Average Return} - \text{Risk free rate}}{\text{Standard deviation of return}}$$

By applying this formula, the researcher quantitatively evaluates how well each fund manager and schemes compensate their investors for the risk taken, thus providing valuable insights into the efficiency and effectiveness of their investment strategies (Sharpe, 1994).

5.5 Comparison and Interpretation

In this phase, various individual fund managers' performances and pension fund schemes were thoroughly examined and compared specifically using their Sharpe ratio, a key metric for assessing risk-adjusted returns. The assessment to evaluate individual fund managers' performances provides us to gain insights into their capabilities to generate above-average returns while effectively controlling risk. For evaluating the performance of the pension fund managers, SBI Pension Funds (SBIPF), LIC Pension Fund (LICPF), UTI Retirement Solutions (UTIRSL), Kotak Pension Fund (KotakPF), ICICI Pension Fund (ICICI), Reliance Pension Fund (Reliance), HDFC Pension Fund (HDFC) and Birla Pension Fund (Birla) were considered for the study during the period of 2015-2024 from the website of Pension Fund Regulatory and Development Authority (PFRDA) and NPS Trust. For evaluating the performance of different pension schemes, Central Government (CG), State Government (SG), NPS Lite, Atal Pension Yojana (APY), Corporate CG, Asset

class E, Asset class C, Asset class G, A-1, Asset class E-II, Asset class C-II, Asset class G-II and Tier-II TTS were considered for the study during the period of 2015-2024. The dataset pertaining to pension schemes was gathered from the sources such as the Pension Fund Regulatory and Development Authority (PFRDA) and NPS Trust. By focusing on this criterion, the researcher aimed to identify both high-performing schemes that consistently deliver superior returns relative to their risks as well as those that are underperforming which may not adequately compensate investors for the risks taken (Fabozzi & Markowitz, 2011).

This detailed evaluation is crucial in understanding not only the overall performance of the funds or schemes but also the management strategies employed by each fund manager (PFRDA, 2023). The following sections will present a comprehensive overview of the empirical findings from this analysis. This will also provide a thorough interpretation of the data shedding light on the efficiency and effectiveness of current pension fund management practices. This in-depth analysis will help investors, policymakers and fund managers with valuable information necessary for making informed decision regarding pension fund allocations, investment strategies and potential areas for improvement in fund management approaches.

5.6 Normality Test of Sharpe Ratio

The performance index used in this study is Sharpe ratio. Since Sharpe ratio is a derived metric, its distribution may not be normal. Hence a normality test was performed using Anderson-Darling test for normality.

Table 5.1 - Anderson Darling Normality Test

Test Statistic	p-value
5.2074	<.01

Source: Secondary data

The results presented in Table 5.1 indicates that the Sharpe ratio data is not normally distributed. Anderson–Darling test statistic, $A = 5.207$, $p < .01$. Since the data of the dependent variable is not normally distributed, non-parametric tests will be used for testing the variations in the performance of pension fund managers and pension schemes provided by the National Pension System.

5.7 Performance Evaluation of Pension Fund Managers under NPS

Kruskal-Wallis rank sums test was performed to identify if there exists any significant difference in excess return generated for the level of risk involved in the pension fund managers offered by NPS.

Table 5.2 – Kruskal Wallis Rank Sum Test

Kruskal-Wallis chi-squared	df	p-value
7.801	7	0.3505

Source: Secondary data

H1: There is a significant difference in the performance of pension fund managers under NPS.

The results presented in Table 5.2 indicates that there is no significant difference in the excess returns generated. Since the Chi-squared (7) = 7.801, $p > .05$, the hypothesis H1 is not supported. The results imply that the performance of fund managers do not vary significantly.

5.7.1 Sharpe Ratio Computation of Pension Fund Managers

The Sharpe ratio calculated for evaluating the performance of the pension funds managed by SBI Pension Funds (SBIPF), LIC Pension Fund (LICPF), UTI Retirement Solutions (UTIRSL), Kotak Pension Fund (KotakPF), ICICI Pension Fund (ICICI), Reliance Pension Fund (Reliance), HDFC Pension Fund (HDFC) and Birla Pension Fund (Birla) during the period of 2015-2024 is presented in Table 5.3. It can be observed that all the fund managers produced excellent excess returns per unit of risk. Reliance Pension Fund, although no longer an active or registered Pension Fund Manager under the NPS as per current PFRDA records, has demonstrated superior performance during its tenure. Other fund managers such as HDFC, ICICI and Kotak have also showed commendable risk-adjusted performance making them viable options for investors interested in pension fund investments. The overall statistical analysis reveals that there is no significant difference in the performance of pension fund managers under the National Pension System.

Table 5.3 - Sharpe Ratio Computation of Pension Fund Managers

Pension Fund Managers	Returns	Sharpe ratio
SBIPF	10.30982759	8.764373756
LICPF	10.32991379	8.726377254
UTIRSL	10.30252336	8.793166353
KotakPF	10.225875	8.850259505
ICICI	10.325	9.042113805
Reliance	11.2190625	10.28325969
HDFC	10.79114286	9.476533679
Birla	8.089807692	5.947306507

Source: Secondary data

5.8 Performance Evaluation of Pension Schemes under NPS

Kruskal-Wallis rank sum test was performed to identify if there exists any significant difference in excess risk-adjusted return generated by the pension schemes offered by NPS.

Table 5.4 – Kruskal Wallis Rank Sum Test

Kruskal-Wallis chi-squared	df	p-value
89.412	12	<.01

Source: Secondary data

H2: There is a significant difference in the performance of pension schemes under NPS.

The results presented in Table 5.4 indicate that there exists a significant difference in the excess risk-adjusted returns generated. Since the Chi-squared (12) = 89.412, $p < .01$, the hypothesis H2 is supported. This implies that the performance of pension schemes offered by NPS varies significantly.

5.8.1 Pairwise Comparisons of Pension Schemes

A post hoc pairwise comparison for the Kruskal-Wallis test was performed to identify pension schemes such as Central Government (CG), State Government (SG), NPS Lite, Atal Pension Yojana (APY), Corporate CG, Asset class E, Asset class C, Asset class G, A-1, Asset class E-II, Asset class C-II, Asset class G-II and Tier-II TTS that vary significantly from others in terms of the excess returns generated. The results are presented in Table 5.5 and it can be observed that the performance of Asset Class E-II, Asset Class C-II and Asset Class G-II significantly vary from CG, SG, NPS Lite, APY and Corporate CG. Similarly Tier-II TTS, Asset Class E, Asset Class C, Asset Class G and A-I are also observed to have significant differences when compared to most of the other schemes offered by the National Pension System.

Table 5.5 - Pairwise Comparisons of Pension Schemes

Z	P	Comparisons
-4.11	0.00	1 - 10
-2.43	0.01	1 - 11
1.68	0.05	10 - 11
-3.52	0.00	1 - 12
0.59	0.28	10 - 12
-1.10	0.14	11 - 12
-1.84	0.03	1 - 13
0.96	0.17	10 - 13
-0.19	0.43	11 - 13
0.56	0.29	12 - 13
0.86	0.19	1 - 2
4.97	0.00	10 - 2
3.29	0.00	11 - 2

4.39	0.00	12 - 2
2.42	0.01	13 - 2
0.57	0.29	1 - 3
4.67	0.00	10 - 3
2.99	0.00	11 - 3
4.09	0.00	12 - 3
2.22	0.01	13 - 3
-0.30	0.38	2 - 3
-0.01	0.50	1 - 4
3.72	0.00	10 - 4
2.19	0.01	11 - 4
3.19	0.00	12 - 4
1.74	0.04	13 - 4
-0.79	0.21	2 - 4
-0.52	0.30	3 - 4
0.99	0.16	1 - 5
4.99	0.00	10 - 5
3.35	0.00	11 - 5
4.42	0.00	12 - 5
2.49	0.01	13 - 5
0.15	0.44	2 - 5
0.44	0.33	3 - 5
0.91	0.18	4 - 5

-4.53	0.00	1 - 6
-0.42	0.34	10 - 6
-2.10	0.02	11 - 6
-1.00	0.16	12 - 6
-1.24	0.11	13 - 6
-5.39	0.00	2 - 6
-5.09	0.00	3 - 6
-4.10	0.00	4 - 6
-5.39	0.00	5 - 6
-1.52	0.06	1 - 7
2.59	0.00	10 - 7
0.91	0.18	11 - 7
2.01	0.02	12 - 7
0.81	0.21	13 - 7
-2.38	0.01	2 - 7
-2.08	0.02	3 - 7
-1.37	0.09	4 - 7
-2.46	0.01	5 - 7
3.01	0.00	6 - 7
-3.22	0.00	1 - 8
0.89	0.19	10 - 8
-0.79	0.21	11 - 8
0.31	0.38	12 - 8

-0.35	0.36	13 - 8
-4.08	0.00	2 - 8
-3.78	0.00	3 - 8
-2.91	0.00	4 - 8
-4.12	0.00	5 - 8
1.31	0.10	6 - 8
-1.70	0.04	7 - 8
-2.72	0.00	1 - 9
1.00	0.16	10 - 9
-0.52	0.30	11 - 9
0.47	0.32	12 - 9
-0.19	0.42	13 - 9
-3.51	0.00	2 - 9
-3.24	0.00	3 - 9
-2.50	0.01	4 - 9
-3.56	0.00	5 - 9
1.38	0.08	6 - 9
-1.35	0.09	7 - 9
0.20	0.42	8 - 9

Source: Secondary data

Note: Pairwise comparison of performance by pension schemes offered by NPS. Groups presented in column comparison represents 1 = CG, 2 = SG, 3 = NPS Lite, 4 = APY, 5 = Corporate CG, 6 = Asset Class E, 7 = Asset Class C, 8 = Asset Class G, 9 = A-I, 10 = Asset Class E-II, 11 = Asset Class C-II, 12 = Asset Class G-II and 13 = Tier II TTS.

5.8.2 Sharpe Ratio Computation of Pension Schemes

The Sharpe ratio (Sharpe, 1966; Reilly & Brown, 2012) calculated to measure the performance of different schemes by NPS such as Central Government (CG), State Government (SG), NPS Lite, Atal Pension Yojana (APY), Corporate CG, Asset class E, Asset class C, Asset class G, A-1, Asset class E-II, Asset class C-II and Asset class G-II during the period 2015-2024 is presented in table 5.6 (PFRDA, 2024; Morningstar, 2023). It can be observed that all the pension schemes under the NPS had produced excellent excess return per unit of risk. However, it can be observed that Asset Class E (11.343) stands out as the best pension scheme by offering better risk-adjusted returns than other pension schemes.

Table 5.6 - Sharpe Ratio Computation of Pension Schemes

Pension Schemes	Returns	Sharpe Ratio
CG	10.617	8.45187117
SG	10.58	8.486172041
NPS Lite	10.89	8.761973699
APY	9.14	-7.905161083
Corporate CG	9.69	5.859178198
Asset class E	12.13	11.34361802
Asset class C	10.50	6.669265835
Asset class G	10.32	8.40048469
A-I	7.34	0.185718963
Asset class E-II	11.24	10.41320482
Asset class C-II	9.91	6.216254489
Asset class G-II	10.28	8.409144519

Source: Secondary data

The analysis thoroughly examines the performance of pension fund managers and various pension schemes within the National Pension System during the period

from 2015 to 2024 with a particular emphasis on their risk-adjusted returns. The Sharpe ratio, a well-known financial metric that measures the return of investment compared to its risk was used as the primary tool for this evaluation. This approach allows for a more detailed picture of how effectively different fund managers and pension schemes have provided returns while managing associated risks over the years. Reliance Pension Fund, though previously registered as a Pension Fund Manager under the National Pension System is no longer active or listed among the current PFMs as per the latest records of the PFRDA. While statistical analysis reveals no significant difference in the overall performance of pension fund managers, Reliance Pension Fund emerges as a notable outlier. It demonstrated the highest risk-adjusted returns during its operational period, outperforming its counterparts. The consistently high returns delivered by Reliance, coupled with relatively low investment volatility, underscore its ability to provide investors with both superior returns and portfolio stability. This performance highlights the fund's effective management strategy and its capacity to balance risk and reward efficiently.

Some of the other fund managers such as HDFC, ICICI and Kotak have showed commendable risk-adjusted performance making them viable options for investors interested in pension fund investments. These fund managers have effectively balanced the pursuit of returns with prudent management of risk allowing them to stand out in a competitive landscape. However, Birla's performance was less impressive as reflected by a comparatively lower Sharpe ratio. This suggests that while Birla generated positive returns, they were significantly diminished in relation to the risks taken resulting in a less attractive option for investors. The analysis also examines the performance of various pension schemes categorised by asset classes and specific investment strategies using Sharpe ratio. It was observed that the schemes vary significantly in terms of its performance. Notably, Asset Class E which represents equity investments emerged as the best-performing scheme. This category indicated superior returns that were well-managed in terms of risk demonstrating that equity investments while typically associated with higher risks can yield significant rewards when executed effectively.

Furthermore, Asset Class E-II and the NPS Lite option performed admirably delivering balanced risk-adjusted returns that would appeal to a range of investors. In

contrast, the Atal Pension Yojana (APY) presented a more troubling picture. The analysis indicated that its returns did not adequately compensate for the risks involved rendering it a less favourable option particularly for risk-averse investors who prioritise stable growth over potential high returns. Investors considering these schemes should proceed with caution as their risk-adjusted returns do not stand out relative to other available options.

Given the impressive performance demonstrated by certain Pension Fund Managers, it is evident that effective fund management can serve as a valuable component for investors seeking robust risk-adjusted returns in their pension fund portfolios. Consequently, it would be prudent for investors to consider allocating a portion of their investments to efficient PFMs. Although Reliance Pension Fund stands out as the best-performing pension fund manager by delivering superior risk-adjusted returns compared to others, the overall analysis indicates that there is no statistically significant difference in performance among the pension fund managers under the NPS. The remarkable results from Asset Class E paired with the solid returns from E-II highlight the considerable potential of equity investments within the NPS framework particularly for those investors who possess a higher risk tolerance and are targeting long-term growth horizon.

There is an urgent need for policymakers and fund administrators to critically evaluate the APY's performance and consider strategic measures that could improve either the returns provided or the risk exposure associated with this scheme. While some fund managers and pension schemes have indeed excelled, it remains crucial for investors to embrace diversification across numerous fund managers and asset classes. This strategy not only helps in balance risk but also allows investors to capitalise on opportunities that arise from varying investment strategies and market conditions. In conclusion, the analysis provides insightful revelations regarding the landscape of pension fund management and investment schemes revealing clear leaders among both fund managers and pension schemes. Investors and policymakers can leverage these insights to make informed decisions that enhance portfolio construction and improve the overall effectiveness of pension fund managers and pension schemes under National Pension System.

5.9 Conclusion

Although no statistically significant difference was found in the performance of pension fund managers under the National Pension System from 2015 to 2024, the analysis reveals that Reliance Pension Fund consistently delivered the highest risk-adjusted returns suggesting relatively superior management of returns and volatility compared to its peers. However, it is important to note that Reliance Pension Fund is no longer an active Pension Fund Manager under the NPS as per current PFRDA records. Alternatively, fund managers like HDFC, ICICI, and Kotak demonstrated strong and balanced performance making them viable options for investors seeking stability and moderate growth. Their consistent record of relatively higher Sharpe ratios further reinforces their reputation for efficient risk-adjusted returns, thereby justifying their consideration in long-term pension portfolio strategies.

Among pension schemes, Asset Class E (equity-based) emerged as the best-performing category underscoring the long-term benefits of equity investments for risk-tolerant investors. In contrast, the Atal Pension Yojana delivered weaker risk-adjusted returns signalling the need for policy review to enhance its effectiveness for conservative investors. These insights emphasise the necessity of diversification across fund managers and asset classes and support informed decision-making to improve retirement outcomes and policy effectiveness under the NPS framework.

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Chapter - 6

**ANALYSIS OF NPS BENEFICIARIES'
PERSPECTIVES, ASSESSING FINANCIAL
LITERACY, RETIREMENT FINANCIAL
PLANNING, RETIREMENT CONFIDENCE AND
FINANCIAL DEPENDENCE ON NPS WITH
MEDIATING AND MODERATING ROLES OF
RETIREMENT FINANCIAL PLANNING AND
FINANCIAL DEPENDENCE ON NPS**

6.1 Introduction

The growing prominence of the National Pension System (NPS) as a cornerstone of retirement income necessitates a multidimensional understanding of its beneficiaries and their financial behaviours. Given the increasing responsibility placed on individuals to plan their financial futures under defined contribution schemes like the NPS, financial literacy and retirement planning capabilities are emerging as key determinants of retirement readiness (Lusardi & Mitchell, 2014). This research further investigates the level of financial literacy, retirement financial planning, retirement confidence and the degree of financial dependence on NPS among its beneficiaries.

This chapter is organised into five key sections to systematically address the critical areas of investigation. Section - A presents the demographic profile of NPS beneficiaries providing a foundational context for subsequent analysis. Section - B explores beneficiaries' perspectives on the NPS focusing on savings behaviour, investment choices, engagement patterns, awareness and challenges of NPS which reflect their trust and participation in the scheme (Chatterjee & Rungta, 2021). Section - C assesses financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS factors recognised as essential in ensuring financial security in post-retirement (Lusardi & Mitchell, 2014). Building on these constructs, Section - D examines the mediating role of retirement financial planning in the relationship between financial literacy and retirement confidence. Finally, Section - E examines the moderating effect of financial dependence on the NPS in the above relationship offering insights into how reliance on pension benefits shapes planning efficacy and confidence levels (Hershey et al., 2010). Collectively, these sections provide a comprehensive empirical framework to understand the dynamics of retirement preparedness among NPS beneficiaries.

SECTION - A

DEMOGRAPHIC PROFILE OF NPS BENEFICIARIES

This section delivers the demographic characteristics of the respondents who are the beneficiaries of the National Pension System (NPS). A total of 420 responses were analysed to understand the socio-economic and professional background of the participants. The demographic variables include gender, age, marital status, place of

residence, educational qualification, work experience, type of employment, salary classification and monthly gross income. The data were analysed using descriptive statistical tools such as frequency and percentage analysis to summarise and interpret the responses. To enhance clarity and facilitate easy comparison, the findings are presented in tabular format. This demographic analysis helps to establish in the context of the sample and gives a foundational understanding of the profile of NPS beneficiaries considered in this study. This deeper understanding helps in the development of more focused and effective policies making sure the NPS develops in a way that meets the different needs of people from various social and economic backgrounds. Studying the variations among groups also sets the stage for more detailed comparisons which adds value to the broader understanding of how the NPS works for different demographics of its beneficiaries.

6.2 Profile of NPS beneficiaries

6.2.1 Gender

The gender-wise classification of NPS beneficiaries provides insight into the participation of male and female respondents in the scheme. This analysis helps to understand the gender distribution and representation among the surveyed population.

Table 6.1 – Gender wise classification of the respondents

Gender	Frequency	Percentage
Male	162	38.60%
Female	258	61.40%
Total	420	100.00%

Source: Primary data

Table 6.1 indicates out of the 420 respondents, 162 employees are male (38.6%) and 258 are female (61.4%). This indicates that the sample comprises a higher number of female participants than male suggesting a skewed gender distribution in favour of females. The observed difference provides a clear picture of the gender representation within the surveyed group.

6.2.2 Age

The age-wise classification of NPS beneficiaries offers a clearer understanding of the distribution of respondents across different age groups. This analysis helps to assess the age demographics and potential retirement planning stages of the participants.

Table 6.2 – Age wise classification of the respondents

Age Group	Frequency	Percentage
18 to 30	39	9.30%
31 to 40	333	79.30%
41 and above	48	11.40%
Total	420	100.00%

Source: Primary data

Table 6.2 reveals that a majority of respondents (79.3%) fall within the 31 to 40 age range. This is followed by 48 respondents (11.4%) aged 41 and above and 39 respondents (9.3%) in the 18 to 30 age bracket. The majority being in their thirties suggests that the surveyed workforce is mostly in their mid-career phase. The age distribution provides a clear segmentation of respondents based on generational age groups.

6.2.3 Marital status

The classification of respondents based on marital status provides insight into their personal life stage which can influence financial responsibilities and retirement planning behaviour. This analysis helps to understand the marital composition of NPS beneficiaries.

Table 6.3 - Marital status of the respondents

Marital Status	Frequency	Percentage
Single	60	14.30%
Married	360	85.70%
Total	420	100.00%

Source: Primary data

From the table 6.3, it is clear that among the total 420 respondents surveyed, 360 employees (85.7%) are married while 60 (14.3%) are single. The marital status distribution shows a significant predominance of married employees in the sample. This suggests that most of the employees have settled family lives at the time of data collection. The breakdown helps in understanding the social profile of the participants in terms of their personal status.

6.2.4 Residence

The residence-wise classification of respondents highlights the distribution of NPS beneficiaries across urban and rural areas. This analysis helps to assess the geographic spread and accessibility of the scheme among different population segments.

Table 6.4 – Residence wise classification of the respondents

Residence	Frequency	Percentage
Rural	135	32.10%
Semi urban	210	50.00%
Urban	75	17.90%
Total	420	100.00%

Source: Primary data

From the table 6.4, the residential background of the employees shows that 210 respondents (50%) live in semi-urban areas, 135 (32.1%) in rural areas and 75 (17.9%) in urban locations. The largest share belonging to semi-urban regions indicates a mix of urban and rural representation. This diversity in residence offers a balanced demographic backdrop. The distribution across locations reflects varied socio-geographic representation in the sample.

6.2.5 Education

The education-wise classification of respondents provides an overview of their academic qualifications. This analysis helps to evaluate the educational background of NPS beneficiaries which can influence their financial literacy and retirement planning decisions.

Table 6.5 – Education wise classification of the respondents

Education Level	Frequency	Percentage
Plus-two	11	2.60%
Diploma	9	2.10%
Degree	104	24.80%
Post-Graduation	296	70.50%
Total	420	100.00%

Source: Primary data

Table 6.5 reveals in terms of educational qualifications, 296 employees (70.5%) have completed post-graduation, 104 (24.8%) hold undergraduate degrees while a smaller number have completed Plus Two (2.6%) or a diploma (2.1%). The data indicates that the majority of the respondents are highly educated with more than two-thirds possessing postgraduate degrees. The presence of different educational levels also reflects varied academic exposure. The education profile reveals an academically qualified respondent group.

6.2.6 Experience

The experience-wise classification of respondents reflects the range of their work tenure. This analysis helps to understand how the length of service may impact their awareness, participation and planning for retirement under the NPS.

Table 6.6 – Experience wise classification of the respondents

Experience	Frequency	Percentage
1 to 5 years	225	53.60%
6 to 10 years	166	39.50%
Above 10 years	29	6.90%
Total	420	100.00%

Source: Primary data

From table 6.6, it is clear that out of the total participants, 225 employees (53.6%) have between 1 to 5 years of experience, 166 (39.5%) have 6 to 10 years and 29 (6.9%) have more than 10 years of service. This indicates that more than half of the respondents are relatively early in their careers in terms of work tenure. The

distribution showcases a workforce largely consisting of employees with moderate job experience. The data also reflects a smaller group with long-term experience.

6.2.7 Employment Type

The employment type classification of respondents categorises beneficiaries based on their nature of employment. This analysis provides insight into how different employment sectors are represented among NPS subscribers and may influence their pension preferences and planning.

Table 6.7 – Employment type classification of the respondents

Employment Type	Frequency	Percentage
State government	223	53.10%
Government aided	176	41.90%
Board/Corporation	21	5.00%
Total	420	100.00%

Source: Primary data

From the table 6.7, the employment type of respondents shows that 223 employees (53.1%) are working under the state government, 176 (41.9%) in government-aided institutions and 21 (5%) in boards or corporations. The majority being from state government establishments demonstrates that the public sector forms the core of the sample base. The rest of the sample is drawn from a mix of quasi-government entities.

6.2.8 Salary Class

The salary class classification of respondents categorises beneficiaries according to their income levels. This analysis helps to understand the distribution of NPS subscribers across different salary brackets which may affect their contribution capacity and retirement planning behaviour.

Table 6.8 - Salary class of the respondents

Salary Class	Frequency	Percentage
Group A	197	46.90%
Group B	168	40.00%
Group C	47	11.20%

Group D	8	1.90%
Total	420	100.00%

Source: Primary data

From the table 6.8, it is clear that majority of the respondents fall under Group A (46.9%) in terms of the salary grade distribution which includes employees with a basic pay range of ₹30,000 to ₹2,50,000. This suggests a significant representation from higher-level professional, managerial or administrative roles. Group B, comprising employees with a basic pay range of ₹22,000 to ₹75,000 includes 168 respondents (40%) indicating a substantial portion of mid-level staff. Group C with the basic pay range of ₹16,000 to ₹45,000, representing lower-level employees and accounts for 47 respondents (11.2%). Only 8 respondents (1.9%) belong to Group D, the lowest salary band with a basic pay of ₹14,000 to ₹30,000 often associated with entry-level or support roles. The data reveals a clear stratification with a strong representation from higher and mid-level salary categories (Groups A and B) and relatively fewer respondents from lower salary categories (Groups C and D). This distribution provides insights into the employment grade mix of the sample suggesting that the majority of participants are from relatively higher salaried positions within their organisations.

6.2.9 Monthly Gross Total Income

The classification of respondents based on their monthly gross total income provides detailed insight into their overall earning capacity. This analysis helps to assess the financial strength of NPS beneficiaries which can influence their savings patterns and retirement preparedness.

Table 6.9 - Monthly gross total income of the respondents

Monthly Income Range	Frequency	Percentage
Below 25000	12	2.90%
25000 to 50000	172	41.00%
50000 to 75000	52	12.40%
75000 to 100000	129	30.70%
Above 100000	55	13.10%
Total	420	100.00%

Source: Primary data

Table 6.9 shows that in terms of monthly gross total income, majority of respondents 172 (41%) earn between ₹25,000 - ₹50,000 followed by 129 (30.7%) in the ₹75,000 - ₹1,00,000 range. Additionally, 55 respondents (13.1%) earn above ₹1,00,000, 52 (12.4%) earn between ₹50,000 - ₹75,000 and 12 (2.9%) earn below ₹25,000. This data shows a wide income spread among the employees covering low to high earning groups. This income profile reflects economic diversity within the sample.

Overall, the demographic profile reveal a diversified and economically active respondent base with substantial representation from moderate to high-income, well-educated and mid-career professionals. This diversity ensures that the analysis of pension fund performance, financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS is built upon a demographically robust and contextually grounded foundation.

SECTION - B

Beneficiaries Perspectives on the National Pension System: An Integrated Analysis of Savings Behaviour, Investment Preferences, Engagement Patterns, Awareness and Challenges

The second objective of the study is to know the perspectives of beneficiaries towards the National Pension System (NPS) focusing specifically on their savings behaviour, investment preferences, monitoring patterns, awareness, challenges and overall retirement planning strategies. To align with this objective, a descriptive statistical approach was employed to assess how NPS-enrolled employees interact with the scheme and prepare for their post-retirement financial future. To effectively operationalize this objective, data were collected through a structured questionnaire covering multiple dimensions related to NPS utilisation. By examining variables such as monthly savings outside the scheme, voluntary contributions, fund choice preferences (auto vs. active) and account engagement practices like performance monitoring and withdrawals, the study sheds light on both the financial literacy levels and the degree of proactive involvement among participants. These insights are critical for assessing the effectiveness of the NPS in fostering long-term retirement

security and can inform targeted policy interventions to enhance participation, awareness and informed decision-making among various segments of the workforce.

Furthermore, the study delved into the challenges faced by beneficiaries in navigating the NPS including complexities in fund selection, lack of transparency in account statements, limited access to financial guidance and inadequate awareness about Tier II benefits and withdrawal norms. These barriers often influence the confidence and willingness of employees to make informed retirement decisions. By capturing beneficiaries' perceptions and experiences, the research highlights areas where the NPS framework could be strengthened. Addressing the concerns is essential for fostering trust in the system and encouraging more active and sustained engagement from NPS beneficiaries throughout their working life.

6.3 Savings Behaviour and Retirement Planning Preferences among NPS Beneficiaries

This analysis examines the savings behaviour, investment preferences and retirement planning choices of NPS beneficiaries in general. Understanding these aspects provides valuable insights into how subscribers manage their finances in preparation for retirement and their approach towards long-term financial security.

Table 6.10 - Savings, Investment Preferences and Retirement Planning of NPS Beneficiaries

Category		Frequency	Percentage
Monthly savings other than NPS	Below 5000	200	47.6
	5000 to 10000	100	23.8
	10000 to 20000	59	14.0
	Above 20000	61	14.5
NPS Investment Option	Auto choice	404	96.2
	Active choice	16	3.8

NPS Account	Tier 1	420	100.0
	Both Tier1 & Tier 2	0	0.0
Primary source of fund for retirement	NPS	64	15.2
	Other sources	58	13.8
	Both	298	71.0
Additional voluntary contribution to NPS	Yes	25	6.0
	No	395	94.0
Total		420	100.0

Source: Primary data

Table 6.10 outlines the monthly savings of employees outside the NPS, preferred investment option within the NPS (auto or active choice), the type of NPS account held (Tier 1 or both Tier 1 and 2), sources considered for retirement funding (NPS, other sources or both) and whether employees make additional voluntary contributions. These items provide insight into both the savings capacity and retirement planning preferences of the beneficiaries.

The savings behaviour of employees reveals that 47.6% save less than ₹5,000 per month outside of their NPS contributions indicating that nearly half of the respondents have limited additional monthly savings. A smaller portion, 14.5% manage to save more than ₹20,000 monthly pointing to a minority with substantial additional saving capacity. Regarding investment preferences within the NPS, an overwhelming majority (96.2%) have opted for the auto-choice investment option suggesting a widespread preference for default professionally managed fund allocation rather than active personal involvement. Notably, all employees (100%) have only a Tier 1 NPS account with no respondents maintaining Tier 2 accounts which implies that their usage of NPS is exclusively for long-term retirement savings without the flexibility or liquidity offered by Tier 2.

When considering their retirement funding strategies, 71.0% of employees rely on both NPS and other financial sources reflecting a blended and diversified approach to planning for post-retirement life. Only 15.2% depend solely on NPS while 13.8% rely entirely on other sources showcasing a varied mix in retirement planning preferences. Furthermore, only 6.0% of employees reported making additional voluntary contributions to their NPS account beyond mandatory deductions. This indicates that while there is general engagement with the NPS system, voluntary top-ups are relatively rare possibly due to financial limitations, lack of awareness or satisfaction with the mandatory contributions. Altogether, the data presents a clear picture of a workforce that predominantly favours passive fund management, relies on multiple income streams for retirement and engages conservatively with additional saving options beyond what is required.

6.4 Monitoring, Assessment and Withdrawal Trends among NPS Beneficiaries

This part analyses how NPS beneficiaries engage with their pension accounts through regular monitoring, assessment of fund performance and their approach to withdrawals. Understanding these behaviours provides insights into the level of financial involvement, awareness and retirement preparedness among subscribers. The analysis focuses on three key aspects: monitoring of NPS accounts, assessment of the performance of NPS funds and withdrawal preferences or actions related to the NPS corpus.

Table 6.11 - Monitoring, Assessment and Withdrawal Trends among NPS Beneficiaries

Category		Frequency	Percentage
Monitoring of NPS account	Never	21	5.0
	Rarely	104	24.8
	Occasionally	253	60.2
	Intermittently	23	5.5
	Regularly	19	4.5

Assessment of performance of NPS Fund	Comparing with benchmarks	54	12.9
	Reviewing annual statements	259	61.7
	Consulting with a financial advisor	31	7.4
	Capital appreciation	64	15.2
	No assessment	12	2.9
Withdrawal of NPS fund	Yes	38	9.0
	No	382	91.0
Total		420	100.0

Source: Primary data

Table 6.11 addresses the behavioural engagement of employees with their NPS accounts. It includes questions on the frequency of monitoring their NPS account, methods used to assess fund performance (such as comparing benchmarks, reviewing statements or seeking financial advice etc.) and whether any withdrawals have been made from their accounts. These indicators help to assess how actively or passively beneficiaries interact with their pension investments.

From the above table 6.11, the data illustrates that a significant proportion of employees (60.2%) monitor their NPS accounts only occasionally suggesting that most beneficiaries engage with their retirement accounts on an infrequent, as-needed basis rather than through consistent tracking. Only 4.5% regularly monitor their accounts and 5.5% do so intermittently reflecting a very small segment of proactive subscribers. Additionally, 24.8% of employees rarely check their accounts while 5% never monitor them at all, reinforcing the overall passive nature of engagement with the NPS platform. This limited monitoring may result in reduced awareness about fund performance, policy changes or opportunities for better fund selection.

When it comes to performance assessment of the NPS funds, the majority of employees (61.7%) rely on reviewing their annual statements, a conventional and less

dynamic method of tracking investment progress. A small proportion assess performance through capital appreciation (15.2%) or by comparing with benchmarks (12.9%) indicating limited use of performance analysis or comparative evaluation. Only 7.4% consult with financial advisors pointing to minimal reliance on professional investment guidance. Interestingly, 2.9% of employees reported that they do not assess their NPS performance at all, which could hinder informed decision-making regarding their retirement savings strategy.

Regarding fund withdrawals, a large majority (91%) of employees have not withdrawn from their NPS account, which aligns with the nature of NPS as a long-term retirement-focused investment tool. Only 9% have made withdrawals, possibly due to eligible partial withdrawals or pressing financial needs. The high retention rate of funds underlines the seriousness with which employees regard their NPS corpus and reflects adherence to the system's long-term savings discipline. Overall, the findings reveal a clear trend of limited active involvement in fund tracking and management with most employees showing passive or occasional interest in their NPS accounts, despite the importance of retirement preparedness.

6.5 Awareness and Understanding of NPS Features and Challenges faced by NPS Beneficiaries

Awareness and understanding of NPS features among beneficiaries of NPS has been assessed through several specific factors including features and benefits, tax advantages, differences between Tier 1 and Tier 2 accounts, investment options, withdrawal rules and the enrolment process. Descriptive statistics including mean and standard deviation were used to analyse the awareness levels. Further, a one-sample t-test was conducted to statistically test whether the awareness levels significantly differ from a neutral point of 4 on the 7-point scale.

The challenges in the context of the National Pension System (NPS) captures the range of difficulties experienced by users in navigating and engaging with the scheme. This includes issues such as limited awareness, procedural complexities, inadequate support, confusion over investment choices, concerns about returns and taxation and technological shortcomings. These challenges potentially hinder user participation and satisfaction. To assess the extent and significance of these perceived obstacles, responses were collected using a 7-point Likert scale. Descriptive statistics

and a one-sample t-test were used to evaluate whether these challenges were significantly perceived above the neutral midpoint thereby offering insights into the critical barriers affecting the effective adoption and utilisation of NPS.

Before conducting advanced statistical analyses, it is essential to ensure that the data meet the fundamental assumptions required for such tests. In line with this, preliminary assessments were carried out to examine the normality, reliability and validity of the constructs under study specifically awareness and challenges related to the National Pension System. These assessments help to confirm the appropriateness of applying parametric statistical techniques and establish the robustness and consistency of the measurement instruments used in the study.

6.5.1 Analysis of Normality

To ensure the suitability of data for further statistical analysis, normality tests were conducted on the key constructs of the study. Skewness and kurtosis values were computed to assess the distribution of the data.

Table 6.12 - Skewness and Kurtosis Test for Normality

SI No	Constructs	Skewness	Kurtosis
1	Awareness	-0.255	-1.364
2	Challenges	-1.017	-0.671

Source: Primary data

From the table 6.12, the normality assessment reveals that both constructs awareness and challenges exhibit skewness and kurtosis values within the acceptable range of -2 to +2 as recommended by George and Mallery (2010). The skewness values for Awareness (-0.255) and Challenges (-1.017) suggest a slight leftward distribution, while the kurtosis values of -1.364 and -0.671 respectively indicate a relatively flat distribution compared to the normal curve. Since these values fall within the acceptable limits, the data can be considered approximately normally distributed. This supports the suitability of applying parametric tests for further statistical analysis.

6.5.2 Analysis of Reliability

To assess the internal consistency of the measurement scales used in the study, Cronbach's Alpha reliability test was conducted. This test evaluates how closely related a set of items are as a group and is a key indicator of scale reliability.

Table 6.13 - Cronbach's Alpha Test for Reliability

SI No	Constructs	Number of items	Cronbach's Alpha
1	Awareness	6	0.949
2	Challenges	10	0.983

Source: Primary data

As shown in Table 6.13, the Alpha values for both constructs exceed the recommended threshold of 0.70 as suggested by Nunnally & Bernstein (1994). Specifically, the Cronbach's Alpha for awareness is 0.949 and for challenges it is 0.983 indicating excellent internal consistency. These results confirm that the items within each construct reliably measure the underlying concepts ensuring the robustness of the scale used for data collection.

6.5.3 Analysis of Validity

To examine the validity of the constructs used in the study, Exploratory Factor Analysis (EFA) was conducted by measuring the awareness of the National Pension System and the challenges associated with it. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were applied to assess the appropriateness of the data for factor analysis in the following table 6.14.

Table 6.14 - Exploratory Factor Analysis for Validity using KMO and Bartlett's Test

Sampling Adequacy and Sphericity Tests	Test value
Kaiser-Meyer-Oklin Measure of Sampling Adequacy	.951
Bartlett's Test of Sphericity Approx. Chi Square	9051.717
Degrees of freedom	120
P Value	<0.001

Source: Primary data

As suggested by Nkansah (2018), a Kaiser-Meyer-Olkin (KMO) value greater than 0.60 indicates adequate sampling for factor analysis. The KMO value obtained in this study was 0.951 demonstrating excellent sampling adequacy. Furthermore, Bartlett's Test of Sphericity was conducted to examine whether the correlation matrix significantly differed from an identity matrix. A statistically significant result ($p < .001$) indicated that the correlations among items were sufficient for factor analysis to proceed.

6.5.4 Rotated Component Matrix

To identify the underlying factor structure and enhance interpretability, a Rotated Component Matrix was generated using Varimax rotation. This technique helps in clarifying the factor loadings of each item on the extracted components allowing for a clearer understanding of how variables group together.

Table 6.15 - Rotated Component Matrix

Item Acronym	Component	
	1	2
AWR1	0.890	
AWR2	0.875	
AWR3	0.916	
AWR4	0.860	
AWR5	0.900	
AWR6	0.918	
CHL1		0.920
CHL2		0.940
CHL3		0.921
CHL4		0.931
CHL5		0.920
CHL6		0.938
CHL7		0.941
CHL8		0.943
CHL9		0.943
CHL10		0.929

Source: Primary data

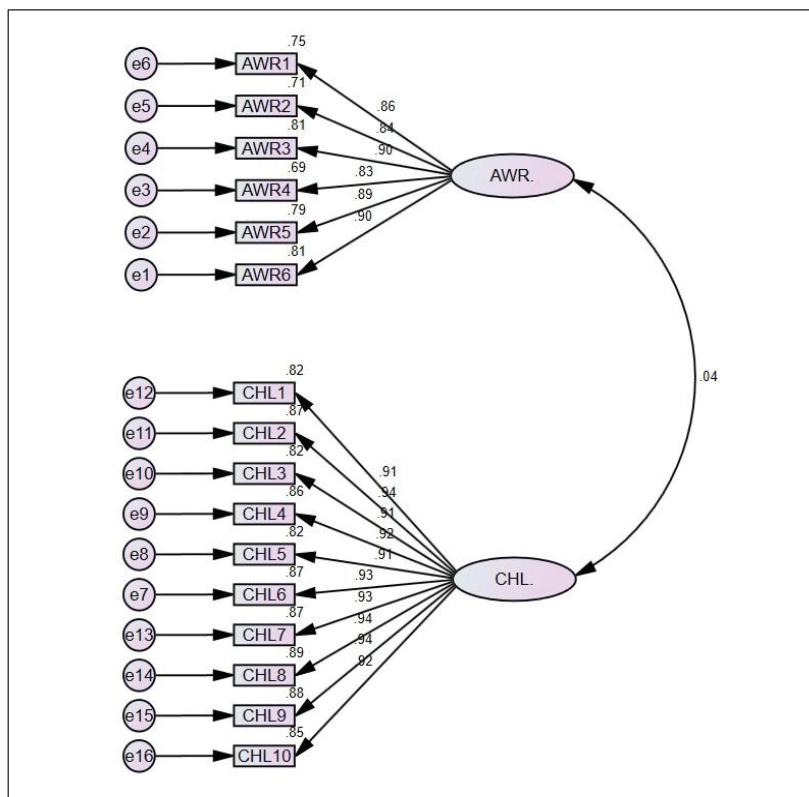
Note: AWR = Awareness, CHL = Challenges

The rotated component matrix presented in Table 6.15 revealed a clear and interpretable two factor solution. All six items related to awareness on the National Pension System (AWR1 to AWR6) loaded highly on component 1 with factor loadings ranging from 0.860 to 0.918, indicating strong internal consistency within this construct. Similarly, the ten items reflecting challenges of the National Pension System (CHL1 to CHL10) loaded strongly on component 2 with loadings between 0.920 and 0.943. These high and distinct loadings across the two components demonstrate good construct validity and minimal cross-loading suggesting that the items reliably measure their intended underlying factors.

6.5.5 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was conducted using AMOS to validate the measurement model and confirm the underlying factor structure identified through Exploratory Factor Analysis. CFA assesses the goodness-of-fit between the observed data and the hypothesized model ensuring construct validity.

Figure 6.1 - Confirmatory Factor Analysis using AMOS



Source: Primary data

Figure 6.1 represents a Confirmatory Factor Analysis (CFA) model output generated using AMOS depicting two latent constructs: Awareness (AWR) and Challenges (CHL), each measured by multiple observed variables (items 6 and 10 each). The CFA model demonstrates that the measurement items for both Awareness and Challenges have good factor loadings indicating strong construct validity.

6.5.6 Convergent Validity and Discriminant Validity

To ensure the robustness of the measurement model both convergent and discriminant validity were assessed. Convergent validity confirms that items intended to measure the same construct are highly correlated while discriminant validity ensures that constructs are distinct from one another.

Table 6.16 - Convergent Validity and Discriminant Validity

Constructs	CR	AVE	MSV	MaxR(H)	AWR	CHL
Awareness	0.950	0.759	0.001	0.952	0.871	
Challenges	0.983	0.856	0.001	0.984	0.035	0.925

Source: Primary data

Convergent and discriminant validity were assessed for the constructs awareness on the National Pension System and challenges of the National Pension System in the table 6.16 as shown above. Both constructs demonstrated strong convergent validity with composite reliability (CR) values of 0.950 for awareness and 0.983 for challenges exceeding the recommended threshold of 0.70. The average variance extracted (AVE) values were 0.759 for awareness and 0.856 for challenges, surpassing the acceptable minimum of 0.50 (Fornell & Larcker, 1981). Discriminant validity was confirmed using the Fornell-Larcker criterion, where the square roots of the AVE values (shown diagonally: 0.871 for awareness and 0.925 for challenges) were greater than the inter-construct correlation (0.035). Additionally, the maximum shared variance (MSV) was lower than the AVE for both constructs further supporting discriminant validity.

6.5.7 Awareness and Understanding of NPS based on underlying factors among its beneficiaries

The assessment is based on underlying factors identified through factor analysis providing insights into how well the NPS beneficiaries comprehend various aspects of the National Pension System.

6.5.7.1 Awareness about Features and Benefits of NPS

This analyses the awareness and understanding of key features and benefits of the National Pension System (NPS) among its beneficiaries.

Table 6.17 - Awareness about Features and Benefits of NPS

Factor	N	Minimum	Maximum	Mean	Standard Deviation
Features and benefits of NPS	420	1	7	4.43	1.984

Source: Primary data

Table 6.17 shows that the mean score for awareness of the features and benefits of NPS is 4.43 with a standard deviation of 1.984 indicating a moderate level of understanding among the employees. The minimum and maximum responses vary from 1 to 7 showing a wide range of awareness levels. A mean value slightly above the neutral point (4) suggests that beneficiaries possess a fair degree of familiarity with the features and benefits. However the relatively high standard deviation implies noticeable variability in their awareness levels.

6.5.7.2 Awareness about Tax Advantages of NPS

This explores the level of awareness among NPS beneficiaries regarding the tax benefits offered by the scheme.

Table 6.18 - Awareness about Tax Advantages of NPS

Factor	N	Minimum	Maximum	Mean	Standard Deviation
Tax advantages of NPS	420	1	7	4.72	1.961

Source: Primary data

Table 6.18 shows that the mean awareness score regarding tax advantages under NPS is 4.72 with a standard deviation of 1.961. This indicates that employees are relatively well-informed about the tax benefits associated with NPS. The mean being considerably above the neutral value reflects a positive awareness trend. Nevertheless the standard deviation suggests that while some employees are highly aware, others still lack detailed knowledge.

6.5.7.3 Awareness about the Differences between Tier 1 and Tier 2 Accounts

This examines the beneficiaries' awareness of the key differences between Tier 1 and Tier 2 accounts under the National Pension System.

Table 6.19 - Awareness about the Differences between Tier 1 and Tier 2 Accounts

Factor	N	Minimum	Maximum	Mean	Standard Deviation
Difference between Tier 1 & Tier 2	420	1	7	4.32	2.03

Source: Primary data

Table 6.19 shows that the mean score for awareness of the differences between Tier 1 and Tier 2 accounts is 4.32 with a standard deviation of 2.03. This shows a moderate understanding among beneficiaries regarding the two types of NPS accounts. The mean slightly above 4 suggests a basic but not deep level of knowledge. The higher standard deviation points to considerable variation in the awareness levels across the sample.

6.5.7.4 Awareness about Investment Choices and Fund Managers under NPS

This assesses the level of awareness among NPS beneficiaries regarding the available investment choices and the role of pension fund managers.

Table 6.20 - Awareness about Investment Choices and Fund Managers under NPS

Factor	N	Minimum	Maximum	Mean	Standard Deviation
Investment choices and fund managers	420	1	7	4.31	1.93

Source: Primary data

Table 6.20 shows that the mean score for awareness about investment choices and fund managers under NPS is 4.31 with a standard deviation of 1.93. This indicates an average level of awareness among employees. Although the mean is marginally above the neutral point, the variation among respondents remains high. Some employees appear to be well-informed while others are relatively unaware of the available investment options.

6.5.7.5 Awareness about the Rules of Withdrawal from NPS

This evaluates the awareness of NPS beneficiaries about the rules and regulations governing withdrawals from the scheme.

Table 6.21 - Awareness about the Rules of Withdrawal from NPS

Factor	N	Minimum	Maximum	Mean	Standard Deviation
Rules of withdrawal	420	1	7	4.25	2.041

Source: Primary data

Table 6.21 shows that the mean awareness score concerning the rules of withdrawal from NPS stands at 4.25 with a standard deviation of 2.041. The results suggest a basic awareness about withdrawal procedures though not very strong. The high standard deviation again reflects a diverse level of understanding among the respondents. Some employees are well-versed with withdrawal rules while others are less familiar.

6.5.7.6 Awareness about the Process of Enrolling in NPS

This explores the level of awareness among beneficiaries regarding the enrolment process for the National Pension System.

Table 6.22 - Awareness about the Process of Enrolling in NPS

Factor	N	Minimum	Maximum	Mean	Standard Deviation
Process of enrolling	420	1	7	4.43	1.968

Source: Primary data

Table 6.22 shows that the mean awareness level for the process of enrolling in NPS is 4.43 with a standard deviation of 1.968. This shows that employees have an above-average understanding of the enrolment process. The mean value indicates positive awareness, though the wide standard deviation suggests variability in how well different respondents understand the process. Overall, there is a fair level of awareness but still scope for improvement.

6.5.7.7 Overall awareness of NPS among the beneficiaries of NPS

This section investigates whether there is a statistically significant difference in the overall awareness of the National Pension System among its beneficiaries.

H3: There is a significant difference in the awareness of NPS among the beneficiaries of NPS.

Table 6.23 - Significant difference in the overall awareness of NPS among the beneficiaries of NPS

Construct	N	Mean	Standard Deviation	t	p value
Overall Awareness	420	4.4095	1.7745	4.72	<.001

Source: Primary data

Based on the results from the one-sample t-test given in the table 6.23, the mean awareness score of employees regarding the National Pension System (M = 4.41, SD = 1.77) was found to be significantly higher than the neutral test value of 4 on the 7-point scale, $t(419) = 4.72, p < .001$. This statistically significant result supports the hypothesis (H3) that employees possess a moderately high level of awareness about the NPS and indicates a statistically significant difference.

The analysis undertaken to address the objective: to know the perspectives of the NPS among the beneficiaries of NPS reveals that employees generally exhibit a moderate level of awareness across various components of the scheme. Item-wise descriptive statistics indicate higher awareness levels in specific areas such as tax advantages (M = 4.72, SD = 1.961) and features and benefits (M = 4.43, SD = 1.984) suggesting that employees are relatively well-informed about the more direct and beneficial aspects of NPS. In contrast, awareness appears to be lower for areas such as

rules of withdrawal ($M = 4.25$, $SD = 2.041$), investment choices and fund managers ($M = 4.31$, $SD = 1.93$) and the difference between Tier 1 and Tier 2 accounts ($M = 4.32$, $SD = 2.03$). These lower scores suggest that more complex or technical features of the system remain less understood by a significant portion of the beneficiaries. Furthermore, the relatively high standard deviations across all items point to substantial variability in awareness likely reflecting disparities in information access, financial literacy or engagement with the NPS framework.

These patterns are further validated by the one-sample t-test which indicates that the overall awareness score is significantly higher than the neutral midpoint of 4 on the 7-point Likert scale, $t(419) = 4.72$, $p < .001$. The combined insights from both descriptive and inferential statistics highlight the importance of strengthening communication and education efforts especially regarding procedural and structural aspects of NPS. By enhancing understanding in these areas particularly investment options, withdrawal policies and account types employees can be better equipped to make informed and confident decisions about their retirement planning under the NPS framework. These findings emphasise the need for targeted educational interventions to bridge the awareness gap particularly in areas such as withdrawal procedures and investment options to enhance overall comprehension and participation in the system.

6.6 Awareness of NPS across Demographic Variables among the Beneficiaries of NPS

The awareness levels of employees across various demographic and employment-related categories in this context are examined using a structured questionnaire that include the key items that capture essential aspects of the National Pension System (NPS) awareness. This analysis helps to contribute a comprehensive representation of the employee's overall awareness ranging from basic scheme aspects to more complex decision-making elements.

To assess whether this awareness differs meaningfully across subgroups, statistical tests were employed. An independent samples t-test was used to compare awareness levels between male and female beneficiaries which allows us to determine if gender plays a significant role in awareness disparities. To extend the analysis across more than two groups such as educational qualifications, years of experience, employment category and salaried class a one-way ANOVA (Analysis of Variance)

was performed. This statistical technique helps to discover whether awareness differs significantly among employees from diverse backgrounds and roles within the public sector.

The rationale for using these tests is to identify any underlying disparities in awareness distribution which can have an impact on how effectively the NPS is communicated and understood by different categories of employees. By identifying such disparities, the study provides actionable insights for policymakers and administrators to build more focused awareness programs.

6.6.1 Awareness of male and female beneficiaries of NPS

This part of the analysis aims to determine whether gender plays a role in the level of awareness about the National Pension System among its beneficiaries. By comparing awareness scores between male and female respondents, the study seeks to identify any significant gender-based differences in understanding NPS awareness. The following hypothesis is tested in this context.

H3a: There is a significant difference in the awareness of NPS between male and female beneficiaries.

Table 6.24 - Awareness of male and female beneficiaries of NPS

Construct	Gender	N	Mean	Standard Deviation	t	p value
Awareness	Male	162	4.379	1.841	-0.273	0.785
	Female	258	4.428	1.734		

Source: Primary data

An independent samples t-test was used to determine whether there is a significant difference in the awareness of National Pension System between male and female beneficiaries (H3a) as shown in table 6.24. The results indicate no statistically significant difference in awareness scores between male (M = 4.38, SD = 1.84) and female (M = 4.43, SD = 1.73) employees, $t(418) = -0.273$, $p = 0.785$. Since the p-value is greater than .05, the hypothesis H3a is not supported suggesting that gender does not play a significant role in determining the level of awareness about NPS

among the beneficiaries. These findings imply a uniform distribution of awareness across male and female respondents within the sample.

6.6.2 Awareness of NPS among employees belonging to different educational qualifications

This part of the study investigates whether awareness of the National Pension System varies significantly among beneficiaries with different educational qualifications. Educational background is a key determinant of financial knowledge and this analysis helps to identify how it influences understanding of NPS features and benefits. The hypothesis tested in this context is:

H3b: There is a significant difference in the awareness of NPS among the beneficiaries from different educational backgrounds.

Table 6.25 - Awareness of NPS among the beneficiaries belonging to different educational qualifications

Construct	Education	N	Mean	Standard Deviation	F value	p value
Awareness	Plus two	11	1.969	.2964	13.286	<.001
	Diploma	9	2.296	.4392		
	Degree	104	4.701	1.8961		
	Post-Graduation	296	4.409	1.6787		

Source: Primary data

Table 6.25 shows that a one-way ANOVA was conducted to test whether there is a significant difference in the awareness of National Pension System among the beneficiaries from different educational backgrounds (H3b). The results revealed a statistically significant difference in awareness levels across the education groups, $F(3, 416) = 13.286, p < .001$. Employees with only Plus Two ($M = 1.97, SD = 0.30$) and Diploma ($M = 2.30, SD = 0.44$) qualifications reported considerably lower awareness compared to those with Degree ($M = 4.70, SD = 1.90$) and Post-Graduation ($M = 4.41, SD = 1.68$) qualifications. These findings support the hypothesis H3b suggesting that educational background significantly influences employees awareness of NPS with higher educational attainment associated with greater awareness.

6.6.3 Tukey HSD Post Hoc Test for Awareness across educational qualifications

Following the identification of a significant difference in awareness levels of NPS across educational qualifications using ANOVA, a Tukey HSD (Honestly Significant Difference) post hoc test was conducted. This test helps determine which specific educational groups differ significantly from one another in terms of their awareness of the National Pension System. The results offer a more detailed understanding of where the differences lie among the various educational categories.

Table 6.26 - Tukey HSD Post Hoc Test for Awareness across Educational Qualifications

Educational Qualification	Mean Awareness Score	Group
Plus Two	1.97	1
Diploma	2.3	1
Post-Graduation	4.46	2
Degree	4.7	2

Source: Primary data

Although the one-way ANOVA revealed a statistically significant difference in NPS awareness among different educational qualification groups, $F(3, 416) = 13.286, p < .001$, the Tukey HSD post hoc test did not identify any pairwise differences that reached statistical significance ($p > .05$ for all comparisons) given in table 6.26. Specifically, the significance values for all group comparisons exceeded .936 indicating that while awareness levels appear different descriptively, these differences are not statistically supported in the post hoc analysis. The grouping output from the Tukey HSD test shows that employees with Plus Two and Diploma qualifications fall under one homogeneous subset (Group 1) while those with Post-Graduation and Degree qualifications form another subset (Group 2) suggesting two general awareness levels based on education. However these groupings are not statistically distinct and the lack of significant differences may be due to unequal and small group sizes particularly in the lower education categories which can limit the test's sensitivity.

6.6.4 Awareness of NPS among beneficiaries belonging to years of experience

This part explores whether the number of years of work experience influences the awareness level of NPS beneficiaries. To examine this, the following hypothesis is tested:

H3c: There is a significant difference in the awareness of NPS among the beneficiaries from different years of experience.

Table 6.27 - Awareness of NPS among the beneficiaries belonging to years of experience

Construct	Experience	N	Mean	Standard Deviation	F value	p value
Awareness	1 to 5 year	225	4.401	1.8252	.934	.394
	6 to 10 year	166	4.346	1.8036		
	Above 10 year	29	4.833	1.0446		

Source: Primary data

A one-way ANOVA was conducted to examine whether there are significant differences in awareness of the National Pension System among employees with varying years of experience (H3c) in table 6.27. The results indicated that the differences in awareness scores across experience groups 1 to 5 years ($M = 4.40$, $SD = 1.83$), 6 to 10 years ($M = 4.35$, $SD = 1.80$) and above 10 years ($M = 4.83$, $SD = 1.04$) were not statistically significant, $F(2, 417) = 0.934$, $p = .394$. Since the p-value is greater than .05, the hypothesis H3c is not supported indicating that years of work experience do not significantly influence awareness levels of NPS among the beneficiaries. These results suggest that awareness of the scheme is relatively consistent across different experience levels within the sample.

6.6.5 Awareness of NPS among beneficiaries belonging to different employment category

This part of the study investigates whether the level of awareness about the National Pension System differs among beneficiaries based on their employment category. To evaluate this, the following hypothesis is tested:

H3d: There is a significant difference in the awareness of NPS among the beneficiaries from different employment sectors.

Table 6.28 - Awareness of NPS among beneficiaries belonging to different employment category

Construct	Employment category	N	Mean	Standard Deviation	F value	p value
Awareness	State Government	223	4.5157	1.8308	0.853	0.427
	Government - Aided	176	4.2860	1.6790		
	Board/Corporation	21	4.3175	1.9564		

Source: Primary data

A one-way ANOVA was conducted to determine whether awareness of the National Pension System differs significantly among employees from different employment categories (H3d) in table 6.28. The analysis revealed no statistically significant differences in awareness levels among state government ($M = 4.52$, $SD = 1.83$), government-aided ($M = 4.29$, $SD = 1.68$) and board/corporation ($M = 4.32$, $SD = 1.96$) employees, $F(2, 417) = 0.853$, $p = .427$. Since the p-value exceeds the .05 threshold, the hypothesis H3d is not supported indicating that the type of employment sector does not significantly influence NPS awareness. These results suggest a relatively uniform level of awareness across various categories of public-sector employment.

6.6.6 Awareness of NPS among beneficiaries belonging to different salaried class

This section examines whether the level of awareness about the National Pension System varies among beneficiaries based on their salaried class. The following hypothesis is tested:

H3e: There is a significant difference in the awareness of NPS among the beneficiaries from different salaried classes.

**Table 6.29 - Awareness of NPS among beneficiaries belonging to different
salaried class**

Construct	Salaried Class	N	Mean	Standard Deviation	F value	p value
Awareness	Group A	197	4.3426	1.6639	11.363	<.001
	Group B	168	4.2996	1.8242		
	Group C	47	5.4787	1.6191		
	Group D	8	2.60833	0.2672		

Source: Primary data

A one-way ANOVA was conducted to examine whether awareness of the National Pension System significantly differs among employees from different salaried classes based on basic pay ranges in table 6.29. The analysis revealed a statistically significant difference in NPS awareness, $F(3, 416) = 11.363, p < .001$. So, the hypothesis H3e is supported. Group C employees (Basic Pay Range: ₹16,000 – ₹45,000) reported the highest mean awareness ($M = 5.48, SD = 1.62$) followed by Group A (₹30,000 – ₹2,50,000; $M = 4.34, SD = 1.66$) and Group B (₹22,000 – ₹75,000; $M = 4.30, SD = 1.82$) while Group D employees (₹14,000 – ₹30,000; $M = 2.61, SD = 0.27$) had the lowest awareness levels. These results suggest that awareness of NPS is not linearly associated with pay scale with mid-level earners (Group C) showing greater familiarity with the scheme compared to both higher and lower salary groups.

6.6.7 Tukey HSD Post Hoc Test for Awareness of NPS across salaried classes

Since the ANOVA test indicated a significant difference in the awareness of NPS among beneficiaries from different salaried classes, a Tukey HSD (Honestly Significant Difference) post hoc test was conducted. This test identifies which specific salary groups differ significantly from one another in terms of their NPS awareness levels providing a clearer understanding of the pairwise comparisons among income categories.

Table 6.30 - Tukey HSD Post Hoc Test for Awareness of NPS across Salaried Classes

Salaried Class Group	Mean Awareness Score	Group
Group D (₹14,000–₹30,000)	2.08	1
Group B (₹22,000–₹75,000)	4.3	2
Group A (₹30,000–₹2,50,000)	4.34	2
Group C (₹16,000–₹45,000)	5.48	2

Source: Primary data

A Tukey HSD post hoc test was conducted following a significant one-way ANOVA result ($F(3, 416) = 11.363, p < .001$) to determine which salaried class groups differ significantly in their awareness of the National Pension System in table 6.30. The post hoc test did not find statistically significant differences at the $p < .05$ level between any two specific groups with the lowest significance level being $p = .069$ between Group C and the others. However, grouping patterns reveal that Group D (₹14,000 – ₹30,000) with the lowest mean awareness ($M = 2.08$) falls into a different homogeneous subset than Groups B ($M = 4.30$), Group A ($M = 4.34$) and Group C ($M = 5.48$) suggesting practical differences even though not statistically confirmed. This aligns with the ANOVA result by highlighting variation in awareness across salary groups especially relatively low awareness among Group D employees, though the post hoc test indicates that the differences are not individually significant at the conventional alpha level.

The analysis addressing the awareness level among the beneficiaries of NPS reveals valuable insights into it, the overall mean scores from the descriptive analysis indicate a moderate to high level of awareness on key aspects of the NPS with relatively greater understanding of tax advantages and features of the scheme and comparatively lower awareness of investment choices and withdrawal rules. Results from the one-sample t-test confirmed that awareness levels are significantly above the midpoint of the scale reinforcing that most beneficiaries possess at least a moderate understanding of the system.

However, subgroup analyses highlight significant disparities in awareness based on educational qualification and salaried class. ANOVA and post hoc results suggest that employees with only secondary education and those in lower salary brackets (particularly Group D: ₹14,000 – ₹30,000) have significantly lower awareness compared to others. No significant differences were found across gender, employment category or years of experience. These findings suggest the need for targeted awareness initiatives especially for less-educated and lower-income employees to ensure equitable access to information and enable informed decision-making regarding NPS participation and benefits.

6.7 Understanding the Perceived Challenges in Adopting NPS

To address the second objective of the study, this section explores the specific challenges and barriers faced by employees in adopting and utilising the National Pension System. The construct of "Challenges" was operationalized through multiple dimensions reflecting user difficulties. These included: lack of awareness about NPS details, complexity of the documentation process for registration, insufficient guidance for resolving NPS-related queries, confusion surrounding investment options and portfolio choices, concerns about the low rate of return, apprehensions over tax implications of withdrawals, inadequacy of digital platforms for account management, lack of promotional and educational outreach, restrictions on early withdrawals creating financial insecurity and perceptions of high administrative costs. Descriptive statistics such as mean and standard deviation were used to analyse responses to each item. Additionally, a one-sample t-test was employed to determine whether the perceived challenges significantly deviate from the neutral midpoint value of 4 on the 7-point Likert scale.

Table 6.31 - Challenges Faced by NPS Beneficiaries: A Descriptive Statistical Analysis

Challenges	N	Minimum	Maximum	Mean	Standard Deviation
Lack of awareness about NPS scheme details.	420	1	7	5.05	2.097
Complexity of the documentation process for registration.	420	1	7	5.18	1.981

Insufficient guidance for resolving NPS-related queries.	420	1	7	5.16	1.851
Confusion surrounding investment options and portfolio choices.	420	1	7	5.09	1.993
Concerns about the low rate of return.	420	1	7	5.12	1.965
Apprehensions over tax implications of withdrawals.	420	1	7	5.07	1.935
Inadequacy of digital platforms for account management.	420	1	7	5.04	1.946
Lack of promotional and educational outreach.	420	1	7	5.16	1.917
Restrictions on early withdrawals creating financial insecurity.	420	1	7	5.13	1.942
Perceptions of high administrative costs.	420	1	7	5.03	1.990

Source: Primary data

The descriptive analysis of employee challenges regarding the National Pension System reveals a consistently high level of concern across multiple areas with all mean scores exceeding the neutral midpoint of 4 on a 7-point Likert scale in table 6.31. The highest challenge identified was the complexity of the documentation process for registration ($M = 5.18$, $SD = 1.981$) closely followed by insufficient guidance for resolving NPS-related queries ($M = 5.16$, $SD = 1.851$) and a lack of promotional and educational outreach ($M = 5.16$, $SD = 1.917$). These findings indicate that procedural difficulties and lack of support mechanisms significantly hinder user engagement with the system. The lowest-rated challenge, though still above the neutral point was concerns over administrative costs ($M = 5.03$, $SD = 1.990$) suggesting that while perceived costs are a factor, they may be less pressing compared to other informational or procedural issues.

Furthermore, the challenges related to lack of awareness about NPS scheme details ($M = 5.05$, $SD = 2.097$), confusions surrounding investment options ($M = 5.09$, $SD = 1.993$) and concerns over tax implications of withdrawals ($M = 5.07$, $SD = 1.935$) highlight informational gaps that contribute to uncertainty and dissatisfaction among employees. The high standard deviations across items indicate variability in how employees perceive these challenges, possibly influenced by individual experiences or institutional support. Overall, the findings highlight the need for simplified processes, better communication and increased user assistance to improve the accessibility and effectiveness of the NPS. These results provides valuable insights for policymakers and administrators aiming to improve employee participation and satisfaction with the system.

6.7.1 Significant difference of overall challenges faced by the beneficiaries of NPS

This section analyses whether there are significant differences in the overall challenges experienced by beneficiaries of the National Pension System. The following hypothesis is tested:

H4: There is a significant difference in the challenges faced by the beneficiaries of NPS.

Table 6.32 - Significant difference of challenges faced by the beneficiaries of NPS

Construct	N	Mean	Standard Deviation	t	p value
Overall Challenges	420	5.104	1.8295	12.367	<.001

Source: Primary data

From table 6.32, it is clear that a one-sample t-test was used to determine whether the perceived challenges faced by employees regarding the National Pension System significantly differ from the neutral midpoint of 4 on a 7-point scale. The results revealed that the mean challenge score ($M = 5.10$, $SD = 1.83$) was significantly greater than the neutral value, $t(419) = 12.37$, $p < .001$ indicating a statistically significant difference. So, the hypothesis H4 is supported. This statistically significant outcome indicates that employees perceive a substantial level of difficulty in several aspects of the NPS plan. The elevated mean score indicates that respondents generally

experience challenges such as lack of awareness, complex documentation, insufficient guidance, confusing investment options and concerns about tax implications and administrative expenditures. The findings reinforce the view that these barriers can hinder employee participation and satisfaction with the NPS. As a result, targeted interventions aiming at simplifying procedures, enhancing awareness and providing better support mechanisms are critical to address these challenges and improving the overall experience of NPS beneficiaries. The one-sample t-test further substantiates these findings by confirming that the overall mean challenge score is significantly higher than the neutral point on the 7-point Likert scale indicating a clear and statistically significant perception of difficulty among beneficiaries ($t(419) = 12.37, p < .001$). Taken together both the descriptive and inferential results underscore a critical need for intervention. To improve employee participation and satisfaction, it is imperative that policymakers and scheme administrators implement targeted strategies aimed at simplifying enrolment procedures, offering continuous guidance and education and enhancing the transparency and accessibility of scheme features. By addressing these pressing concerns, the NPS can be made more user-friendly thereby empowering employees to make confident and informed decisions regarding their retirement planning.

6.8 Conclusion

The analysis reveals that NPS beneficiaries predominantly exhibit passive savings and engagement behaviours, limited discretionary contributions and low financial involvement patterns closely linked to inadequate financial literacy, procedural complexities and insufficient institutional support. Significant demographic variations in awareness especially by gender, education, experience and income further highlight disparities in NPS comprehension. Additionally, the scheme faces critical operational barriers including complex documentation, poor guidance and limited digital infrastructure, all of which significantly deter active participation. These findings underscore the urgent need for targeted policy interventions including educational outreach, simplified processes and user-centric digital enhancements to promote informed engagement and optimise retirement outcomes under the NPS.

SECTION - C

Assessing the Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on NPS among the Beneficiaries of NPS

Assessing the financial preparedness of individuals is critical in understanding their ability to achieve retirement security especially within the contributory pension frameworks like the National Pension System (NPS). Financial literacy is defined as the ability to understand and effectively use financial skills including personal financial management and investing plays a foundational role in shaping retirement planning behaviour (Lusardi & Mitchell, 2014). Equally important is retirement financial planning which involves setting goals, estimating future expenses and allocating resources to ensure a stable post-retirement life (Hershey, Jacobs-Lawson, & Austin, 2013). Retirement confidence is individuals' belief in their ability to maintain financial well-being after retirement is another crucial factor influencing engagement with pension schemes (Yakoboski & Lusardi, 2020). Furthermore, the degree of financial dependence on the NPS reflects how heavily individuals rely on this system as their primary retirement income source underscoring the importance of evaluating these constructs holistically. This section explores these four dimensions among NPS beneficiaries along with demographics to provide a comprehensive understanding of their financial preparedness and behavioural patterns in retirement planning.

6.9 Foundational Data Checks: Normality, Reliability and Validity

Before proceeding with advanced statistical analysis, it is crucial to assess the foundational assumptions of the data particularly its distribution, consistency and validity. To this end normality, reliability and validity tests were conducted for the key constructs of the study Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on the National Pension System. These preliminary evaluations ensure that the data is suitable for parametric testing, the measurement instruments are internally consistent and the results are not significantly influenced by common method bias. The outcomes of these assessments are presented in the following sections.

6.9.1 Analysis of Normality

Assessing the normality of data distribution is a fundamental step in preparing for parametric statistical analyses as many advanced techniques assume that the data follow a normal distribution. Skewness and kurtosis are commonly used indicators to evaluate the shape and symmetry of the data distribution.

Table 6.33 - Skewness and Kurtosis Test for Normality

SI No	Constructs	Skewness	Kurtosis
1	Financial Literacy (FLIT)	-0.408	-1.024
2	Retirement Financial Planning (RFP)	-0.504	-1.059
3	Retirement Confidence (RC)	-0.266	-0.896
4	Financial Dependence on NPS (FD NPS)	-0.370	-0.931

Source: Primary data

From the table 6.33, the normality assessment reveals that all the constructs exhibit skewness and kurtosis values within the acceptable range of -2 to +2 as suggested by George and Mallery (2010). The skewness values for Financial Literacy (FLIT), Retirement Financial Planning (RFP), Retirement Confidence (RC) and Financial Dependence on the National Pension Scheme (FD NPS) range between -0.504 and -0.266 while the kurtosis values fall between -1.059 and -0.896. These values indicate that the data distribution does not significantly deviate from normality justifying the use of parametric tests for further statistical analysis.

6.9.2 Analysis of Reliability

Assessing the reliability of measurement instruments is essential to ensure that the constructs used in the study consistently reflect the underlying theoretical concepts. Cronbach's Coefficient Alpha is a widely accepted statistical measure for evaluating the internal consistency of scale items.

Table 6.34 - Cronbach's Co-efficient Alpha

SI No	Constructs	Number of items	Cronbach's Alpha
1	Financial Literacy (FLIT)	8	0.958
2	Retirement Financial Planning (RFP)	10	0.978
3	Retirement Confidence (RC)	5	0.972
4	Financial Dependence on NPS (FD NPS)	7	0.948

Source: Primary data

As shown in Table 6.34, the Alpha values for all four factors exceeded 0.70 which is the suggested criterion threshold by Nunnally & Bernstein (1994). Specifically Financial Literacy (0.958), Retirement Financial Planning (0.978), Retirement Confidence (0.972) and Financial Dependence on NPS (0.948) all demonstrate high reliability. These results confirm that the scale exhibits strong internal consistency and reliability implying that the items within each construct effectively assess their intended concepts.

6.9.3 Analysis of Validity

To ensure the validity of the data and to examine whether the findings are influenced by measurement bias, Harman's Single Factor Test was conducted. This test assesses the extent to which common method variance may bias the results which is particularly important in studies relying on self-reported survey data.

Table 6.35 - Harman's Single Factor Test for Common method bias

Total number of items	Percentage of variance explained
30	38.86%

Source: Primary data

The results in Table 6.35 indicate that a single factor explains 38.86% of the total variance. Since this value remains below the 50% threshold (Cooper et al., 2020), it suggests that common method bias is not a concern in this study. So the data

does not exhibit significant common method variance ensuring the reliability of the collected responses.

6.9.4 Exploratory Factor Analysis

An exploratory factor analysis was conducted on the questionnaire items to validate the constructs related to Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on the National Pension System presented in table 6.36 below.

Table 6.36 - KMO and Bartlett's Test of Sphericity

Sampling Adequacy and Sphericity Tests	Test value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.935
Bartlett's Test of Sphericity Approx. Chi Square	15425.793
Degrees of freedom	435
P Value	<0.001

Source: Primary data

According to Nkansah (2018), a Kaiser-Meyer-Olkin (KMO) measure above 0.6 indicates good factor suitability. In this study, the KMO measure of sampling adequacy is 0.935 confirming that the sample size is suitable for factor analysis.

Bartlett's Test of Sphericity was applied to assess the multivariate normality of the dataset. This test evaluates the null hypothesis that the initial correlation matrix is an identity matrix which would make factor analysis ineffective (Bartlett, 1950). A p-value below 0.05 indicates that the data significantly differs from an identity matrix. As shown in Table 6.36, the p-value is less than 0.001 confirming that the dataset is suitable for factor analysis.

6.9.5 Rotated Component Matrix

To clarify the underlying structure of the measurement instrument, a Varimax-rotated Component Matrix was performed and the results are summarized in Table 6.37 below.

Table 6.37 - Rotated Component Matrix

Item Acronym	Components			
	1	2	3	4
FLIT1	0.816			
FLIT2	0.859			
FLIT3	0.864			
FLIT4	0.847			
FLIT5	0.878			
FLIT6	0.837			
FLIT7	0.846			
FLIT8	0.825			
RFP1		0.866		
RFP2		0.875		
RFP3		0.869		
RFP4		0.847		
RFP5		0.889		
RFP6		0.921		
RFP7		0.901		
RFP8		0.900		
RFP9		0.879		
RFP10		0.888		
RC1			0.944	
RC2			0.918	
RC3			0.909	
RC4			0.906	

RC5			0.936	
FD NPS1				0.864
FD NPS2				0.855
FD NPS3				0.845
FD NPS4				0.877
FD NPS5				0.884
FD NPS6				0.890
FD NPS7				0.888

Source: Primary data

From the above table 6.37, the extraction of four factors with eigenvalues exceeding 0.5 representing the variance explained by each factor. As per the Kaiser rule, components with eigenvalues below 0.5 were excluded from the study (Kaiser, 1960). The communalities of the original items range from 0.816 to 0.944 indicating that these four factors effectively capture the variance of the original measures (Hair et al., 2010). A Varimax Rotation was applied to enhance factor differentiation ensuring a clear allocation of items to their respective constructs. The Rotated Component Matrix verifies the extraction of four unique factors: Financial Literacy (FLIT) (Factor 1), Retirement Financial Planning (RFP) (Factor 2), Retirement Confidence (RC) (Factor 3) and Financial Dependence on NPS (FD NPS) (Factor 4). These findings support the validity of the constructs indicating that the questionnaire items appropriately load onto their respective factors.

6.9.6 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) is a multivariate statistical technique used to determine the extent to which the observed variables accurately represent their underlying constructs (Brown, 2015; Kline, 2016). In this study, the four components identified through Exploratory Factor Analysis (EFA): Financial Literacy (FLIT), Retirement Financial Planning (RFP), Retirement Confidence (RC) and Financial Dependence on NPS (FD NPS) are further validated using CFA. To measure model fit, numerous fit indices are considered including the relative normed Chi-square (χ^2/df) which should ideally be below five for a well-fitting model (Bentler, 1989;

Marsh & Hocevar, 1985). Additional fit indices such as the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Normed Fit Index (NFI) and Root Mean Square Error of Approximation (RMSEA) are also evaluated (Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Müller, 2003). A satisfactory model fit suggests that the proposed measurement model appropriately captures the relationships between the observed items and their respective constructs. The results from CFA will further strengthen the construct validity and reliability of the measurement model confirming its suitability for hypothesis testing.

Table 6.38 - Model fit measures

Measure	Estimate	Threshold	Citation	Interpretation
CMIN	1257.414	--		--
DF	396	--		--
P value	<.001			
CMIN/DF	3.175	Between 1 and 3	(Kenny, Kaniskan, & McCoach, 2015)	Acceptable
CFI	0.944	>0.90	(Hu & Bentler, 1999)	Acceptable
GFI	0.841	>0.80	(Hooper et al. 2008)	Acceptable
AGFI	0.814	>0.80	(Gefen et al. 2003)	Acceptable
NFI	0.921	>0.80	(Hooper et al. 2008)	Acceptable
SRMR	0.045	<0.08	(Hu and Bentler 1999)	Excellent
RMSEA	0.072	<0.08	(Hu and Bentler 1999)	Acceptable

Source: Primary data

Note: CMIN = Minimum fit function chi-square; DF = Degrees of freedom; CMIN/DF = Chi-square/degrees of freedom ratio; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; CFI = Comparative Fit Index; NFI = Normed Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation (Hu & Bentler, 1999; Kline, 2016; Schermelleh-Engel, Moosbrugger, & Müller, 2003).

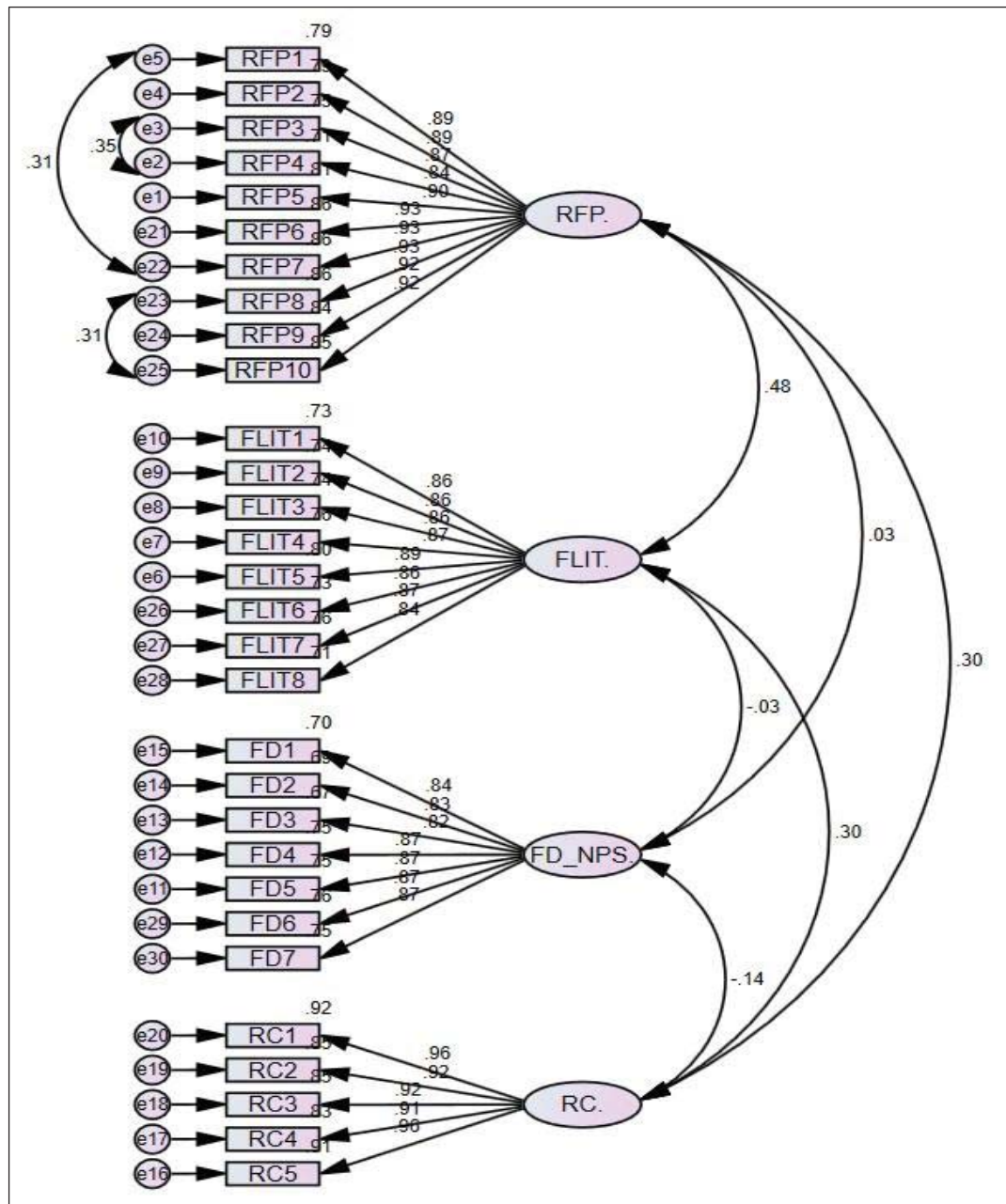
The model fit indices presented in Table 6.38 suggest that the measurement model demonstrates an acceptable to excellent fit with the observed data. The chi-square statistic (CMIN = 1257.414, $p < .001$) is significant which is common in large samples. The chi-square to degrees of freedom ratio (CMIN/DF = 3.175) is slightly above the ideal range of 1 to 3 but still considered acceptable (Kenny, Kaniskan, & McCoach, 2015) indicating a reasonable model fit. The Comparative Fit Index (CFI =

0.944) and Normed Fit Index (NFI = 0.921) both exceed the recommended thresholds (>0.90 and >0.80, respectively) suggesting a good fit (Hu & Bentler, 1999; Hooper et al., 2008). The Goodness of Fit Index (GFI = 0.841) and Adjusted Goodness of Fit Index (AGFI = 0.814) also surpass the minimum acceptable threshold of 0.80, supporting model adequacy (Hooper et al., 2008).

Furthermore, the Standardised Root Mean Square Residual (SRMR = 0.045) is significantly lower than the cut-off of 0.08 indicating an excellent model fit (Hu & Bentler, 1999). The Root Mean Square Error of Approximation (RMSEA = 0.072) also falls within the acceptable range (<0.08), further indicating a satisfactory model fit. Overall, these fit indices validate that the proposed measurement model provides a reliable representation of the constructs measured: Financial Literacy (FLIT), Retirement Financial Planning (RFP), Retirement Confidence (RC) and Financial Dependence on NPS (FD NPS) and thus appropriate for proceeding with hypothesis testing.

The Confirmatory Factor Analysis (CFA) output generated using AMOS, illustrating the measurement model for four latent constructs: Financial Literacy (FLIT), Retirement Financial Planning (RFP), Retirement Confidence (RC) and Financial Dependence on the National Pension System (FD NPS) are given below.

Figure 6.2 - Confirmatory Factor Analysis using AMOS



Source: Primary data

Figure 6.2 represents a Structural Equation Model (SEM) output generated using AMOS depicting four constructs: Financial Literacy (FLIT), Retirement Financial Planning (RFP), Retirement Confidence (RC) and Financial Dependence on NPS (FD NPS), each measured by multiple observed variables (8, 10, 5, and 7 items respectively). The model demonstrates that the measurement items for all the four constructs results in high standardised factor loadings (mostly above 0.80) indicating strong convergent validity and reliable measurement of the latent variables. The

structural paths reveal that Financial Literacy (FLIT) has a strong positive influence on Retirement Financial Planning (RFP) ($\beta = 0.48$) and a moderate positive effect on Retirement Confidence (RC) ($\beta = 0.30$) demonstrating the crucial role of financial literacy in planning and confidence related to retirement. RFP also positively affects RC ($\beta = 0.30$) reinforcing the mediating role of planning in achieving retirement confidence. However, the paths from FLIT to FD NPS ($\beta = -0.03$) and from FD NPS to RC ($\beta = -0.14$) are weak suggesting that fund related decisions under NPS have a limited role in influencing retirement confidence in this model. Overall, the model provides evidence, supporting the importance of financial literacy and planning in enhancing retirement confidence as well as the extent to which financial dependence on NPS influences this pathway.

6.9.7 Discriminant Validity and Convergent Validity

In structural equation modelling, it is essential to evaluate whether the constructs are both conceptually distinct from one another (discriminant validity) and internally consistent in measuring the same underlying concept (convergent validity). This section assesses these two forms of construct validity to confirm the soundness and reliability of the measurement model used in the study.

Table 6.39 - Discriminant Validity and Convergent Validity of the Constructs

Constructs	CR	AVE	MSV	MaxR(H)	RFP	FLIT	FD NPS	RC
RFP	0.977	0.813	0.229	0.979	0.901			
FLIT	0.959	0.744	0.229	0.959	0.479***	0.863		
FD NPS	0.949	0.725	0.021	0.950	0.032	-0.031	0.851	
RC	0.972	0.873	0.091	0.975	0.299***	0.302***	- 0.145***	0.934

Source: Primary data

The model estimates psychometric properties of the four constructs: Financial Literacy (FLIT), Retirement Financial Planning (RFP), Retirement Confidence (RC) and Financial Dependence on NPS (FD NPS) as shown in Table 6.39. The standardised regression weights between the indicators and constructs exceed the recommended 0.50 threshold indicating strong relationships (Hair et al., 1998). The

Average Variance Extracted (AVE) values for all constructs exceed the 0.50 minimum criterion (Hair et al., 2010) indicating that each construct explains a substantial proportion of variance in its respective indicators. Furthermore, the Composite Reliability (CR) values for each construct exceed 0.70 indicating satisfactory reliability (Hair et al., 2010). The Maximum Reliability (MaxR(H)) values further support the internal consistency of the constructs.

The discriminant and convergent validity results of the constructs demonstrates the robustness of the measurement model. Discriminant validity is verified when the AVE of each construct exceeds its Maximum Shared Variance (MSV) (Fornell & Larcker, 2016). As shown in Table 6.39, all constructs meet this criterion demonstrating that the constructs are distinct from one another. Furthermore, convergent validity is supported as all AVE values exceed 0.50 (Chin et al., 1998; Ding et al., 1995) which ensures that the items within each construct strongly relate to their corresponding latent variables.

Overall, the results demonstrate that the measurement model is robust with valid and reliable constructs representing Financial Literacy (FLIT), Retirement Financial Planning (RFP), Retirement Confidence (RC) and Financial Dependence on NPS (FD NPS). These findings suggest the construct validity and reliability necessary for further structural analysis.

6.10 Assessment of Financial Preparedness and Dependence on NPS among the Beneficiaries of NPS

To examine the third objective to assess the financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS among the beneficiaries of the National Pension System, a detailed analysis was performed using descriptive statistics and one-sample t-test. This statistical technique is particularly useful for determining whether the mean scores of these constructs significantly differ from a specified test value, in this case, the neutral midpoint of 4 on a 7-point Likert scale. The use of the one-sample t-test allows for determining whether the beneficiaries exhibit levels of literacy, planning, confidence or dependency that are significantly higher or lower than this neutral benchmark. This approach gives insight into whether the beneficiaries are well prepared and confident

in their retirement financial decisions as well as the extent to which they rely on the NPS for future financial security. The hypotheses tested in this context are:

H5: There is a significant difference in financial literacy among the beneficiaries of NPS.

H6: There is a significant difference in retirement financial planning among the beneficiaries of NPS.

H7: There is a significant difference in retirement confidence among the beneficiaries of NPS.

H8: There is a significant difference in financial dependence on NPS among the beneficiaries of NPS.

Table 6.40 Descriptive Statistics of Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on NPS

Constructs	N	Minimum	Maximum	Mean	Standard Deviation
Financial Literacy	420	1.38	6.75	4.5896	1.4737
Retirement Financial Planning	420	1.30	6.90	4.7048	1.5570
Retirement Confidence	420	1.20	6.80	3.8786	1.3872
Financial Dependence on NPS	420	1.57	6.57	4.4986	1.2928

Source: Primary data

Table 6.41 - Mean Differences in Financial Literacy, Retirement Financial Planning, Retirement Confidence and Financial Dependence on NPS among NPS beneficiaries

Constructs	t	df	p value	Mean Difference
Financial Literacy	8.199	419	0.000	0.5895

Retirement Financial Planning	9.276	419	0.000	0.7047
Retirement Confidence	-1.794	419	0.074	-0.1214
Financial Dependence on NPS	7.904	419	0.000	0.4986

Source: Primary data

The descriptive statistics in table 6.40, supported by the one-sample t-test results provide a comprehensive understanding of the beneficiaries' standing in four key areas: financial literacy, retirement financial planning, retirement confidence and financial dependence on the National Pension System. Financial literacy ($M = 4.59$, $SD = 1.47$) and retirement financial planning ($M = 4.70$, $SD = 1.56$) both reported means above the neutral midpoint value of 4 on a 7-point scale. These findings were further validated by the one-sample t-test which showed statistically significant positive differences from the test value, $t(419) = 8.20$, $p < .001$ and $t(419) = 9.28$, $p < .001$ respectively shown in table 6.41. This confirms that beneficiaries are not only relatively informed but also actively involved in preparing for retirement. In contrast, the mean score for retirement confidence ($M = 3.88$, $SD = 1.39$) fell just below the midpoint and the one-sample t-test did not find a statistically significant difference, $t(419) = -1.79$, $p = .074$. This implies that beneficiaries neither feel strongly confident nor strongly unprepared about their retirement reflecting a sense of uncertainty. Meanwhile, financial dependence on NPS ($M = 4.50$, $SD = 1.29$) was found to be significantly above the midpoint, $t(419) = 7.90$, $p < .001$ indicating that beneficiaries largely view NPS as a vital component of their post-retirement income. Together, these results suggest that while beneficiaries are informed and engaged in planning, their actual confidence in retirement outcomes is relatively modest highlighting a critical area for policy intervention and employee support initiatives.

From the table 6.41, the results of the one-sample t-test found significant differences for three of the four variables under investigation. Financial literacy among NPS beneficiaries was found to be considerably higher than the neutral point (M difference = 0.5895), $t(419) = 8.199$, $p < .001$ supporting the hypothesis H5. Similarly, retirement financial planning demonstrated a statistically significant difference above the midpoint (M difference = 0.7047), $t(419) = 9.276$, $p < .001$ thereby supporting the hypothesis H6. These findings indicate that NPS beneficiaries possess relatively strong financial knowledge and are actively involved in planning

for their retirement which are essential traits for ensuring long-term financial well-being. In addition, the level of financial dependence on the NPS was significantly higher than the neutral point (M difference = 0.4986), $t(419) = 7.904$, $p < .001$ thereby supporting the hypothesis H8. This result suggests that many employees place considerable reliance on the NPS as a major component of their retirement income highlighting the scheme's critical role in their post-retirement financial planning.

In contrast, the results for the hypothesis H7 regarding retirement confidence did not reach statistical significance. The mean difference was negative (M difference = -0.1214) with $t(419) = -1.794$, $p = 0.074$ indicating that the level of retirement confidence among beneficiaries is not significantly different from the neutral value of 4. So, the hypothesis, H7 is not supported. This suggests a mixed or uncertain outlook regarding retirement preparedness, despite relatively high levels of financial literacy and planning. The non-significant result may reflect sustained concerns about inflation, healthcare costs or uncertainties in investment returns. Collectively, these findings emphasise the importance of not only improving financial knowledge and planning but also fostering a stronger sense of confidence in retirement outcomes through continued support, policy transparency and education about the long-term benefits and stability of the NPS.

6.11 Financial Literacy differences across Demographic Variables among the Beneficiaries of NPS

As part of objective three of the study, this section specifically investigates how financial literacy varies across different demographic categories. Understanding financial literacy is crucial for determining how well equipped individuals are to make wise financial decisions particularly in the context of preparing for retirement. Since financial literacy can be influenced by a variety of socio-demographic factors such as gender, education, work experience, employment sector, salary classification and income level, this analysis measures whether such differences lead to significant disparities in financial knowledge and capability among NPS beneficiaries. The hypotheses tested in this context are:

H5a: There is a significant difference in financial literacy between male and female beneficiaries of NPS.

H5b: There is a significant difference in financial literacy among NPS beneficiaries from different educational backgrounds.

H5c: There is a significant difference in financial literacy among NPS beneficiaries from different years of experience.

H5d: There is a significant difference in financial literacy among NPS beneficiaries from different employment sectors.

H5e: There is a significant difference in financial literacy among NPS beneficiaries from different salaried classes.

H5f: There is a significant difference in financial literacy among NPS beneficiaries from different monthly gross total income.

Financial literacy in this study was examined through a comprehensive set of eight items which assess both fundamental financial concepts and practical decision-making confidence. These items reflect an individual's understanding of credit risk and credit terms, comfort in evaluating savings options like fixed and compound interest and the ability to differentiate between various types of investment instruments such as stocks, bonds, mutual funds and government securities. Furthermore, the scale includes self-assessed understanding of financial concepts related to budgeting, determining personal net worth and knowledge relevant to major financial decisions like home buying. Together, these items provide a robust measure of the respondents' cognitive and behavioural competence in personal finance.

To assess statistically significant differences across demographic groups, independent samples t-tests were used for binary variables such as gender while one-way ANOVA was employed for variables with more than two categories including education level, years of experience, employment type, salary class and monthly gross total income. These statistical tools are ideal for comparing group means and identifying patterns that may require additional investigation or policy intervention. This analysis aims to reveal the influence of demographic backgrounds on financial awareness and decision-making among NPS participants providing insights to

develop tailored financial literacy programs and targeted communication strategies that enhance retirement preparedness across diverse beneficiary segments.

**Table 6.42 Financial Literacy across Demographic Variables among NPS
Beneficiaries**

Demographic Variables	Category	N	Mean	Standard Deviation	t	F value	p value
Gender	Male	162	4.629	1.4388	0.441		0.66
	Female	258	4.564	1.4975			
Education	Plus two	11	3.329	1.2689		4.031	<.001
	Diploma	9	3.722	1.5126			
	Degree	104	4.689	1.5616			
	Post-Graduation	296	4.627	1.4247			
Experience	1 to 5 year	225	4.363	1.5226		6.721	<.01
	6 to 10 year	166	4.792	1.4208			
	Above 10 year	29	5.181	1.0224			
Employment	State government	223	4.571	1.5108		0.056	0.946
	Government aided	176	4.602	1.4245			
	Board/corporation	21	4.672	1.5489			
Salaried class	Group A	197	4.727	1.3919		9.023	<.001
	Group B	168	4.25	1.5192			
	Group C	47	5.356	1.3409			
	Group D	8	3.812	0.9705			
Monthly gross income	Below 25000	12	3.302	1.0811		7.704	<.001
	25000 to 50000	172	4.506	1.5747			
	50000 to 75000	52	3.966	1.5488			
	75000 to 100000	129	4.888	1.2127			
	Above 100000	55	5.018	1.3583			

Source: Primary data

The results obtained from Table 6.42 provide a comprehensive overview of how financial literacy among NPS beneficiaries varies across different socio-demographic and employment-related variables.

Gender and Financial Literacy

An independent samples t-test was conducted to examine whether there was a significant difference in financial literacy between male and female NPS beneficiaries. The results showed no statistically significant difference, $t(418) = 0.441$, $p = 0.66$. Male beneficiaries ($M = 4.63$, $SD = 1.44$) and female beneficiaries ($M = 4.56$, $SD = 1.50$) reported similar levels of financial literacy. This indicates that gender does not significantly influence the financial literacy of NPS participants in this sample. Since the results indicate no significant difference, hypothesis H5a is not supported.

Education and Financial Literacy

A one-way ANOVA was performed to evaluate whether financial literacy differed significantly among beneficiaries with varying levels of educational attainment. The results revealed a statistically significant difference, $F(3, 416) = 4.03$, $p < .001$. Post hoc comparisons suggest that beneficiaries with lower educational qualifications (Plus Two and Diploma) scored notably lower in financial literacy compared to those with Degrees and Postgraduate qualifications. For instance, beneficiaries with only Plus Two education had the lowest mean ($M = 3.33$, $SD = 1.27$) whereas Postgraduates reported higher literacy ($M = 4.63$, $SD = 1.42$). This supports H5b, affirming that educational background significantly influences financial literacy. Since the results indicate a significant difference, the hypothesis H5b is supported.

Experience and Financial Literacy

One-way ANOVA was used to determine whether years of service experience influenced financial literacy. The results were significant, $F(2, 417) = 6.72$, $p < .01$. Financial literacy increased with experience: respondents with 1–5 years of experience had a lower mean ($M = 4.36$, $SD = 1.52$) while those with more than 10 years had the highest ($M = 5.18$, $SD = 1.02$). This pattern suggests that exposure over time may enhance understanding and engagement with financial planning and pension

schemes. Since the results indicate a significant difference, the hypothesis H5c is supported confirming significant differences in financial literacy across experience levels.

Employment Type and Financial Literacy

A one-way ANOVA was conducted to test whether financial literacy varied by type of employment (State Government, Government Aided, Board/Corporation). The results were not statistically significant, $F(2, 417) = 0.056, p = 0.946$. All three groups reported similar financial literacy levels with means ranging narrowly from 4.57 to 4.67. Since the results indicate no significant difference, the hypothesis H5d is not supported suggesting that the sector of employment does not significantly affect beneficiaries' understanding of the NPS.

Salary Class and Financial Literacy

To evaluate differences in financial literacy across salaried classes (Group A to D), a one-way ANOVA was employed. The results were statistically significant, $F(3, 416) = 9.02, p < .001$. Group C employees reported the highest literacy ($M = 5.36, SD = 1.34$) while Group D reported the lowest ($M = 3.81, SD = 0.97$). The wide variation suggests that role-based access to information and responsibility may influence financial knowledge. Since the results indicate a significant difference, the hypothesis H5e is supported indicating that salaried class significantly impacts financial literacy levels.

Monthly Gross Income and Financial Literacy

A one-way ANOVA tested whether financial literacy differed by monthly gross income categories. The results indicated a statistically significant difference, $F(4, 415) = 7.70, p < .001$. Participants earning below ₹25,000 reported the lowest financial literacy ($M = 3.30, SD = 1.08$) whereas those earning above ₹1,00,000 had higher levels ($M = 5.02, SD = 1.36$). These results suggest a positive correlation between income level and financial literacy potentially due to greater exposure to financial tools and resources. Since the results indicate a significant difference, the hypothesis H5f is supported confirming income as a significant factor influencing financial literacy among NPS beneficiaries.

This analysis aligned with the objective of assessing financial literacy among NPS beneficiaries used eight items covering knowledge of credit, interest, budgeting, investments and financial decision-making confidence. The findings revealed that financial literacy did not significantly differ by gender as both male and female respondents showed similar average scores; thus the hypothesis that gender influences financial literacy is rejected. However education level, years of work experience, salary classification and monthly income were all found to significantly affect financial literacy. For example, beneficiaries with postgraduate education had notably higher financial literacy scores than those with only Plus Two education and those earning above ₹1,00,000 per month scored considerably higher than those earning below ₹25,000. Similarly, Group C employees reported the highest literacy compared to other salary classes. Therefore, the hypotheses that education, experience, salary classification and income level influence financial literacy are accepted. On the other hand, the hypothesis that the type of employment (State Government, Aided or Board/Corporation) impacts financial literacy is rejected as no significant difference was observed. Overall, the results highlight that financial literacy is shaped more by socio-economic and experiential factors than by gender or employment sector.

6.12 Retirement Financial Planning differences across Demographic Variables among the Beneficiaries of NPS

Aligned with the third objective of this study, this section examines how individuals engage in planning for their retirement. Retirement financial planning reflects the extent to which individuals take proactive steps to secure their future financial well-being including setting goals, saving regularly and preparing for post-retirement needs. As financial independence during retirement is increasingly becoming the responsibility of individuals especially in systems supported by defined contribution schemes like the NPS, it is critical to understand whether such planning behaviour is influenced by demographic characteristics. This analysis sheds light on the preparedness levels of different groups and the gaps that may exist in their retirement-related financial behaviour.

The construct of retirement financial planning in this study was assessed using ten statements that evaluate various aspects of long-term saving behaviour, goal-setting and financial foresight. These include participants' habits of setting aside

money specifically for retirement and regularly saving or investing for the future. Furthermore, items captured the extent to which beneficiaries have developed specific plans that are linked with their retirement goals as well as whether they actively manage or alter their strategies over time. The scale also investigated the use of multiple savings tools such as pension schemes or investment instruments to enhance financial security in post-retirement. Furthermore, respondents were asked about their expectations relating to income sources such as fixed pension benefits, accumulated savings or other earnings they anticipate utilising during retirement which collectively reflect their long-term financial planning mindset.

To explore whether retirement financial planning varies across different segments of the population, both independent samples t-test and one-way ANOVA were used. The t-test was employed to analyse gender-based differences while ANOVA was used to analyse multi-category demographic variables including educational qualification, work experience, type of employment, salaried classification and monthly gross income. These statistical tools help to identify whether variations in retirement planning are associated with specific demographic characteristics. Detecting such differences is essential for developing targeted financial literacy programs and awareness campaigns that encourage proactive planning behaviour. Ultimately, this analysis contributes to a deeper understanding of the financial preparedness of NPS beneficiaries and provides insights for policymakers aiming to strengthen the system's impact on retirement security. The hypotheses tested in this context are:

H6a: There is a significant difference in retirement financial planning between male and female beneficiaries of NPS.

H6b: There is a significant difference in retirement financial planning among NPS beneficiaries from different educational backgrounds.

H6c: There is a significant difference in retirement financial planning among NPS beneficiaries from different years of experience.

H6d: There is a significant difference in retirement financial planning among NPS beneficiaries from different employment sectors.

H6e: There is a significant difference in retirement financial planning among NPS beneficiaries from different salaried classes.

H6f: There is a significant difference in retirement financial planning among NPS beneficiaries from different monthly gross total income.

Table 6.43 Retirement Financial Planning across Demographic Variables among NPS Beneficiaries

Demographic Variables	Category	N	Mean	Standard Deviation	t	F value	p value
Gender	Male	162	4.824	1.4109	1.289		0.198
	Female	258	4.629	1.6403			
Education	Plus two	11	2.954	0.8489		9.443	<.001
	Diploma	9	3.244	0.9193			
	Degree	104	5.042	1.4959			
	Post-Graduation	296	4.695	1.5475			
Experience	1 to 5 year	225	4.791	1.6228		1.051	0.35
	6 to 10 year	166	4.641	1.5121			
	Above 10 year	29	4.396	1.2457			
Employment	State government	223	4.527	1.7068		3.338	<.05
	Government aided	176	4.93	1.3179			
	Board/corporation	21	4.695	1.5657			
Salaried class	Group A	197	4.611	1.4909		6.75	<.001
	Group B	168	4.707	1.6028			
	Group C	47	5.38	1.4526			
	Group D	8	2.975	0.9867			
Monthly gross income	Below 25000	12	3.15	1.2169		4.068	<.01
	25000 to 50000	172	4.744	1.7028			
	50000 to 75000	52	4.494	1.2509			
	75000 to 100000	129	4.924	1.2924			
	Above 100000	55	4.605	1.7832			

Source: Primary data

The results obtained from Table 6.43 provides a comprehensive overview of how retirement financial planning varies across different socio-demographic and employment-related variables among NPS beneficiaries.

Gender and Retirement Financial Planning

An independent sample t-test was conducted to compare retirement financial planning scores between male and female beneficiaries of NPS. The results revealed no statistically significant difference between males ($M = 4.82$, $SD = 1.41$) and females ($M = 4.63$, $SD = 1.64$), $t(418) = 1.29$, $p = 0.198$. This indicates that both genders approach retirement planning with a similar level of seriousness. The lack of gender-based variation may reflect a broader cultural or institutional consistency in awareness and access to financial planning tools among NPS subscribers. Since the results indicate no significant difference, the hypothesis H6a is not supported indicating that gender does not significantly affect retirement financial planning among NPS beneficiaries. These findings suggest that gender-inclusive retirement planning interventions may be equally effective across both groups.

Educational Background and Retirement Financial Planning

A one-way ANOVA was conducted to determine whether retirement financial planning scores varied across different educational qualifications. The results were statistically significant, $F(3, 416) = 9.443$, $p < .001$. Post hoc analysis revealed that beneficiaries with Plus Two or Diploma qualifications had significantly lower planning scores compared to those with Degree or Postgraduate education. This demonstrates a positive association between higher educational attainment and better retirement financial preparedness. Since the results indicate a significant difference, the hypothesis H6b is supported confirming that educational background plays a significant role in retirement financial planning among NPS beneficiaries. Targeted financial education for less-educated groups could help close this gap.

Years of Experience and Retirement Financial Planning

A one-way ANOVA was conducted to examine the differences in retirement financial planning across groups with varying years of professional experience. The findings showed no statistically significant differences, $F(2, 417) = 1.051$, $p = 0.35$. Mean scores were relatively similar across the 1–5 year, 6–10 year and above 10

years' experience groups. Since the results indicate no significant difference, the hypothesis H6c is not supported indicating that years of experience do not significantly affect retirement financial planning among NPS beneficiaries. The result implies that length of service alone may not guarantee better planning habits highlighting the need for proactive retirement planning interventions early on in careers.

Employment Sector and Retirement Financial Planning

To test the effect of employment sector on retirement financial planning, a one-way ANOVA was performed. The results were significant, $F(2, 417) = 3.338, p < .05$ suggesting meaningful differences across state government, government-aided and board/corporation employees. Beneficiaries working in government-aided institutions reported slightly higher retirement planning scores compared to others. This might be due to institutional factors like training programs or exposure to financial planning opportunities. Since the results indicate a significant difference, the hypothesis H6d is supported indicating that the employment sector significantly influences retirement financial planning among NPS beneficiaries. These findings imply that retirement financial planning strategies may need to be tailored to the specific dynamics of each employment sector.

Salaried Class and Retirement Financial Planning

A one-way ANOVA was carried out to examine retirement financial planning across different salaried classes. The results indicated a statistically significant difference, $F(3, 416) = 6.75, p < .001$. Group C employees exhibited the highest average planning score ($M = 5.38$) while Group D employees had the lowest ($M = 2.98$) indicating considerable disparity. This suggests that employees in higher or middle salaried categories are more proactive in retirement planning. Since the results indicate a significant difference, the hypothesis H6e is supported establishing a clear link between salaried class and retirement financial planning among NPS beneficiaries. Programs aimed at lower salaried classes should address specific barriers they may face in financial preparation for retirement.

Monthly Income and Retirement Financial Planning

A one-way ANOVA was conducted to assess whether retirement financial planning differs by monthly gross income. The analysis showed a statistically significant difference, $F(4, 416) = 4.068$, $p < .01$. Respondents earning below ₹25,000 per month had notably lower retirement planning scores than higher-income groups. This pattern highlights the financial constraint faced by lower-income beneficiaries in preparing for retirement. Since the results indicate a significant difference, the hypothesis H6f is supported reinforcing that income plays a pivotal role in shaping retirement financial planning among NPS beneficiaries. Encouraging saving and planning behaviours among lower-income earners will require targeted financial education and policy support.

The analysis of retirement financial planning among NPS beneficiaries revealed that gender and years of experience do not significantly influence retirement planning behaviour indicating similar levels of preparedness across these groups. In contrast, educational qualification, type of employment, salaried classification and monthly income were found to significantly affect planning levels. Beneficiaries with degree and postgraduate education planned more effectively for retirement than those with only Plus Two or Diploma qualifications. Government-aided employees showed slightly better planning than other sectors. Notably, Group C employees reported the highest levels of retirement preparedness while Group D employees had the lowest. Furthermore, individuals earning below ₹25,000 per month had significantly lower retirement planning scores compared to higher-income groups indicating the role of income in shaping financial preparedness. These findings underscore the need for targeted interventions particularly for less-educated, lower-salaried and lower-income groups to encourage more inclusive and effective retirement planning behaviour.

6.13 Retirement Confidence differences across Demographic Variables among the Beneficiaries of NPS

As part of the third objective of this study, this section is devoted to exploring the retirement confidence of NPS subscribers. Retirement confidence refers to an individual's psychological assurance in their ability to maintain financial security and meet life's necessities after leaving the workforce (Lusardi & Mitchell, 2017). It plays a significant role in influencing one's approach to saving, investing and making

financial decisions throughout their career (VanDerhei & Copeland, 2010). High confidence often leads to proactive planning and disciplined financial habits while low confidence may indicate anxiety, uncertainty and inadequate preparation (Helman et al., 2021). Therefore assessing this construct offers insight into how mentally and financially ready beneficiaries feel for their retirement years (Topa et al., 2018).

To assess retirement confidence, participants were asked to respond to five items to collectively gauge their perception of financial readiness. These items examined how assured individuals feel about their ability to manage day-to-day expenses and basic living needs after retirement. Respondents also evaluated the extent to which they believe their savings and the benefits from NPS would be adequate to support them in their later years. Additionally, the survey measured their belief in their capacity to save sufficient funds before retirement and the degree to which they felt their overall preparations were adequate. These items provide a holistic understanding of not only whether individuals are saving but whether they psychologically perceive themselves as being on track with retirement planning. Capturing this psychological preparedness is essential in retirement studies because confidence can both reflect and influence actual financial behaviour.

To examine whether retirement confidence varies across demographic groups, the study employed independent sample t-test and one-way ANOVA. The t-test was used to compare gender based differences in retirement confidence while ANOVA was utilised to analyse differences across categories such as educational attainment, years of professional experience, type of employment (e.g., state government, government-aided or public sector undertakings), salary grade (Group A, B, C or D) and monthly gross income. These statistical tools were appropriate for testing whether observed variations in retirement confidence were statistically significant. Such analysis helps to identify demographic groups that may feel less secure about their retirement future and might benefit from targeted interventions or financial counselling. By understanding which segments of the population are psychologically underprepared for retirement, policymakers and institutional planners can design more inclusive and responsive programs to boost retirement security and peace of mind among NPS beneficiaries. The hypotheses tested in this context are:

H7a: There is a significant difference in retirement confidence between male and female beneficiaries of NPS.

H7b: There is a significant difference in retirement confidence among NPS beneficiaries from different educational backgrounds.

H7c: There is a significant difference in retirement confidence among NPS beneficiaries from different years of experience.

H7d: There is a significant difference in retirement confidence among NPS beneficiaries from different employment sectors.

H7e: There is a significant difference in retirement confidence among NPS beneficiaries from different salaried classes.

H7f: There is a significant difference in retirement confidence among NPS beneficiaries from different monthly gross total income.

Table 6.44 Retirement Confidence across Demographic Variables among NPS Beneficiaries

Demographic Variables	Category	N	Mean	Standard Deviation	t	F value	p value
Gender	Male	162	4.13	1.2189	3.107		<.01
	Female	258	3.72	1.4633			
Education	Plus two	11	3.309	1.2565		2.316	0.075
	Diploma	9	3.377	1.3727			
	Degree	104	4.13	1.4791			
	Post-Graduation	296	3.826	1.349			
Experience	1 to 5 year	225	3.635	1.4495		8.078	<.001
	6 to 10 year	166	4.122	1.2799			
	Above 10 year	29	4.365	1.1225			
Employment	State government	223	3.757	1.5555		8.508	<.001
	Government aided	176	4.137	1.1093			
	Board/corporation	21	2.99	1.0535			

Salaried class	Group A	197	4.012	1.3649		5.656	<.01
	Group B	168	3.597	1.3642			
	Group C	47	4.404	1.3644			
	Group D	8	3.4	1.369			
Monthly gross income	Below 25000	12	2.866	1.3466		5.846	<.001
	25000 to 50000	172	3.775	1.4954			
	50000 to 75000	52	3.553	1.4006			
	75000 to 100000	129	4.296	1.1054			
	Above 100000	55	3.749	1.391			

Source: Primary data

The results obtained from Table 6.44 provide a comprehensive overview of how retirement confidence varies across different socio-demographic and employment-related variables among NPS beneficiaries.

Gender and Retirement Confidence

An independent sample t-test was used to compare retirement confidence between male and female NPS beneficiaries. The results showed a statistically significant difference, $t(418) = 3.107$, $p < .01$ with males ($M = 4.13$, $SD = 1.22$) reporting higher confidence than females ($M = 3.72$, $SD = 1.46$). This indicates that gender influences perceptions of financial readiness and comfort in facing retirement. The results suggest that male beneficiaries feel more secure about their retirement future compared to females. Thus, hypothesis H7a is supported. Since the results indicate a significant difference the hypothesis (H7a) is supported indicating that gender significantly influences retirement confidence among NPS beneficiaries. Gender-specific financial literacy and planning programs may help bridge this confidence gap.

Educational Background and Retirement Confidence

A one-way ANOVA was conducted to test for differences in retirement confidence among beneficiaries with varying educational backgrounds. The results approached statistical significance, $F(3, 416) = 2.316$, $p = 0.075$ suggesting a possible trend though not conclusive at the 0.05 level. While degree holders reported the highest confidence ($M = 4.13$), those with lower education levels had comparatively lower scores. Although the hypothesis H7b is not fully supported, the findings hint at

a potential positive association between education and retirement confidence. With a larger sample in lower education categories, the relationship might yield stronger significance. Since the results do not indicate a statistically significant difference, the hypothesis (H7b) is not fully supported. Continued emphasis on financial education for the less educated is still a recommended strategy.

Years of Experience and Retirement Confidence

A one-way ANOVA was performed to examine whether retirement confidence varies based on years of work experience. The results were statistically significant, $F(2, 417) = 8.078, p < .001$. Beneficiaries with more than 10 years of experience ($M = 4.37$) had significantly higher retirement confidence than those with fewer years of service. This suggests that longer tenure contributes to stronger belief in financial security during retirement. Hypothesis H7c is thus supported. Since the results indicate a significant difference, the hypothesis (H7c) is supported indicating that years of experience significantly influence retirement confidence among NPS beneficiaries. These findings underline the value of continuous service in building not just savings but psychological assurance regarding retirement.

Employment Sector and Retirement Confidence

A one-way ANOVA was conducted to assess differences in retirement confidence across employment sectors yielded significant results, $F(2, 417) = 8.508, p < .001$. Beneficiaries working in government-aided institutions reported higher retirement confidence ($M = 4.14$) than their counterparts in state government ($M = 3.76$) and board/corporation ($M = 2.99$) sectors. This may be due to varying levels of institutional support, salary benefits or retirement benefits across sectors. Since the results indicate a significant difference, the hypothesis H7d is supported indicating that the employment sector significantly influences retirement confidence among NPS beneficiaries. Customised planning initiatives within different employment sectors may enhance overall retirement readiness among NPS subscribers.

Salaried Class and Retirement Confidence

A one-way ANOVA was conducted to assess the effect of salaried class on retirement confidence. The results indicated a significant difference, $F(3, 416) = 5.656, p < .01$. Group C employees reported the highest confidence ($M = 4.4$) while

Group D employees had relatively low confidence ($M = 3.4$). These findings show that occupational status and job grade may influence confidence about post-retirement financial well-being. Since the results indicate a significant difference, the hypothesis H7e is supported indicating that salaried class significantly influences retirement confidence among NPS beneficiaries. Strategic interventions could be designed to boost confidence levels particularly among employees in lower salaried classes.

Monthly Gross Income and Retirement Confidence

To examine the impact of monthly gross income on retirement confidence, a one-way ANOVA was performed. The results showed a statistically significant difference, $F(4, 416) = 5.846$, $p < .001$. Respondents earning below ₹25,000 ($M = 2.87$) had the lowest confidence while those in the ₹75,000 – ₹1,00,000 bracket reported the highest ($M = 4.3$). This suggests that income is positively related to how secure individuals feel about retirement. Since the results indicate a significant difference, the hypothesis H7f is supported emphasising that monthly gross total income plays a crucial role in shaping retirement confidence among NPS beneficiaries. Programs aimed at enhancing retirement readiness among low-income beneficiaries could be highly beneficial.

The findings related to retirement confidence among NPS beneficiaries provide valuable insights into how demographic factors influence psychological preparedness for retirement. The study confirmed that retirement confidence significantly differs based on gender, years of experience, employment sector, salaried class and monthly gross income while differences across educational backgrounds approached significance. Specifically, male beneficiaries, especially those with longer professional experience, higher income levels and those employed in government-aided institutions or in higher salaried classes reported greater confidence in their retirement preparedness. These results highlight the multifaceted nature of retirement confidence shaped not only by financial variables but also by occupational and demographic contexts. The findings highlight the necessity of targeted financial education and planning interventions particularly for women, lower-income earners and those in lower job grades or less supportive employment sectors to increase their confidence and readiness for a financially secure retirement.

6.14 Financial Dependence on NPS differences across Demographic Variables among the Beneficiaries of NPS

One of the key facets addressed under the third objective of this study is the extent of financial dependence on the National Pension System among its beneficiaries. In the context of retirement planning, financial dependence refers to how heavily an individual relies on a single source such as the NPS for securing their post-retirement financial well-being. Understanding this dimension is critical, especially when public pension schemes like the NPS are designed to offer long-term financial security. If individuals perceive the NPS as a critical or sole source of retirement support, it indicates the importance of such schemes in their financial planning strategy. Therefore, investigating variations in this perception across demographic subgroups provides insights into both behavioural patterns and potential vulnerabilities within the beneficiary population.

To assess financial dependence, the study used a structured set of seven items that measured how integral NPS contributions are to the respondents' retirement outlook. The items reflected the perceived importance of current job income for future security, the role of NPS contributions in building retirement funds and the level of hardships individuals expect if NPS funds were not available. Respondents were also asked to reflect on whether they viewed the NPS as their main source of retirement income and if their future financial well-being was primarily connected to their pension contributions. Other items examined whether individuals believed they could sustain their current standard of living without NPS support and the overall weight they placed on NPS within their broader retirement strategy. These items collectively provided a comprehensive understanding of how deeply NPS is embedded in the financial expectations and planning of the beneficiaries.

To examine whether there are significant differences in financial dependence on National Pension System across various demographic variables, independent sample t-test and one-way ANOVA tests were conducted (Field, 2013). The t-test was used to compare gender-based differences while ANOVA was applied to variables with more than two categories namely, education level, years of professional experience, employment type (state, aided or board/corporation), salaried classification (Group A to D) and monthly gross income. These statistical tools helped

to determine whether demographic factors play a meaningful role in shaping individuals' dependence on the NPS for their retirement. The insights drawn from this analysis are valuable for policy development as they highlight the specific groups that view the NPS as indispensable and may require additional support or financial education. By identifying who depends most on the NPS and why, decision-makers can develop better-targeted strategies to enhance retirement preparedness and system sustainability. The hypotheses tested in this context are:

H8a: There is a significant difference in financial dependence on NPS between male and female beneficiaries of NPS.

H8b: There is a significant difference in financial dependence on NPS among NPS beneficiaries from different educational backgrounds.

H8c: There is a significant difference in financial dependence on NPS among NPS beneficiaries from different years of experience.

H8d: There is a significant difference in financial dependence on NPS among NPS beneficiaries from different employment sectors.

H8e: There is a significant difference in financial dependence on NPS among NPS beneficiaries from different salaried classes.

H8f: There is a significant difference in financial dependence on NPS among NPS beneficiaries from different monthly gross total income.

Table 6.45 Financial Dependence on NPS across Demographic Variables among NPS Beneficiaries

Demographic Variables	Category	N	Mean	Standard Deviation	t	F value	p value
Gender	Male	162	4.346	1.3314	-1.916		0.056
	Female	258	4.594	1.2612			
Education	Plus two	11	4.337	1.0541		0.696	0.555
	Diploma	9	4.031	1.1198			
	Degree	104	4.604	1.3352			
	Post-Graduation	296	4.481	1.2915			

Experience	1 to 5 year	225	4.587	1.2462		1.715	0.181
	6 to 10 year	166	4.436	1.3814			
	Above 10 year	29	4.162	1.0668			
Employment	State government	223	4.558	1.2967		1.253	0.287
	Government aided	176	4.392	1.2967			
	Board/corporation	21	4.755	1.1953			
Salaried class	Group A	197	4.415	1.2686		0.672	0.57
	Group B	168	4.548	1.3518			
	Group C	47	4.68	1.199			
	Group D	8	4.428	1.2073			
Monthly gross income	Below 25000	12	4.678	1.3235		0.816	0.515
	25000 to 50000	172	4.542	1.2888			
	50000 to 75000	52	4.587	1.3113			
	75000 to 100000	129	4.334	1.3406			
	Above 100000	55	4.623	1.1691			

Source: Primary data

The results obtained from Table 6.45 provides a comprehensive overview of how financial dependence on NPS varies across different socio-demographic and employment-related variables among NPS beneficiaries.

Gender and Financial Dependence on NPS

An independent sample t-test was conducted to examine whether male and female beneficiaries differ significantly in their financial dependence on NPS. The results were not statistically significant, $t(418) = -1.916$, $p = 0.056$, although the p-value approached significance. Female beneficiaries ($M = 4.59$, $SD = 1.26$) reported slightly higher dependence than males ($M = 4.35$, $SD = 1.33$). This suggests a tendency for women to rely more heavily on NPS income, though the difference is not strong enough to confirm hypothesis H8a. Since the results do not indicate a statistically significant difference, the hypothesis H8a is not supported. Nonetheless, this finding may indicate the need to investigate gender-based retirement income disparities more deeply. Programs addressing financial security for women in retirement may still be beneficial.

Educational Background and Financial Dependence on NPS

A one-way ANOVA was performed to determine if financial dependence on NPS differs by educational background. The results indicated no statistically significant difference, $F(3, 416) = 0.696$, $p = 0.555$. All educational groups reported relatively similar levels of dependence with mean values ranging from 4.03 to 4.60. Since the results indicate no significant difference, the hypothesis H8b is not supported indicating that educational background does not significantly affect financial dependence on NPS among beneficiaries. This suggests that education level may not be a strong determinant of reliance on NPS for retirement income. Regardless of academic qualification, beneficiaries appear to have a relatively uniform view of the importance of NPS in their financial future.

Years of Experience and Financial Dependence on NPS

To test whether financial dependence on NPS varies by years of experience, a one-way ANOVA was carried out. The results were not statistically significant, $F(2, 417) = 1.715$, $p = 0.181$. All three experience groups reported comparable levels of dependence with the highest being among the least experienced group ($M = 4.59$) and the lowest among those with more than 10 years ($M = 4.16$). This indicates that work experience does not significantly influence the degree of reliance on NPS. Since the results indicate no significant difference, the hypothesis H8c is not supported indicating that years of experience do not significantly influence financial dependence on NPS among beneficiaries. It appears that regardless of tenure, NPS beneficiaries place similar importance on the scheme as a retirement resource.

Employment Sector and Financial Dependence on NPS

A one-way ANOVA was conducted to examine the effect of employment sector on financial dependence on NPS. The analysis revealed no significant difference, $F(2, 417) = 1.253$, $p = 0.287$. All three sectors: state government, government-aided and board/corporation showed high but statistically indistinguishable levels of NPS dependence. Since the results indicate no significant difference, the hypothesis H8d is not supported indicating that the employment sector does not significantly affect financial dependence on NPS among beneficiaries. This consistency suggests a shared perception of NPS utility across various government

employment sectors. However, qualitative studies might help explore how sector-specific benefits complement or reduce NPS reliance.

Salaried Class and Financial Dependence on NPS

To evaluate whether salaried class impacts financial dependence on NPS, a one-way ANOVA was employed. The test showed no significant difference, $F(3, 416) = 0.672$, $p = 0.57$. Mean scores were relatively close across groups indicating a generally high dependence across all salary categories including lower cadres. Since the results indicate no significant difference, the hypothesis H8e is not supported indicating that salaried class does not significantly influence financial dependence on NPS among beneficiaries. The results indicate that salaried status does not distinctly shape how heavily beneficiaries rely on NPS. A possible explanation could be the uniformity in pension scheme coverage and awareness across classes.

Monthly Gross Income and Financial Dependence on NPS

A one-way ANOVA was conducted to assess whether financial dependence on NPS differs across income groups. The results were not statistically significant, $F(4, 416) = 0.816$, $p = 0.515$. While minor variations were noted (e.g., lowest income group had slightly higher mean dependence), none of the differences were large enough to confirm hypothesis H8f. Since the results were not statistically significant, the hypothesis H8f is not supported indicating that monthly gross total income does not significantly influence financial dependence on NPS. This implies that beneficiaries across income levels view NPS as a similarly valuable component of their retirement income. The uniformity underscores the perceived importance of NPS irrespective of one's monthly earnings which strengthens its role as a universally relevant financial tool.

The analysis of financial dependence on the National Pension System across demographic variables revealed no statistically significant differences based on gender, education, years of experience, employment sector, salaried classification or monthly gross income. Although female beneficiaries reported slightly higher reliance on NPS, the gender difference was only marginally significant ($p = 0.056$). The findings suggest that financial dependence on NPS is consistently high among beneficiaries regardless of their demographic background indicating a uniform perception of its importance in retirement planning. This uniformity underscores the

NPS's role as a central and widely trusted pillar of financial security across diverse population segments. Consequently, policy efforts and financial literacy programs related to retirement planning can be broadly targeted as dependence on NPS does not appear to vary significantly across socio-economic or occupational lines.

6.15 Conclusion

The assessment reveals that financial literacy, retirement financial planning and retirement confidence among NPS beneficiaries are significantly shaped by education level, salary class and income while gender and experience show inconsistent effects across dimensions. Notably, individuals with higher education and income demonstrate stronger financial knowledge and preparedness for retirement. However, financial dependence on NPS remains uniformly high across all demographic and socio-economic segments reinforcing the scheme's centrality in retirement income planning. These insights highlight the need for differentiated financial education strategies that address disparities in planning and confidence while also strengthening the universal role of NPS as a foundational retirement support mechanism.

SECTION - D

Examining How Retirement Financial Planning Mediates the Relationship between Financial Literacy and Retirement Confidence among the Beneficiaries of NPS

The fourth objective of the study was to examine whether retirement financial planning mediates the relationship between financial literacy and retirement confidence among beneficiaries of the National Pension System. To address this objective, the study employed Structural Equation Modeling (SEM) using SPSS AMOS 24. SEM was selected as the preferred method due to its ability to test complex, multivariate relationships and its capacity to simultaneously estimate both direct and indirect effects making it ideal for evaluating mediation models. The model explored how financial literacy contributes to retirement financial planning and in turn how such planning affects individuals' confidence in their financial readiness for retirement. The proposed framework also considered the possibility of a direct

relationship between financial literacy and retirement confidence thereby allowing the detection of both direct and mediated effects.

The data analysis was supported by validated multi-item scales adapted from previous scholarly studies to ensure conceptual and empirical relevance. Financial literacy was assessed through respondents' perceptions related to budgeting, savings, investments, debt and overall financial knowledge using a 7-point Likert scale. Retirement financial planning was measured through behavioural and expectancy items capturing planning behaviours, anticipated benefits and retirement preparedness. Retirement confidence was measured based on respondents' confidence in handling financial obligations and needs during retirement. The rigor in measurement ensures construct validity and enhances the reliability of the mediation analysis. Overall, the chosen SEM approach with well-structured latent variables offers robust insights into how enhancing financial literacy may indirectly strengthen retirement confidence through better planning behaviour.

6.16 Evaluation of Structural Model Fit

Table 6.46 - Model fit measures

Measure	Estimate	Threshold	Citation	Interpretation
CMIN	684.838	--		--
DF	224	--		--
P Value	<.001			
CMIN/DF	3.056	Between 1 and 3	(Kenny, Kaniskan, & McCoach, 2015)	Acceptable
CFI	0.963	>0.95	(Hu & Bentler, 1999)	Excellent
GFI	0.881	>0.80	(Hooper et al. 2008)	Acceptable
AGFI	0.853	>0.80	(Gefen et al. 2003)	Acceptable
NFI	0.946	>0.80	(Hooper et al. 2008)	Acceptable
SRMR	0.034	<0.08	(Hu and Bentler 1999)	Excellent
RMSEA	0.070	<0.08	(Hu and Bentler 1999)	Acceptable

Source: Primary data

Note: CMIN = Minimum fit function chi-square; DF = Degrees of freedom; CMIN/DF = Chi-square/degrees of freedom ratio; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; CFI = Comparative Fit Index; NFI = Normed Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation (Hu & Bentler, 1999; Kline, 2016; Schermelleh-Engel, Moosbrugger, & Müller, 2003).

From the table 6.46, the structural model demonstrated an overall good fit to the data as evidenced by multiple fit indices. The chi-square value (CMIN) was 684.838 with 224 degrees of freedom and a significant p-value ($p < .001$) which is expected in large samples. The ratio of chi-square to degrees of freedom (CMIN/DF) was 3.056 falling within the acceptable range of 1 to 3 (Kenny, Kaniskan, & McCoach, 2015). The Comparative Fit Index (CFI) was 0.963 exceeding the recommended threshold of 0.95 indicating excellent model fit (Hu & Bentler, 1999). Similarly, the Goodness of Fit Index (GFI = 0.881), Adjusted Goodness of Fit Index (AGFI = 0.853) and Normed Fit Index (NFI = 0.946) all surpassed the minimum acceptable value of 0.80 (Gefen et al., 2003; Hooper et al., 2008) suggesting satisfactory model adequacy. Furthermore, the Standardized Root Mean Square Residual (SRMR = 0.034) and Root Mean Square Error of Approximation (RMSEA = 0.070) were well below the cut off of 0.08 supporting the model's acceptable to excellent fit (Hu & Bentler, 1999). Collectively, these fit indices confirm that the proposed model is statistically robust and adequately represents the observed data.

6.17 Analysing the Effects of Financial Literacy and Retirement Planning on Retirement Confidence: Evidence from SEM among NPS Beneficiaries

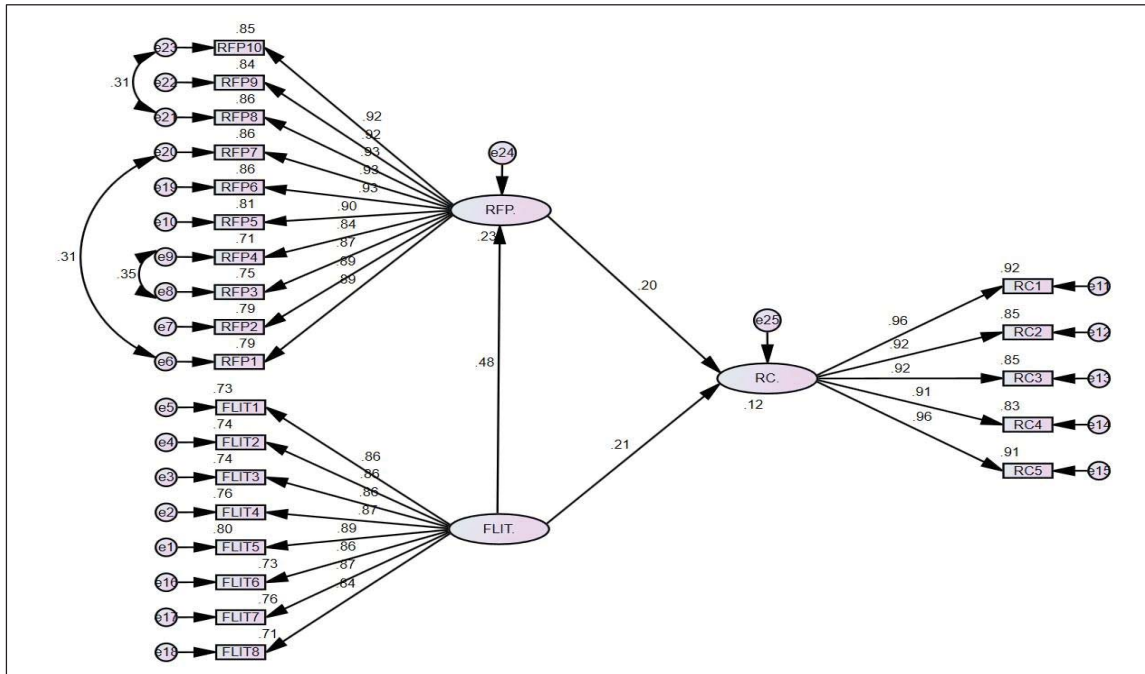
This section presents a Structural Equation Modeling (SEM) analysis to examine the mediating role of Retirement Financial Planning (RFP) in the relationship between Financial Literacy (FLIT) and Retirement Confidence (RC) among National Pension System (NPS) beneficiaries. The SEM framework allows for the simultaneous assessment of direct and indirect effects among multiple constructs offering deeper insights into the underlying causal pathways. Using AMOS software, the model evaluates how financial literacy directly influences retirement confidence and how this relationship is strengthened through effective financial planning. This analysis helps to identify the key factors that contribute to building confidence in retirement outcomes. The hypotheses tested in this context are:

H9: Retirement financial planning is influenced by financial literacy among the beneficiaries of NPS.

H10: Retirement confidence is influenced by retirement financial planning among the beneficiaries of NPS.

H11: Retirement confidence is influenced by financial literacy among the beneficiaries of NPS.

Figure 6.3 - Mediation effect of Retirement Financial Planning



Source: Primary data using AMOS Software

Table 6.47 - Causality test results

From	To	R ²	β	p value	Description
FLIT	RFP	-	0.479	<.001	Significant
RFP	RC	-	0.200	<.001	Significant
FLIT	RC	-	0.206	<.001	Significant
Variance explained in RFP by FLIT		0.229	-	<.001	Significant
Variance explained in RC by FLIT and RFP		0.122	-	<.001	Significant

Source: Primary data

Note: FLIT = Financial Literacy; RFP = Retirement Financial Planning; RC = Retirement Confidence.

From the table 6.47, the SEM results reveal statistically significant pathways among the study variables. Financial literacy positively predicts retirement financial planning ($\beta = 0.479$, $p < .001$) indicating that participants with higher financial literacy are more likely to engage in proactive retirement planning. Since the results indicate a statistically significant positive effect, the hypothesis H9 is supported

indicating that financial literacy significantly influences retirement financial planning among NPS beneficiaries.

Furthermore, retirement financial planning significantly predicts retirement confidence ($\beta = 0.200, p < .001$) suggesting that individuals who are more engaged in planning for their retirement feel more confident about their financial future. Since the results indicate a statistically significant positive effect, the hypothesis H10 is supported indicating that retirement financial planning significantly influences retirement confidence among NPS beneficiaries.

A direct effect was also found from financial literacy to retirement confidence ($\beta = 0.206, p < .001$) highlighting that financial literacy contributes independently to enhancing retirement confidence. Since the results indicate a statistically significant positive effect, the hypothesis H11 is supported indicating that financial literacy significantly influences retirement confidence among NPS beneficiaries.

The proportion of variance explained by financial literacy in predicting retirement financial planning is $R^2 = 0.229$ indicating that 22.9% of the variability in retirement planning can be attributed to financial literacy. Additionally, the model explains 12.2% of the variance in retirement confidence ($R^2 = 0.122$) through the combined effects of financial literacy and retirement planning. These results confirm that all direct effects proposed in the model are statistically significant and meaningful.

Table 6.48 - Standardized direct and indirect effects

Path	Direct effect	Indirect effect	Total effect	p value	VAF
FLIT > RFP> RC	0.206	0.096	0.302	<.001	0.318

Source: Primary data

The mediation analysis further examined whether retirement financial planning mediates the relationship between financial literacy and retirement confidence in table 6.48.

The hypothesis tested in this context is:

H12: The effect of financial literacy on the retirement confidence is mediated by retirement financial planning among the beneficiaries of NPS.

The direct effect of financial literacy on retirement confidence remained significant ($\beta = 0.206$, $p < .001$) while the indirect effect via retirement financial planning was also significant ($\beta = 0.096$, $p < .001$) resulting in a total effect of 0.302. The Variance Accounted For (VAF) value was calculated to be 0.318 indicating that 31.8% of the total effect of financial literacy on retirement confidence is mediated through retirement financial planning. According to standard guidelines, a VAF between 20% and 80% indicates partial mediation. Therefore, these findings suggest that retirement financial planning partially mediates the influence of financial literacy on retirement confidence providing empirical support for the proposed mediation hypothesis.

Since the results indicate a statistically significant indirect effect of financial literacy on retirement confidence through retirement financial planning, the hypothesis H12 is supported indicating that retirement financial planning partially mediates the relationship between financial literacy and retirement confidence among NPS beneficiaries.

The findings from this analysis underscore the pivotal role that financial literacy plays in shaping both retirement financial planning behaviour and retirement confidence among NPS beneficiaries. Individuals with higher levels of financial knowledge not only show stronger engagement in planning for their financial future but also demonstrate greater confidence in their ability to meet retirement needs. The model accounts for a significant proportion of the variance in both retirement financial planning (22.9%) and retirement confidence (12.2%) confirming the relevance of the hypothesised relationships.

Importantly, the study establishes that retirement financial planning partially mediates the relationship between financial literacy and retirement confidence. This implies that while financial knowledge alone is a powerful enabler, its effect is amplified when it translates into concrete planning actions. As such, the findings support interventions that combine financial education with tools and resources that encourage active retirement planning, ultimately improving financial well-being and confidence among retirees. These insights can help policymakers and financial

institutions to create more effective financial literacy programs tailored to the needs of aging workforce.

6.18 Conclusion

The results of the mediation analysis reveals that retirement financial planning partially mediates the relationship between financial literacy and retirement confidence among NPS beneficiaries with 31.8% of the total effect being indirect (VAF = 0.318) thereby highlighting the importance of translating financial knowledge into actionable planning behaviours. Individuals with higher financial literacy not only plan more effectively but also report increased confidence in their retirement readiness, reinforcing the value of integrated financial education and planning interventions. These findings support the development of policies that enhance both financial awareness and engagement in structured retirement planning to foster long-term financial security.

SECTION - E

Examining the Moderating Effect of Financial Dependence on NPS in the Relationship between Retirement Financial Planning and Retirement Confidence among the Beneficiaries of NPS

To fulfil the fifth objective of the study, to examine the moderating effect of financial dependence on NPS in the relationship between retirement financial planning and retirement confidence among the beneficiaries of NPS, a moderation analysis was carried out using Structural Equation Modeling (SEM) through SPSS AMOS 24. SEM was chosen for its strength to simultaneously estimate direct, indirect and interaction effects among latent variables by providing a comprehensive approach to assess moderation in behavioural and attitudinal data. The moderating variable, financial dependence on NPS was measured with a multi-item Likert scale adapted from validated sources (Thompson et al., 2022; Unguren et al., 2024). The scale captured key dimensions such as the extent to which employees perceive their retirement financial security, post-retirement standard of living and overall financial stability as reliant on NPS contributions. It also represented beliefs about the critical role of NPS savings, dependence on current job income for retirement and the

importance of NPS as a primary income source after retirement. These conceptual elements were embedded in seven reflective items designed to measure the degree of psychological and financial reliance on NPS for post-retirement well-being. The interaction term between retirement financial planning and financial dependence on NPS was created and integrated into the SEM model to statistically examine the moderation effect. Using AMOS for this analysis enabled precise modelling of latent interactions while controlling for measurement errors which is essential for understanding complex relationships involving financial attitudes and behaviours.

6.19 Examining the Moderating Role of Financial Dependence on NPS

This section explores the moderating effect of Financial Dependence on the National Pension System (FD NPS) in the relationship between Retirement Financial Planning (RFP) and Retirement Confidence (RC) among NPS beneficiaries. Moderation analysis using AMOS software helps to determine whether the strength or direction of the relationship between planning and confidence changes depending on the level of dependence on NPS. By incorporating financial dependence as a moderator, the model provides a nuanced understanding of how reliance on NPS may enhance or diminish the impact of retirement planning on an individual's confidence in their retirement future. This analysis offers valuable insights for policymakers and financial advisors aiming to strengthen retirement outcomes. The hypothesis tested in this context is:

H13: Financial dependence on NPS moderates the relationship between retirement financial planning and retirement confidence among the beneficiaries of NPS.

Table 6.49 - Model fit measures

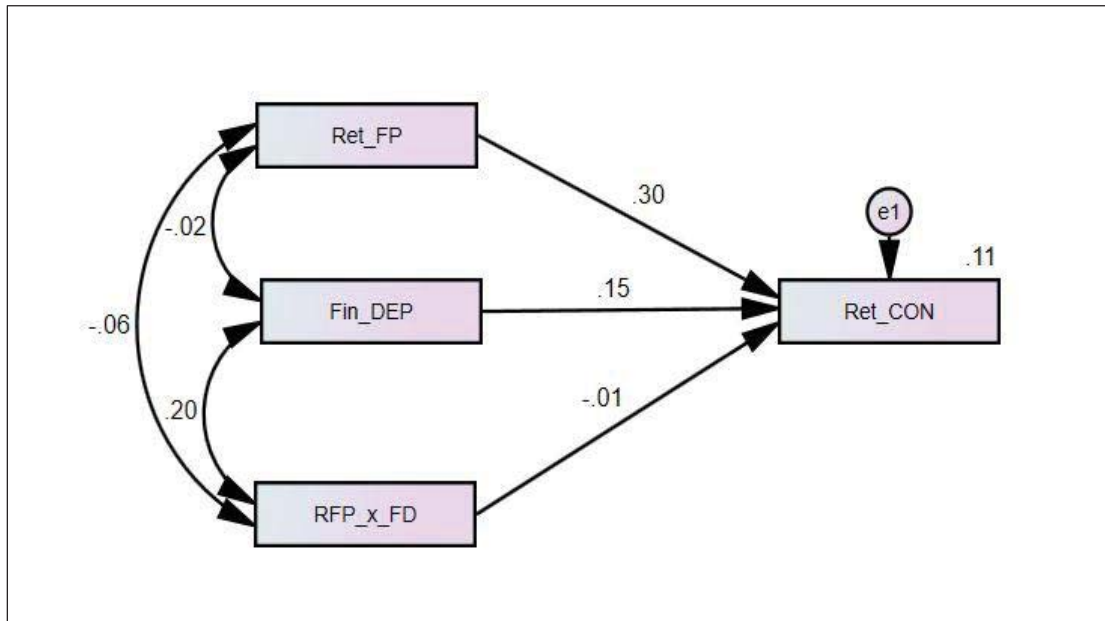
Measure	Estimate	Threshold	Citation	Interpretation
CMIN	1257.414	--		--
DF	396	--		--
P Value	<.001			
CMIN/DF	3.175	Between 1 and 3	(Kenny, Kaniskan, & McCoach, 2015)	Acceptable
CFI	0.944	>0.90	(Hu & Bentler, 1999)	Acceptable
GFI	0.841	>0.80	(Hooper et al. 2008)	Acceptable
AGFI	0.814	>0.80	(Gefen et al. 2003)	Acceptable
NFI	0.921	>0.80	(Hooper et al. 2008)	Acceptable
SRMR	0.045	<0.08	(Hu and Bentler 1999)	Excellent
RMSEA	0.072	<0.08	(Hu and Bentler 1999)	Acceptable

Source: Primary data

Note: CMIN = Minimum fit function chi-square; DF = Degrees of freedom; CMIN/DF = Chi-square/degrees of freedom ratio; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; CFI = Comparative Fit Index; NFI = Normed Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation.

The model fit indices indicate that the measurement model provides an acceptable to strong fit to the observed data. Although the chi-square statistic (CMIN = 1257.414, $p < .001$) is significant which is typical in studies with large sample sizes the chi-square to degrees of freedom ratio (CMIN/DF = 3.175) is slightly above the ideal range of 1 to 3 but remains within acceptable limits as noted by Kenny, Kaniskan, and McCoach (2015). Both the Comparative Fit Index (CFI = 0.944) and the Normed Fit Index (NFI = 0.921) exceed the commonly accepted thresholds of 0.90 and 0.80 respectively reflecting a good model fit (Hu & Bentler, 1999; Hooper et al., 2008). Similarly, the Goodness of Fit Index (GFI = 0.841) and the Adjusted Goodness of Fit Index (AGFI = 0.814) surpass the minimum acceptable value of 0.80 reinforcing the model's adequacy (Hooper et al., 2008). In addition, the Standardized Root Mean Square Residual (SRMR = 0.045) is well below the recommended cut-off of 0.08 indicating excellent fit. The Root Mean Square Error of Approximation (RMSEA = 0.072) also falls within the acceptable threshold of less than 0.08 providing further support for the model's overall fit.

Figure 6.4 Moderation effect of Financial Dependence on NPS



Source: Primary data using AMOS Software

Table 6.50 Moderating effect of financial dependence on NPS in the relationship between retirement financial planning and retirement confidence

Path	β	Standard Error	Critical Ratio	p value
Retirement Confidence <--- Retirement Financial Planning	0.299	0.041	6.496	***
Retirement Confidence <--- Financial Dependence on NPS	0.154	0.05	3.276	0.001
Retirement Confidence <--- Retirement Financial Planning x Financial Dependence on NPS	-0.010	0.07	-0.216	0.829

Source: Primary data

The results of the Structural Equation Modeling (SEM) analysis indicates that retirement financial planning ($\beta = 0.299$, $p < .001$) and financial dependence on NPS ($\beta = 0.154$, $p = 0.001$) both have a significant positive effect on retirement confidence suggesting that employees who engage in proactive retirement planning and rely more on NPS feel more financially secure post-retirement. However, the interaction term

between retirement financial planning and financial dependence on NPS is not significant ($\beta = -0.010$, $p = 0.829$) indicating that financial dependence on NPS does not moderate the relationship between retirement financial planning and retirement confidence. Since the moderation effect is not statistically significant, the hypothesis H13 is not supported indicating that financial dependence on NPS does not moderate the relationship between retirement financial planning and retirement confidence among NPS beneficiaries. This implies that regardless of their level of financial dependence on NPS, employees who actively plan for retirement tend to have higher confidence in their financial future. This finding underscores the importance of strengthening financial literacy and promoting structured retirement planning initiatives, as reliance on NPS alone does not alter the effectiveness of such planning in boosting confidence. Organisations and policymakers should focus on encouraging proactive financial planning rather than assuming that employees' dependence on NPS will influence their overall retirement confidence.

6.20 Conclusion

The findings confirm that while both retirement financial planning and financial dependence on the National Pension System significantly enhance retirement confidence, the absence of a significant moderation effect suggests that NPS reliance does not influence the strength of this relationship ($\beta = -0.010$, $p = 0.829$). This implies that structured retirement planning independently contributes to greater financial confidence among employees regardless of how much they depend on NPS benefits. Consistent with prior literature emphasising the critical role of proactive financial behaviour in retirement outcomes, this study highlights the need for policies that prioritise financial literacy and planning initiatives over mere promotion of pension dependence.

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Chapter - 7

FINDINGS AND CONCLUSION

7.1 Introduction

This chapter summarises the key findings of the study and presents the conclusions drawn from the analysis of the data collected from NPS beneficiaries highlighting important insights related to pension fund performance, beneficiary perspectives, financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS.

7.2 Findings of the Study

This section presents the key findings of the study based on the analysis of data collected from NPS beneficiaries. The findings cover various aspects including the performance of pension fund managers and pension schemes, beneficiaries' perspectives on the NPS, their levels of financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS. Additionally, the section explores the mediating and moderating effects of retirement financial planning and financial dependence on retirement confidence among the beneficiaries of NPS.

7.2.1 Performance analysis of Pension Fund Managers and Pension Schemes under NPS

- The performance analysis of Pension Fund Managers (PFMs) under the National Pension System revealed no statistically significant difference in their excess returns. This implies that overall, the excess returns generated by different PFMs do not vary significantly. However, the Sharpe ratio analysis uncovered notable differences in risk-adjusted performance among the PFMs. Among all PFMs, Reliance Pension Fund recorded the highest Sharpe ratio indicating superior risk-adjusted performance during its period of operation. However, it is important to note that Reliance Pension Fund is no longer an active PFM under the NPS as per current PFRDA records.
- Although the overall performance differences among PFMs were not statistically significant, HDFC, ICICI and Kotak also demonstrated strong performances positioning them as reliable options for investors. In contrast, Birla showed the weakest results raising concerns about its risk-return efficiency.
- Among National Pension System Pension Schemes, Asset Class E (Equity-based) delivered the best performance achieving the highest Sharpe ratio of

11.343. This confirms the long-term value of equity exposure for retirement savings. Other schemes like Asset Class E-II and NPS Lite also performed well making them attractive to moderate and growth-focused investors.

- Conversely, the Atal Pension Yojana reported the lowest risk-adjusted returns raising concerns about its effectiveness for conservative investors those who are seeking stability over high returns.

7.2.2 Perspectives of the NPS among the beneficiaries of NPS

The analysis of beneficiaries' perspectives on the National Pension System regarding the savings behaviour, investment choices, engagement patterns and awareness level reveals a predominantly passive and conservative engagement with retirement financial planning further compounded by various challenges of NPS.

- Nearly half of the respondents save less than ₹5,000 per month outside of their mandatory NPS contributions indicating limited discretionary savings capacity while only a small percentage indicate higher monthly savings above ₹20,000.
- A significant majority prefers the auto-choice investment option implying limited personal involvement in fund allocation decisions and dependence on default professionally managed portfolios.
- Notably, all respondents operate exclusively through Tier 1 accounts highlighting the scheme's primary role as a long-term, non-liquid retirement strategy.
- In terms of retirement strategy, majority chose a diversified approach combining NPS with other sources of retirement funding whereas a relatively small segment relied solely on the NPS.
- Voluntary contributions beyond mandatory deductions are minimal pointing to potential barriers such as financial constraints, limited awareness or satisfaction with the default contribution structure.
- A majority of employees monitor their NPS account occasionally while a notable portion engages rarely with their accounts indicating minimal routine interaction with their retirement savings. Only a small fraction conducts regular monitoring indicating limited proactive oversight.
- Performance assessment methods are similarly basic with majority relying on annual statements and fewer participants employing analytical tools like

capital appreciation or benchmark comparisons. Notably, very few employees consult financial advisors highlighting the low uptake of professional guidance and an even smaller segment does not assess fund performance at all.

- Despite the passive engagement, the high fund retention rate with majority of respondents reported no withdrawals indicates a strong adherence to the long-term nature of the NPS.
- The analysis reveals that NPS beneficiaries demonstrates a moderate level of awareness regarding the scheme's features and benefits with a mean score of 4.43 on a 7-point scale. However, the high standard deviation (1.984) suggests substantial variability in understanding indicating that while some beneficiaries are well-informed, others lack sufficient knowledge.
- The results indicate that NPS beneficiaries generally exhibits a good level of awareness regarding the scheme's tax advantages with a mean score of 4.72 suggesting a positive awareness trend. However, the standard deviation of 1.961 highlights a noticeable disparity in understanding pointing to uneven awareness levels among the respondents.
- The results indicate a moderate level of awareness among NPS beneficiaries regarding the differences between Tier 1 and Tier 2 accounts with a mean score of 4.32. The high standard deviation of 2.03 highlights significant variation in understanding suggesting that while some respondents are familiar with the distinctions, many lack in-depth knowledge of the two account types.
- The analysis reveals that NPS beneficiaries have an average level of awareness regarding investment choices and the role of fund managers, as indicated by a mean score of 4.31. The relatively high standard deviation (1.93) suggests significant disparities in awareness with some respondents indicating strong understanding while others lack sufficient knowledge in this area.
- The results indicate that NPS beneficiaries have a basic level of awareness regarding the rules of withdrawal from the scheme with a mean score of 4.25. The high standard deviation of 2.041 highlights considerable variation in understanding, indicating that while some beneficiaries are knowledgeable about withdrawal procedures, many others lack clarity on the rules.

- The results indicate that NPS beneficiaries generally have an above-average awareness of the enrolment process as indicated by a mean score of 4.43. However, the standard deviation of 1.968 points to notable differences in understanding across respondents suggesting that while many are well-informed, others may still lack clarity on the enrolment procedures.
- The one-sample t-test results highlights that NPS beneficiaries have a moderately high level of overall awareness about the scheme with a mean score of 4.41 significantly exceeding the neutral value of 4. The statistically significant result ($t(419) = 4.72, p < .001$) confirms that beneficiaries are on average, well-informed about the National Pension System.
- The analysis of awareness of the National Pension System across demographic and employment-related variables reveals that while overall awareness among beneficiaries is moderate to high, significant disparities exist across certain demographic groups. Notably, awareness levels do not significantly differ by gender, years of experience or employment category indicating a relatively uniform understanding of NPS across these dimensions. However, educational qualification and salaried class are found to significantly influence awareness.
- Beneficiaries with higher educational qualifications (degree and post-graduation) demonstrate substantially greater awareness compared to those with only Plus Two or Diploma-level education. Similarly, employees in the lowest salary group (Group D: ₹14,000 – ₹30,000) indicate markedly lower awareness levels than their higher-earning counterparts particularly Group C (₹16,000 – ₹45,000) who reported the highest awareness.
- The one-sample t-test confirmed that the overall mean challenge score significantly higher than the neutral midpoint on a 7-point Likert scale ($M = 5.10, t(419) = 12.37, p < .001$) statistically validating that beneficiaries experience substantial challenges in interacting with the NPS.
- The analysis of the challenges that hinder beneficiaries' engagement with the scheme faces a range of significant challenges. Descriptive statistics highlight consistent challenges across multiple dimensions with the most notable difficulties being the complexity of the documentation process, insufficient guidance for resolving queries and a lack of promotional and educational outreach.

7.2.3 Assessment of the financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS among the beneficiaries of NPS

7.2.3.1 Financial Literacy

- The analysis revealed that financial literacy among NPS beneficiaries is significantly higher than the neutral benchmark. With a mean score of 4.59 and a statistically significant t -value (8.199, $p < .001$), it is evident that most respondents possess a strong understanding of financial concepts. This indicates that they are well-informed and capable of making sound financial decisions which is crucial for effective retirement planning.
- Based on demographic variables in the study, financial literacy levels did not differ significantly by gender ($p = 0.66$) indicating that gender does not have a significant influence on financial literacy among NPS beneficiaries.
- Education level has a significant effect on financial literacy; those with higher education (Degree/Postgraduate) exhibits higher financial literacy compared to those with lower education (Plus Two/Diploma) ($p < .001$).
- Work experience positively correlated with financial literacy with respondents having more than 10 years of experience demonstrated the highest financial literacy ($p < .01$) indicates that exposure over time may enhance understanding and engagement with financial planning and pension schemes.
- The employment sector (State Government, Aided, Board/Corporation) had no significant effect on financial literacy ($p = 0.946$) indicating that the sector of employment does not significantly affect beneficiaries' understanding of the NPS.
- Salary classification (Group A to D) and monthly income levels were significant predictors of financial literacy with higher salaried employees and those earning above ₹100,000 showing better financial knowledge ($p < .001$). These results suggest a positive correlation between income level and financial literacy potentially due to greater exposure to financial tools and resources.

7.2.3.2 Retirement Financial Planning

- Beneficiaries showed above average participation in retirement financial planning ($M = 4.70$) significantly higher than the neutral midpoint ($p < .001$) indicating proactive efforts in preparing for retirement. The one-sample t-test confirmed this with a significant result ($t(419) = 9.276, p < .001$). These findings indicate that respondents actively set retirement goals, manage their finances with future in mind and take necessary steps to ensure financial stability during retirement.
- Based on demographic variables in the study, gender did not significantly influence retirement planning behaviour with both male and female beneficiaries reporting similar levels of preparedness ($p = 0.198$).
- Higher educational qualifications (Degree/Postgraduate) resulted in significantly better retirement planning compared to those with lower educational qualifications (Plus Two or Diploma) ($p < .001$). Targeted financial education for less-educated groups could help close this gap.
- Work experience did not significantly affect retirement planning indicating that early career planning may be equally important ($p = 0.35$).
- The employment sector had a significant impact on retirement planning with government-aided employees showing slightly better planning scores ($p < .05$). These findings imply that retirement financial planning strategies may need to be tailored to the specific dynamics of each employment sector.
- A significant link was identified between salaried class and retirement planning with Group C employees exhibiting the highest planning levels ($p < .001$). This suggests that employees in higher or middle salaried categories are more proactive in retirement planning.
- Monthly income significantly influenced retirement planning with those earning below ₹25,000 per month had notably lower retirement planning scores than higher-income groups ($p < .01$). This pattern highlights the financial constraint faced by lower-income beneficiaries in preparing for retirement.

7.2.3.3 Retirement Confidence

- In contrast to their literacy and planning behaviour, the level of retirement confidence among beneficiaries was slightly below the midpoint with a mean of 3.88. This result was not statistically significant ($t(419) = -1.794, p = 0.074$) showing moderate levels of assurance about their financial preparedness for retirement with potential scope for improvement through targeted support. This reflects a degree of uncertainty or concern possibly influenced by external factors like healthcare costs, inflation or market volatility.
- Based on demographic variables in the study, male beneficiaries had higher confidence than females ($M = 4.13$ vs. $M = 3.72, p < .01$). The results suggest that male beneficiaries feel more secure about their retirement future compared to females.
- While educational background differences approached significance ($p = 0.075$), degree holders indicated slightly higher confidence while those with lower education levels had comparatively lower scores.
- Work experience had a strong positive association with retirement confidence especially among those with over 10 years of service ($p < .001$). This indicates that longer tenure contributes to stronger belief in financial security during retirement.
- Employment sector played a key role, as government-aided institution employees reported the highest confidence ($M = 4.14, p < .001$) than their counterparts in state government and board/corporation sectors. This may be due to the varying levels of institutional support, salary benefits or retirement benefits across sectors.
- Retirement confidence also varied significantly across salaried classes with Group C employees having the highest confidence ($M = 4.4, p < .01$) while Group D employees had relatively low confidence ($M = 3.4$). These findings show that occupational status and job grade may influence confidence about post-retirement financial well-being.
- Lastly, monthly gross income had a significant impact with higher-income groups (₹75,000 – ₹1,00,000) demonstrating notably greater retirement confidence ($M = 4.3, p < .001$) while those earning below ₹25,000 ($M = 2.87$)

had the lowest confidence emphasising that monthly gross total income plays a crucial role in shaping retirement confidence among NPS beneficiaries.

7.2.3.4 Financial Dependence on NPS

- Beneficiaries showed a moderately high financial dependence on the National Pension System for their post-retirement income highlighting the scheme's crucial role in their retirement security. With a mean score of 4.50 and a significant t -value ($t(419) = 7.904, p < .001$), it is clear that beneficiaries view the NPS as a vital source of post-retirement income. This underscores the critical importance of the scheme in their overall retirement strategy and highlights the need for sustained policy support and communication about the scheme's benefits.
- No significant gender-based differences in financial dependence on NPS were found, however females tended to report slightly higher dependence than males ($p = 0.056$).
- Educational background had no significant influence on financial dependence on NPS ($p = 0.555$). This indicates that education level may not be a strong determinant of reliance on NPS for retirement income.
- Years of experience did not affect financial dependence on NPS with all experience groups showing similar reliance on the system ($p = 0.181$). It appears that regardless of tenure, NPS beneficiaries place similar importance on the scheme as a retirement resource.
- The employment sector did not result in significant differences in financial dependence on NPS implying uniform reliance across sectors ($p = 0.287$). All three sectors: state government, government-aided and board/corporation showed high dependence but statistically indistinguishable levels of NPS dependence.
- There were no significant differences in financial dependence on NPS across salaried classes ($p = 0.570$) or income categories ($p = 0.515$). The results indicate that salaried status and monthly gross income does not distinctly shape how heavily beneficiaries rely on NPS.

The findings underscore that while financial literacy and retirement financial planning levels are significantly high, retirement confidence remains moderate

suggesting need for improvement. Beneficiaries demonstrate a strong dependence on the National Pension System as a primary source of post-retirement income underscoring the scheme's critical role. Demographic factors such as education, income and work experience positively influence financial literacy and planning but have a limited or inconsistent impact on retirement confidence and financial dependence on NPS. These findings highlight the need for targeted interventions to enhance retirement confidence and ensure equitable understanding and utilisation of NPS benefits across all demographic segments.

7.2.4 Examining how retirement financial planning mediates the relationship between financial literacy and retirement confidence among the beneficiaries of NPS

- The findings of this section using Structural Equation Modelling (SEM) provides strong empirical evidence for the hypothesised relationships between financial literacy, retirement financial planning and retirement confidence among National Pension System beneficiaries. The structural model demonstrated an excellent fit to the data with fit indices such as CFI (0.963), GFI (0.881) and RMSEA (0.070) confirming the robustness of the model.
- Financial literacy was found to significantly influence retirement financial planning ($\beta = 0.479$, $p < .001$) explaining 22.9% of the variance in planning behaviour indicating that participants with higher financial literacy are more likely to engage in proactive retirement planning.
- Similarly retirement financial planning significantly influenced retirement confidence ($\beta = 0.200$, $p < .001$) indicating that individuals who are more engaged in planning for their retirement feel more confident about their financial future and financial literacy had a direct positive effect on retirement confidence as well ($\beta = 0.206$, $p < .001$).
- The combined model explained 12.2% of the variance in retirement confidence confirming the conceptual framework that identifies both financial knowledge and planning as key determinants of retirement preparedness.
- Importantly mediation analysis revealed that retirement financial planning partially mediates the relationship between financial literacy and retirement confidence with a Variance Accounted For of 31.8% indicating partial mediation. This means that while financial literacy directly enhances

retirement confidence, its influence is significantly enhanced when beneficiaries engage in active planning behaviour. The study underscores the dual necessity of enhancing financial literacy and simultaneously promoting actionable retirement planning.

7.2.5 Examining the moderating effect of financial dependence on NPS in the relationship between retirement financial planning and retirement confidence among the beneficiaries of NPS

- The analysis examined whether financial dependence on the National Pension System moderates the relationship between retirement financial planning and retirement confidence among NPS beneficiaries. Using Structural Equation Modelling (SEM) via AMOS 24, the study found that both retirement financial planning ($\beta = 0.299$, $p < .001$) and financial dependence on NPS ($\beta = 0.154$, $p = 0.001$) significantly and positively influence retirement confidence.
- These findings imply that individuals who engage in structured and forward-looking retirement planning and those who perceive a stronger reliance on NPS contributions have higher confidence in their post-retirement financial well-being. The use of latent variable modelling ensured precise estimation while accounting for measurement errors adding robustness to these relationships.
- The interaction term between retirement financial planning and financial dependence on NPS ($\beta = -0.010$, $p = 0.829$) was statistically insignificant indicating no moderation effect. This suggests that financial dependence on NPS does not alter the relationship between retirement planning and retirement confidence.
- The findings imply that the positive impact of proactive retirement financial planning on retirement confidence remains consistent regardless of how much individuals rely on NPS for their retirement income. Therefore, the study rejects the hypothesised moderation effect which states that proactive retirement financial planning independently increases retirement confidence.

7.3 Conclusion of the Study

The present study gives an in-depth analysis focusing on the National Pension System and its role in enhancing retirement confidence among state government employees in Kerala. Drawing from existing research on pension systems, financial literacy and retirement planning, the findings provide valuable context-specific insights regarding NPS adoption, beneficiary engagement and financial behaviour patterns.

The demographic analysis indicates that NPS primarily attracts well-educated, mid-career professionals reflecting the growing preference among financially informed public sector employees for structured retirement solutions. Despite the scheme's reach into semi-urban and rural areas, a noticeable gender disparity in awareness and participation remains indicating ongoing challenges in attaining equitable engagement across demographics.

An evaluation of pension fund managers and various pension schemes under NPS shows that risk-adjusted returns are largely favourable. Although Reliance pension fund delivered the highest risk-adjusted returns followed by HDFC, ICICI and Kotak, the overall analysis shows no statistically significant difference in performance among the pension fund managers under the NPS. This suggests that all PFMs performed comparably in terms of excess returns. The analysis also reveals a significant difference in the risk-adjusted returns across NPS pension schemes supporting the hypothesis that their performance varies. Among them, Asset Class E stands out as the best-performing scheme with the highest Sharpe ratio. Schemes with equity exposure and fund managers using active asset allocation strategies tend to deliver better performance outcomes. Conversely, the relatively lower returns from conservative schemes such as those targeting cautious investors highlight the necessity of policy adjustments to improve risk-return efficiency for all investors.

A major observation of the study is the largely passive behaviour of NPS beneficiaries characterised by low levels of voluntary contributions, minimal fund monitoring and limited use of professional financial advice. This inactivity remains even among participants with relatively high financial literacy indicating a significant gap between knowledge and action. Procedural barriers, lack of effective awareness campaigns and limitations in digital accessibility further contribute to this passivity

emphasising the need for policy initiatives focused on increasing engagement, simplifying administrative processes and enhancing communication. Structural Equation Modelling results confirm that financial literacy and retirement financial planning are crucial drivers of retirement confidence. It indicates that while financial literacy is important, its influence is significantly increased when combined with active retirement planning initiatives. These findings provides critical insights for policymakers, retirement planners and financial educators advocating for integrated approaches that combine knowledge-building with behavioural facilitation. Such strategies are essential to foster greater financial readiness and confidence among NPS beneficiaries thereby enhancing the effectiveness of pension reforms and financial inclusion initiatives.

The study also discovered that proactive retirement planning consistently enhances retirement confidence regardless of the beneficiaries' level of financial dependence on the NPS. Mere reliance on the NPS alone does not significantly enhance retirement confidence largely due to the uncertainty associated with fixed returns during post-retirement life. The implication for policy and practice is clear as interventions should prioritise integrating structured retirement planning along with financial literacy rather than focusing solely on pension scheme dependency to ensure a more secure retirement confidence. These findings reinforce the critical role of individual agency and financial preparedness in fostering retirement security.

Overall, this research contributes to the existing understanding of the NPS by providing empirical evidence on its strengths and areas for improvement. While the system's solid structural framework and promising investment performance makes it a key instrument for retirement security among government employees addressing issues related to awareness, engagement and procedural complexity remains vital. By focusing on enhancing financial literacy, simplifying user experiences and encouraging active engagement through financial planning, the NPS can better fulfil its goal of promoting long-term financial security and nurturing a culture of proactive retirement planning among the beneficiaries of NPS.

Chapter - 8

RECOMMENDATIONS OF THE STUDY

8.1 Introduction

Based on the analysis and findings of this study on the National Pension System, it is clear that while the scheme has made significant progress in widening retirement coverage and providing flexible investment avenues, several areas still require targeted improvements. The success of the NPS is influenced not only by its structural framework and regulatory measures but also by the financial awareness, active participation and decision-making behaviour of its beneficiaries. To improve the overall efficiency, inclusiveness and long-term impact of the NPS, a dual strategy is essential empowering beneficiaries through education, tools and sound financial practices and reinforcing policy frameworks through innovative, inclusive and evidence-based interventions.

8.2 Recommendations of the Study

Accordingly, the following recommendations are divided into three major categories.

- 1.) Recommendations to NPS beneficiaries emphasising personal strategies for improved financial planning and retirement readiness.
- 2.) Recommendations to Pension Fund Regulatory and Development Authority focusing on improving transparency, regulation, beneficiary support and digital accessibility to enhance the effectiveness of the NPS.
- 3.) Recommendations to policymakers, organisations, government and other stakeholders which propose institutional and policy-level reforms to develop a stronger, fairer and more effective pension system.

These recommendations aim to bring the NPS in line with higher level standards, improve fund performance, promote financial literacy, reduce socio-economic inequalities and ultimately strengthen retirement confidence across varied demographic groups.

8.2.1 Recommendations to NPS Beneficiaries

- NPS beneficiaries should monitor the performance of their chosen Pension Fund Managers at regular intervals. This allows them to identify underperformance early and switch to better-performing fund managers as needed thereby maximising returns on their retirement corpus.
- Under the active choice option, NPS beneficiaries can customise their asset allocations among equity, corporate debt and government securities according to their preferences. Availing this can empower them to align investments with personal risk tolerance and market expectations potentially achieving higher returns than the default auto-choice model.
- The Tier 2 NPS account allows flexibility to withdraw funds without restrictions unlike Tier 1. Availing this makes it an ideal tool for emergency savings, short-term goals or supplementary investment without sacrificing the long-term retirement fund.
- Beneficiaries should periodically reassess their retirement goals taking into account inflation, changes in income or life events such as marriage, children or health conditions. This ensures that investment strategies remain aligned with changing financial needs.
- By contributing beyond the mandatory limits, beneficiaries can significantly increase their retirement corpus. Furthermore, voluntary contributions are eligible for additional tax deductions under Section 80CCD(1B) of the Income Tax Act providing dual benefits of savings and tax efficiency.
- Solely depending on NPS may expose beneficiaries to scheme-specific risks. Diversifying into instruments such as mutual funds, Public Provident Fund, real estate or life insurance plans guarantee a more balanced and secure financial future.
- Implementing an auto-escalation feature where the contribution amount increases annually with income growth can significantly enhance the retirement corpus. It also encourages disciplined investing without requiring manual intervention every year.

- Beneficiaries are encouraged to actively use digital tools like the CRA login portal and mobile apps to track contributions, view NAVs, update personal details and perform nominee changes if necessary. These platforms enhance transparency and empower better decision-making.
- Consulting certified financial planners or retirement advisors can assist to create personalised strategies based on age, risk appetite, income level and retirement goals. This leads to more informed and optimised retirement planning strategy.
- While partial withdrawals are allowed under NPS for specific needs, frequent or unnecessary withdrawals can deteriorate long-term gains and disrupt retirement plans. Beneficiaries should treat the NPS corpus as a sacred fund, meant strictly for post-retirement use.
- Since a portion of the NPS corpus must be used to purchase an annuity at retirement, it is crucial to understand the available annuity types (e.g., life annuity, joint annuity, annuity with return of purchase price). Proper selection ensures income stability in retirement.
- NPS rules regarding tax exemptions, contribution limits, fund manager selection and withdrawal norms are periodically updated. Staying informed ensures that beneficiaries can take timely action to benefit from regulatory changes.
- Engaging in self-education through government resources, webinars, seminars and financial literacy drives enhances one's ability to make sound investment decisions. Improved literacy also increases confidence and reduces reliance on hearsay or misinformation.
- NPS beneficiaries should make it a priority to improve their financial knowledge by regularly accessing credible resources such as PFRDA publications, CRA portals, online tools and government-led awareness programs. Understanding key aspects like investment choices, fund performance, tax benefits and withdrawal rules are essential.
- Beneficiaries must apply this financial literacy to their personal retirement goals by creating and updating a structured financial plan. This includes

estimating future income needs, evaluating contribution levels and choosing appropriate asset allocations aligned with their risk tolerance and retirement horizon.

- By combining sound financial literacy with proactive retirement financial planning, beneficiaries can make more confident and effective decisions ultimately increasing their sense of security, preparedness for post-retirement life and retirement confidence.

8.2.2 Recommendations to Pension Fund Regulatory and Development Authority (PFRDA)

- PFRDA should strengthen investor education and support by launching continuous and segmented awareness campaigns tailored to beneficiaries' education levels, salary classes and occupations to promote informed decision-making. It should also provide multilingual educational materials and interactive FAQs through digital platforms and Points of Presence (PoPs) ensuring accessibility and clarity for a diverse range of NPS subscribers.
- PFRDA should improve fund performance transparency by publishing easy-to-understand, regularly updated scorecards that present fund performance, Sharpe ratios, risk metrics and peer comparisons. Additionally, it should enforce uniform disclosure standards among Pension Fund Managers (PFMs) to ensure better comparability and help subscribers make more informed investment choices.
- PFRDA should regulate and supervise Pension Fund Managers more stringently by identifying and continuously monitoring underperforming pension fund managers and pension schemes while establishing minimum performance benchmarks. Accountability mechanisms should be put in place to ensure consistent fund quality and safeguard beneficiary interests.
- PFRDA should facilitate beneficiary-friendly processes by simplifying the switching of PFMs and asset classes through user-friendly mobile apps and online platforms. Additionally, it should ensure that partial withdrawals and annuity purchase procedures especially for Tier I subscribers are easily accessible, transparent and user-centric to enhance subscriber satisfaction and trust.

- PFRDA should develop retirement confidence tools such as personalised retirement readiness scores or interactive dashboards that help subscribers estimate the adequacy of their accumulated corpus based on current contribution patterns, expected returns and inflation-adjusted retirement needs. This would empower beneficiaries to make timely adjustments and enhance long-term planning confidence.
- PFRDA should establish a robust monitoring mechanism to evaluate the performance and compliance of all intermediaries including PFMs, CRAs, PoPs and ASPs. Regular audits and performance grading should be conducted with reports made publicly accessible for transparency and accountability.
- PFRDA should upgrade the Central Grievance Management System with real-time tracking, response time limits and escalation protocols. A dedicated helpline and mobile app-based complaint system can ensure faster and more beneficiary-centric resolution.
- PFRDA should initiate incentives and awareness campaigns to increase voluntary savings through Tier II accounts. This may include offering exclusive tax benefits, flexible contribution options and promotional interest rates for long-term savings.
- PFRDA should work with other agencies to integrate NPS services with Aadhaar, Digi Locker, UPI and the Account Aggregator framework ensuring seamless KYC, real-time contributions and easier data sharing for financial planning.
- PFRDA should periodically publish anonymised subscriber data and sponsor research on NPS usage patterns, fund dynamics and behavioural insights. This can guide evidence-based regulatory improvements and enhance scheme effectiveness.
- PFRDA should regularly conduct beneficiary behaviour and satisfaction surveys and use data analytics to guide policy adjustments, fund management strategies and communication efforts to continuously improve the NPS ecosystem.

8.2.3 Recommendations to Policymakers, Organisations, Government and other Stakeholders

- Policymakers should mandate or incentivise the inclusion of NPS and retirement financial literacy training within employee orientation and HR policies particularly targeting government, aided institutions and public sector enterprises to enhance early awareness and planning. These initiatives will ensure employees are well-informed and more likely to participate in retirement planning from the beginning.
- To encourage higher savings especially among lower-income and contract-based employees, schemes offering matched or bonus contributions for voluntary NPS top-ups should be introduced, fostering a culture of proactive retirement planning.
- Targeted outreach programs need to be designed and implemented to raise awareness and retirement confidence among individuals with lower education levels, rural populations and contract workers who currently show lower engagement with the pension system.
- Expanding the network of Points of Presence (PoPs) and establishing digital service kiosks in rural and underserved regions will improve accessibility and service delivery enabling more inclusive participation in the NPS.
- Ongoing support for academic and field research on pension outcomes, fund performance and socio-demographic disparities is crucial for generating evidence-based insights that inform timely and effective policy reforms.
- To increase greater participation from economically vulnerable groups, policymakers or governments can introduce a return guarantee scheme. This can provide a minimum return to low-income subscribers offering financial security and boosting confidence especially during uncertain market conditions and thereby increasing engagement with NPS.
- Expanding NPS access to rural populations requires improving digital literacy. Offering mobile-friendly tools in vernacular languages and low-data apps can break down barriers in remote areas ensuring rural subscribers can effectively engage with NPS services and track their retirement progress.

- Provide structured planning tools, workshops and advisory services to ensure better preparedness among employees. Promote diversification beyond NPS to reduce over-reliance and enhance retirement confidence.
- Develop gender-specific education programs, encourage financial literacy in higher education, introduce mentoring initiatives and customise planning strategies for different income and employment groups.
- Introducing retirement planning and NPS education at school and college levels will build awareness from a young age. By including modules on financial literacy and long-term savings within the education system, students will be better prepared for retirement planning early on in their careers.
- Setting up district-level or Panchayat-level centers can provide accessible, on-the-ground support for NPS beneficiaries. These centers can offer personalised advisory services, help with retirement planning and clarify NPS features to ensure citizens make informed financial decisions at the local level.
- Offering enhanced tax benefits for individuals who start contributing to NPS at a younger age or maintain consistent contributions can promote long-term saving habits. This tax incentive would not only improve participation but also help accumulate a larger retirement corpus over time.
- Introducing digital nudges within NPS interfaces can guide users toward better financial decisions. For example, prompts can suggest gradual contribution increases, offer warnings against risky withdrawals or remind users to review their fund performance thus encouraging more disciplined saving and investment.

8.3 Implications of the Study

The findings of this study provide significant insights into the operational effectiveness, subscriber behaviour and policy framework of the National Pension System. By examining the relationship between fund performance, financial literacy, retirement financial planning, retirement confidence and financial dependence on NPS the study highlights crucial areas for intervention at both individual and institutional levels. These implications serve as a foundation for enhancing policy design,

improving beneficiary engagement and fostering a more inclusive and resilient pension environment.

8.3.1 Implications for NPS Beneficiaries

The study highlights financial literacy as a vital basis for achieving retirement readiness. Individuals with higher levels of financial awareness are more likely to engage in systematic financial planning which increases their confidence in attaining financial security during retirement. Simply enrolling in a pension scheme such as the National Pension System is not enough; individuals must actively participate in managing their finances and create long-term retirement goals. The implication for policy and practice is clear as interventions should prioritise improving financial literacy and encouraging structured financial planning rather than focusing solely on pension scheme dependency. This emphasises the need for individuals to formulate comprehensive retirement strategies that extend beyond mere dependence on institutional pension schemes. This reinforces the critical role of individual agency and financial preparedness in fostering retirement security. By fostering financial discipline and enhancing their understanding of retirement planning, individuals can better prepare for the uncertainties of post-retirement life and secure more stable financial outcomes.

Furthermore, a better understanding of key NPS features such as the option for voluntary Tier I contributions, the distinction between auto choice and active choice in asset allocation and the various annuity options available upon exit can help beneficiaries to make better-informed decisions. The effectiveness of NPS can also be enhanced through the use of simplified digital platforms, regular performance updates and tailored communication from intermediaries like Points of Presence (PoPs) and the Central Recordkeeping Agency (CRA). These tools can improve user engagement, encourage sustained participation and promote more proactive management of retirement savings. In essence, individuals must adopt an informed, engaged and long-term perspective towards their involvement in the NPS supported by accessible guidance and policy-level support systems.

8.3.2 Implications for PFRDA

The study's findings underscore the critical role of PFRDA in enhancing financial literacy and retirement awareness among NPS beneficiaries by implementing tailored and continuous education programs. Such initiatives should especially focus on underserved and vulnerable groups including low-income earners, contract workers and rural populations who currently exhibit lower levels of awareness and retirement confidence. The research highlights a pressing need for greater transparency and accountability in pension fund management by mandating standardised and easy-to-understand disclosures on fund performance, risk metrics and fees, PFRDA can significantly improve beneficiary trust and enable more informed decision-making. Additionally, the study points to the importance of strengthening PFRDA's digital infrastructure and simplifying key processes such as fund switching, partial withdrawals and annuity purchases, making them more user-friendly and accessible through online platforms and mobile applications. This is particularly vital for rural and remote areas where physical access to Points of Presence (PoPs) and other services are limited.

Furthermore, the findings call for PFRDA to integrate targeted policy interventions that address socio-demographic disparities and promote inclusivity within the pension system. Innovations in personalised retirement readiness tools such as dashboards and corpus adequacy calculators can empower subscribers to plan more effectively for their post-retirement lives. Lastly, by fostering collaborations with academic institutions and supporting ongoing research into pension outcomes and demographic challenges, PFRDA can adopt evidence-based policy updates that ensure the National Pension System evolves into a more robust, equitable and beneficiary-centric scheme capable of meeting growing retirement security needs.

8.3.3 Implications for Policymakers, Organisations, Government and other Stakeholders

The performance analysis of pension fund managers and pension schemes reinforces the importance of diversification across both fund managers and asset classes which helps to mitigate investment risks and improve performance under varying market conditions. The success of various Pension Fund Managers and Pension Schemes demonstrate the importance of strategic asset allocation and active

fund management. The findings underscore the necessity for ongoing performance monitoring and policy reforms especially for underperforming fund managers and schemes to maintain a better balance between risk and return in the NPS framework.

The study calls for a strategic transformation in the way retirement planning is approached at the policy and institutional levels. It emphasises the importance of integrating financial literacy initiatives within the broader public policy framework. Government agencies, employers and financial institutions should work in concert to design and deliver accessible, engaging and contextually relevant educational programs. These programs must go beyond explaining the mechanics of pension schemes like the National Pension System; they should also deepen public understanding of long-term investment strategies and financial goal-setting. Personalised financial advisory services delivered through public institutions or in collaboration with private entities can play a pivotal role in translating knowledge into action, assisting individuals in shaping retirement plans that are customised to their income patterns, risk tolerance and life goals.

Additionally, the findings highlight the necessity of systematic policy interventions to cultivate a culture of retirement readiness. Financial literacy should be positioned as a policy imperative not merely a supplementary initiative. Policymakers must move beyond the assumption that NPS participation alone guarantees retirement security. Instead, they should support integrated strategies that empower individuals with both knowledge and decision-making tools. Employers can play an important role by incorporating financial wellness initiatives into their human resource policies while the government could incentivise such efforts through tax benefits for both organisations and individuals who actively participate in long-term investment planning. A collaborative, multi-stakeholder approach drawing in policymakers, financial service providers, employers and academic institutions is necessary to create a supportive ecosystem that encourages sustainable retirement planning. Finally, continuous research and data monitoring should be prioritised to assess the success of policy initiatives, understand behavioural trends and identify evolving challenges thereby maintaining a dynamic and responsive retirement planning environment.

8.4 Scope for Further Research

Following are the areas that have viable prospects of social interest for further research. So in this context, the following areas for further studies are suggested.

- Future research can evaluate the performance of Pension Fund Managers (PFMs) and various Pension Schemes beyond the year 2024 focusing on long-term trends, risk-adjusted returns and the implications of changing economic and market conditions on fund outcomes.
- Future research can evaluate how socio-economic variables such as gender, education, income level and employment sector influence financial behaviour and preparedness for retirement. This can aid in formulating more inclusive and targeted policy measures.
- Comparative studies can be conducted between the NPS and other pension systems both government-backed and private within India and internationally to evaluate relative performance, governance efficiency and subscriber satisfaction.
- Future research can evaluate the experience and satisfaction levels of NPS subscribers from the unorganised sector who often face unique challenges in participation, continuity and benefit realisation.
- Future research can examine how digital literacy and the adoption of technology-enabled platforms influence beneficiary engagement, financial decision-making and retirement outcomes in the NPS particularly among rural and semi-urban populations.
- Future research may also compare the perceptions, satisfaction levels and financial outcomes of subscribers under the Old Pension Scheme (OPS) and the New Pension System (NPS) particularly among government employees to assess the impact of the transition on retirement security.
- Investigating the impact of regulatory reforms and government policies on the performance of NPS funds and the behaviour of beneficiaries can be valuable.
- Future research can evaluate the role of NPS in improving the overall retirement preparedness in India especially among those without access to employer-sponsored pension plans or other retirement savings vehicles.

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APPENDICES

APPENDIX- I
QUESTIONNAIRE

Retirement Financial Planning Focusing National Pension System
Among State Government Employees In Kerala

Sudheesh T V
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Dear Participants,

I am Sudheesh T V, Part- time Research Scholar doing research at MES Asmabi College, P Vemballur, Thrissur. Thank you for taking the time to participate in this survey. This questionnaire is part of my Ph.D. study and your responses will help me gain important insights on the experiences and perspectives of the beneficiaries of the National Pension System (NPS). Your input is incredibly valuable and will contribute to the success of my research. Please answer all the questions honestly and to the best of your ability. The survey should take approximately 15 to 20 minutes to complete and all responses will be kept confidential. Your participation is greatly appreciated and I am grateful for your support in advancing this research.

Regards

Sudheesh T V

I. Demographic Profile

1. Name (Optional):
2. Gender
 - a) Male
 - b) Female
 - c) Others
 - d) Prefer not to say
3. Age
 - a) 18 - 24 years
 - b) 25 -34 years
 - c) 35 – 44 years
 - d) 45 and above
4. Marital Status
 - a) Married
 - b) Unmarried
 - c) Widowed
 - d) Divorce
5. Area of residence
 - a) Urban
 - b)Semi-urban
 - c)Rural
6. Educational qualification
 - a) SSLC
 - b)Plus Two
 - c) Diploma
 - d)Degree
 - e)PG
 - f)Others
7. Years of experience (Govt. Service) as on 1st December 2024: -----
8. Current category of employment
 - a) State govt.
 - b) Govt. aided
 - c) Board/Corporation
9. Which salaried class group do you belong to?
 - a) Group A category employee (Basic Pay Range ₹30,000 - ₹2, 50,000)
 - b) Group B category employee (Basic Pay Range ₹22,000 - ₹75,000)
 - c) Group C category employee (Basic Pay Range ₹16,000 - ₹45,000)
 - d) Group D category employee (Basic Pay Range ₹14,000 - ₹30,000)
10. Which post are you currently employed? -----
11. Monthly income (Gross income)
 - a) Below ₹25000
 - b) ₹25000 to ₹50000
 - c) ₹50000 to ₹75000
 - d) ₹75000 to ₹100000
 - e) Above ₹100000
12. Monthly savings (Gross savings)
 - a) Less than ₹5000
 - b) ₹5000 - ₹10000
 - c) ₹10000 - ₹20000
 - d) Above ₹20000

II. An Outlook to National Pension System (Perspectives of National Pension System)

13. State your NPS Investment Option:
 - a) Auto Choice (Automatic contribution)

- b) Active Choice (Actively decided by the subscribers as to how his/her NPS Pension Fund is to be invested)
14. What type of NPS account have you opened?
- a) Tier 1 (Mandatory Contribution)
b) Both Tier 1 and Tier 2 (Tier 2 meant for voluntary contribution)
15. Your primary source of funds for retirement planning
- a) NPS b) Other savings c)Both
16. Have you made any additional voluntary contributions to your NPS account beyond the mandatory requirements?
- a) Yes b) No
17. Do you actively monitor your NPS account? (For checking the accumulated fund balance, rate of return etc.)
- a) Regularly b) Intermittently c) Occasionally d) Rarely
e) Never
18. How do you assess the performance of your NPS investments?
- a) Comparing with benchmarks b) Reviewing annual statements
c) Consulting with a financial advisor d) Capital appreciation
e) No assessment
19. Have you ever made a withdrawal from your NPS account?
- a) Yes b) No
20. Awareness on NPS features statements with a seven-point Likert Scale, where '1' represents "strongly disagree" and '7' "strongly agree" on the following themes:

SI No	Statements	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neutral (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
1	I am aware of the basic features and benefits of the National Pension System (NPS).							

2	I understand the tax advantages provided by the NPS under different sections of the Income Tax Act.							
3	I am familiar with the differences between Tier I and Tier II accounts in NPS.							
4	I am aware of the investment choices and fund managers available under NPS.							
5	I know the rules for partial withdrawal, annuity purchase, and lump-sum withdrawal at retirement in NPS.							
6	I have sufficient information about the process of enrolling in the NPS.							

Constraints of NPS (Challenges of NPS)

21. Please indicate your level of agreement with the following statements about the National Pension System (NPS) with a seven-point Likert Scale, where ‘1’ represents “strongly disagree” and ‘7’ “strongly agree.”

SI No	Statements	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neutral (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
1	Lack of awareness about NPS scheme details is a major barrier to its adoption.							
2	The complex documentation process for NPS registration is challenging.							
3	The lack of proper guidance and assistance for NPS-related queries increase the difficulty of understanding the scheme.							
4	I find the investment options and portfolio choices under NPS confusing.							
5	The low rate of return on investments in NPS is a major concern for me.							

6	I am concerned about the tax implications associated with withdrawals from NPS.							
7	There is a lack of digital platforms that provide a seamless experience for managing NPS accounts.							
8	I feel that NPS lacks sufficient promotional and educational campaigns to make the public aware of its benefits.							
9	The restricted options for early withdrawal from NPS create a sense of financial insecurity.							
10	The administrative costs involved in managing an NPS account is too high.							

III. Financial Literacy

22. Financial literacy perception statements with a seven-point Likert Scale, where '1' represents "strongly disagree" and '7' "strongly agree" on the following themes: debt, saving and investment, and personal finance:

(Laborde et al., 2013; Lusardi & Mitchell, 2011; Mudzingiri et al., 2018)

SI No	Statements	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neutral (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
1	I know what makes me a good or bad credit risk.							
2	I understand what affects the credit terms I am offered by different lending institutions.							
3	I am comfortable with my ability to make decisions about savings instruments based on their fixed and compounded interest rates.							
4	I understand the general relationship between risk and reward in investing.							
5	I feel confident in understanding the differences between bonds, stocks, government securities and mutual funds.							
6	I feel comfortable with my understanding of the various financial terms that go along with							

	savings and investments.							
7	I understand what personal net worth means.							
8	I am confident in my ability to write a monthly budget.							

IV. Retirement Financial Planning

23. Retirement Financial Planning statements with a seven-point Likert Scale, where '1' represents "strongly disagree" and '7' "strongly agree".

(Ghadwan et al., 2022; Pande et al., 2024; Shieh and Bahl, 2000; Wann & Burke-Smalley, 2023)

SI No	Statements	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Neutral (4)	Somewhat Agree (5)	Agree (6)	Strongly Agree (7)
1	I actively save and invest for my retirement.							
2	I have a well-defined retirement plan that aligns with my financial goals.							
3	I regularly review and adjust my retirement savings strategy to stay on track.							
4	I utilise various retirement savings vehicles to maximize							

	my future financial security.							
5	I have put aside some money for my retirement.							
6	I am expecting benefits that can be utilized for my retirement planning.							
7	I will receive fixed payments as my pensions when I retire.							
8	I will have enough money to maintain my desired standard of living when I retire.							
9	I am expecting that I will have enough savings to pay for my expenditures during my retirement.							
10	I am expecting some earnings, which I can utilize during my retirement.							

V. Retirement Confidence

24. A 7- point scale, ranging from 1 (“not confident at all”) to 7 (“extremely confident”), was used to measure the participants’ degree of confidence.

(Hasnol et al., 2019; Lee & Law, 2004)

SI No	Statements	Not confident at all (1)	Slightly confident (2)	Somewhat confident (3)	Moderately confident (4)	Confident (5)	Very confident (6)	Extremely confident (7)
1	How confident are you that you will have enough money to take care of your expenses during your retirement?							
2	How confident are you that you will have enough money to take care of your basic needs during your retirement?							
3	How confident are you that your NPS will be enough to take care of your retirement?							
4	How are you confident that you will save enough money for retirement?							
5	How confident are you in preparations you have made for your retirement?							

VI. Financial Dependence on NPS

25. A 7- point scale, ranging from 1 (“not confident at all”) to 7 (“extremely confident”), was used to measure the participants’ degree of confidence.

(Thompson et al., 2022; Üngüren et al., 2024)

SI No	Statements	Not confident at all (1)	Slightly confident (2)	Somewhat confident (3)	Moderately confident (4)	Confident (5)	Very confident (6)	Extremely confident (7)
1	I rely on the NPS as my primary source of financial security after retirement.							
2	The contributions I make to the NPS are critical to ensuring my financial stability after retirement.							
3	I would face significant financial challenges in retirement without the funds accumulated through the NPS.							
4	The NPS fund will be the primary source of funds for my retirement.							
5	My financial security in retirement heavily depends on the contributions I make to the NPS during my working years.							

6	Without the NPS fund, I would struggle to maintain my current standard of living post-retirement.							
7	I consider my NPS contributions as a key component of my overall retirement.							

26. Give your suggestions about NPS: -----

Thank You For Your Time And Co-Operation

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APPENDIX- II

Dataset of Pension Fund Managers

PFC	Pension Fund Managers	Year	Average Returns	Beta	Risk-Free Return	Sharpe Ratio
1	SBIPF	2015	20.89222	4.349383	7.78	19.10423
1	SBIPF	2016	4.31	5.775888	7.21	3.062573
1	SBIPF	2017	14.52	3.635995	6.92	12.61612
1	SBIPF	2018	9.723333	0.635562	7.70	-2.39849
1	SBIPF	2019	9.66	0.62474	7.00	-1.53933
1	SBIPF	2020	8.995833	1.549863	6.19	5.000856
1	SBIPF	2021	9.996667	0.303214	6.26	-10.6406
1	SBIPF	2022	9.342308	1.865064	7.19	5.486319
1	SBIPF	2023	8.844615	1.614104	7.22	4.372579
1	SBIPF	2024	9.436154	1.228123	6.93	3.793395
2	LICPF	2015	19.38111	3.864604	7.78	17.36883
2	LICPF	2016	3.917	5.871736	7.21	2.689935
2	LICPF	2017	14.849	3.246418	6.92	12.71665
2	LICPF	2018	9.8925	1.502377	7.70	4.764514
2	LICPF	2019	9.910833	1.142996	7.00	3.789496
2	LICPF	2020	8.723333	2.684776	6.19	6.41712
2	LICPF	2021	10.19167	1.058	6.26	4.277205
2	LICPF	2022	9.693846	1.616652	7.19	5.245351
2	LICPF	2023	9.178462	1.321216	7.22	3.715062
2	LICPF	2024	9.709231	1.515116	6.93	5.135323
3	UTIRSL	2015	20.92333	5.367522	7.78	19.4745
3	UTIRSL	2016	5.558889	4.448634	7.21	3.939291
3	UTIRSL	2017	14.78667	4.193929	6.92	13.13607
3	UTIRSL	2018	9.470909	1.173685	7.70	2.906823
3	UTIRSL	2019	9.464545	1.112715	7.00	3.17662
3	UTIRSL	2020	8.576364	1.436177	6.19	4.26515
3	UTIRSL	2021	9.576364	1.389122	6.26	5.071719

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3	UTIRSL	2022	8.983333	2.140683	7.19	5.623813
3	UTIRSL	2023	8.626667	1.793532	7.22	4.602019
3	UTIRSL	2024	9.305	1.792305	6.93	5.438471
4	KOTAKPF	2015	20.81429	5.053222	7.78	19.27533
4	KOTAKPF	2016	3.727143	6.700852	7.21	2.651906
4	KOTAKPF	2017	15.28	4.308994	6.92	13.67348
4	KOTAKPF	2018	9.3975	1.296946	7.70	3.457263
4	KOTAKPF	2019	9.19	1.407862	7.00	4.220289
4	KOTAKPF	2020	8.46	1.428653	6.19	4.126081
4	KOTAKPF	2021	9.5825	1.081061	6.26	3.794207
4	KOTAKPF	2022	9.288889	1.467806	7.19	4.389286
4	KOTAKPF	2023	8.704444	1.545525	7.22	4.03397
4	KOTAKPF	2024	9.371111	1.683848	6.93	5.255537
5	ICICI	2015	21.73167	5.290323	7.78	20.26169
5	ICICI	2016	3.081667	7.474143	7.21	2.117677
5	ICICI	2017	15.33	4.300678	6.92	13.72037
5	ICICI	2018	9.674286	1.253918	7.70	3.53021
5	ICICI	2019	9.645714	1.24838	7.00	4.041118
5	ICICI	2020	8.302857	1.92855	6.19	5.092328
5	ICICI	2021	9.725714	1.470489	6.26	5.470328
5	ICICI	2022	9.2675	2.01126	7.19	5.691799
5	ICICI	2023	8.6975	1.967039	7.22	5.027856
5	ICICI	2024	9.59125	2.003911	6.93	6.133013
6	RELIANCE	2015	21.20667	5.452368	7.78	19.78038
6	RELIANCE	2016	3.005	7.276853	7.21	2.014874
6	RELIANCE	2017	14.90333	3.824381	6.92	13.09324
6	RELIANCE	2018	8.848571	1.2448	7.70	2.659491
6	RELIANCE	2019	8.911429	1.116531	7.00	2.644994
7	HDFC	2015	19.24	5.945323	7.78	17.93197
7	HDFC	2016	2.85	7.251669	7.21	1.856436
7	HDFC	2017	15.85667	5.14795	6.92	14.51196
7	HDFC	2018	10.85714	2.177434	7.70	7.318957

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7	HDFC	2019	10.72143	2.091148	7.00	7.375578
7	HDFC	2020	9.075714	1.675409	6.19	5.3801
7	HDFC	2021	10.92286	1.993358	6.26	7.783683
7	HDFC	2022	9.98125	3.132285	7.19	7.685269
7	HDFC	2023	9.42875	2.474265	7.22	6.511385
7	HDFC	2024	10.1725	2.751862	6.93	7.654205
8	BIRLA	2018	6.384286	2.925869	7.70	3.751165
8	BIRLA	2019	8.171429	1.90964	7.00	4.507563
8	BIRLA	2020	5.457143	5.208783	6.19	4.268445
8	BIRLA	2021	9.458571	2.073075	6.26	6.440109
8	BIRLA	2022	9.13375	2.510194	7.19	6.268765
8	BIRLA	2023	8.22	1.836886	7.22	4.290342
8	BIRLA	2024	9.4425	2.861642	6.93	7.020813

Source: Compiled by the researcher from various secondary sources

Note: PFCD = Pension Fund Code; SBIPF = SBI Pension Funds Private Limited; LICPF = LIC Pension Fund Limited; UTIRSL = UTI Retirement Solutions Limited; KOTAKPF =Kotak Mahindra Pension Fund Limited; ICICI = ICICI Prudential Pension Funds Management Company Limited; RELIANCE= Reliance Pension Fund Limited; HDFC = HDFC Pension Management Company Limited; BIRLA = Aditya Birla Sun Life Pension Management Limited.

APPENDIX- III

Dataset of Pension Schemes

PSCD	Pension Schemes	Year	Average Returns	Beta	Risk-Free Return	Sharpe Ratio
1	CG	2015	18.92333	0.314572	7.78	-5.79809
1	CG	2016	6.233333	0.196016	7.21	-30.5239
1	CG	2017	13.37333	0.208859	6.92	-19.771
1	CG	2018	9.853333	0.153695	7.70	-40.2729
1	CG	2019	9.76	0.141657	7.00	-39.6317
1	CG	2020	9.493333	0.236126	6.19	-16.7285
1	CG	2021	9.94	0.120277	6.26	-42.0855
1	CG	2022	9.72	0.106771	7.19	-57.6361
1	CG	2023	9.343333	0.104987	7.22	-59.4114
1	CG	2024	9.533333	0.0834	6.93	-73.5602
2	SG	2015	19.3	0.384014	7.78	-0.951
2	SG	2016	6.296667	0.265372	7.21	-20.8539
2	SG	2017	13.37667	0.134743	6.92	-37.9991
2	SG	2018	9.72	0.057155	7.70	-125.075
2	SG	2019	9.616667	0.036818	7.00	-180.418
2	SG	2020	9.413333	0.047842	6.19	-120.005
2	SG	2021	9.836667	0.026247	6.26	-228.574
2	SG	2022	9.596667	0.032998	7.19	-208.344
2	SG	2023	9.196667	0.032998	7.22	-209.552
2	SG	2024	9.413333	0.032998	6.93	-200.597
3	NPS Lite	2015	19.355	0.120312	7.78	-45.2824
3	NPS Lite	2016	6.055	0.283769	7.21	-19.3353
3	NPS Lite	2017	13.4	0.264481	6.92	-12.7739
3	NPS Lite	2018	10.4125	0.051174	7.70	-140.137
3	NPS Lite	2019	10.2125	0.054025	7.00	-119.294
3	NPS Lite	2020	9.7975	0.140067	6.19	-34.4076
3	NPS Lite	2021	10.3225	0.078541	6.26	-69.3489

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3	NPS Lite	2022	10.0325	0.076281	7.19	-84.2464
3	NPS Lite	2023	9.545	0.093941	7.22	-67.2936
3	NPS Lite	2024	9.74	0.04899	6.93	-131.718
4	APY	2018	9.08	0.424343	7.78	-9.24639
4	APY	2019	9.04	0.280832	7.21	-16.6159
4	APY	2020	8.84	0.082865	6.92	-74.6991
4	APY	2021	9.803333	0.182087	7.70	-32.5071
4	APY	2022	9.366667	0.133	7.00	-43.24
4	APY	2023	8.693333	0.131233	6.19	-38.4872
4	APY	2024	9.136667	0.126579	6.26	-40.2989
5	CORPORATE CG	2016	6.13	0.41	7.78	-12.8375
5	CORPORATE CG	2017	13.615	0.255	7.21	-14.6399
5	CORPORATE CG	2018	9.895	0.035	6.92	-187.891
5	CORPORATE CG	2019	9.75	0.02	7.70	-375.458
5	CORPORATE CG	2020	9.47	0.09	7.00	-68.2707
5	CORPORATE CG	2021	10.025	0.025	6.19	-237.642
5	CORPORATE CG	2022	9.705	0.045	6.26	-129.351
5	CORPORATE CG	2023	9.18	0.05	7.19	-134.653
5	CORPORATE CG	2024	9.455	0.045	7.22	-150.952
6	ASSET CLASS E	2015	28.45571	0.688411	7.78	17.15917
6	ASSET CLASS E	2016	-7.25286	0.363385	7.21	-27.0803
6	ASSET CLASS E	2017	21.84857	0.876282	6.92	13.94871
6	ASSET CLASS E	2018	11.4725	1.843907	7.70	7.294325
6	ASSET CLASS E	2019	11.6525	1.469522	7.00	6.891313
6	ASSET CLASS E	2020	5.514286	3.436925	6.19	3.712772
6	ASSET CLASS E	2021	12.02571	1.292195	6.26	7.183178
6	ASSET CLASS E	2022	12.71429	1.28976	7.19	7.138314
6	ASSET CLASS E	2023	11.64	1.041949	7.22	4.712276
6	ASSET CLASS E	2024	13.43571	1.171322	6.93	7.519324
7	ASSET CLASS C	2015	15.33286	0.258441	7.78	-14.7578
7	ASSET CLASS C	2016	9.18	0.415589	7.21	-8.15684
7	ASSET CLASS C	2017	12.09429	0.257341	6.92	-14.8058

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7	ASSET CLASS C	2018	10.2025	0.644937	7.70	-1.74311
7	ASSET CLASS C	2019	9.89625	0.541409	7.00	-3.02683
7	ASSET CLASS C	2020	10.17429	0.357885	6.19	-7.12643
7	ASSET CLASS C	2021	10.17286	0.355838	6.26	-7.41241
7	ASSET CLASS C	2022	9.758571	0.382078	7.19	-9.06393
7	ASSET CLASS C	2023	9.161429	0.465662	7.22	-6.33981
7	ASSET CLASS C	2024	9.11	0.4005	6.93	-8.19338
8	ASSET CLASS G	2015	20.31857	0.433043	7.78	2.3604
8	ASSET CLASS G	2016	7.045714	0.311763	7.21	-16.0648
8	ASSET CLASS G	2017	12.56429	0.76984	6.92	3.572153
8	ASSET CLASS G	2018	8.62125	1.879923	7.70	4.523121
8	ASSET CLASS G	2019	8.965	1.113643	7.00	2.682314
8	ASSET CLASS G	2020	9.961429	0.935848	6.19	3.345329
8	ASSET CLASS G	2021	9.66	0.810026	6.26	1.934944
8	ASSET CLASS G	2022	9.037143	0.724307	7.19	-0.89189
8	ASSET CLASS G	2023	8.661429	0.66557	7.22	-2.18391
8	ASSET CLASS G	2024	8.775714	0.54224	6.93	-4.0046
9	A-I	2018	7.07875	0.967903	7.70	-0.8809
9	A-I	2019	7.43375	0.759637	7.00	-1.77679
9	A-I	2020	7.064286	0.719858	6.19	-1.53694
9	A-I	2021	7.334286	1.213576	6.26	2.178038
9	A-I	2022	7.848571	1.072266	7.19	1.141594
9	A-I	2023	7.077143	0.920942	7.22	-0.76084
9	A-I	2024	7.55	0.84085	6.93	-0.69166
10	ASSET CLASS E-II	2015	26.94571	3.261174	7.78	24.56109
10	ASSET CLASS E-II	2016	-5.19	4.793421	7.21	-6.6931
10	ASSET CLASS E-II	2017	21.66714	0.866713	6.92	13.68007
10	ASSET CLASS E-II	2018	9.65	0.965246	7.70	1.668443
10	ASSET CLASS E-II	2019	10.0775	0.907438	7.00	2.367148
10	ASSET CLASS E-II	2020	3.957143	2.98926	6.19	1.885839
10	ASSET CLASS E-II	2021	10.80571	1.029575	6.26	4.727963
10	ASSET CLASS E-II	2022	11.61429	1.069604	7.19	4.890615

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10	ASSET CLASS E-II	2023	10.64143	0.713651	7.22	0.526776
10	ASSET CLASS E-II	2024	12.65429	1.005795	6.93	5.764217
11	ASSET CLASS C-II	2015	14.13571	2.198011	7.78	10.59767
11	ASSET CLASS C-II	2016	8.748571	0.349956	7.21	-11.8397
11	ASSET CLASS C-II	2017	12.10857	0.298923	6.92	-11.0495
11	ASSET CLASS C-II	2018	9.28	1.169754	7.70	2.693859
11	ASSET CLASS C-II	2019	9.1625	0.81518	7.00	0.579531
11	ASSET CLASS C-II	2020	9.522857	0.494851	6.19	-2.98933
11	ASSET CLASS C-II	2021	9.625714	0.42473	6.26	-5.10716
11	ASSET CLASS C-II	2022	9.257143	0.446757	7.19	-6.84035
11	ASSET CLASS C-II	2023	8.704286	0.528984	7.22	-4.94136
11	ASSET CLASS C-II	2024	8.705714	0.433848	6.93	-7.2676
12	ASSET CLASS G-II	2015	20.16143	0.403748	7.78	0.900227
12	ASSET CLASS G-II	2016	7.174286	0.295338	7.21	-17.2215
12	ASSET CLASS G-II	2017	12.45857	0.532365	6.92	-0.54473
12	ASSET CLASS G-II	2018	8.4075	3.037091	7.70	5.870807
12	ASSET CLASS G-II	2019	8.94125	1.726401	7.00	4.888503
12	ASSET CLASS G-II	2020	9.967143	1.218614	6.19	4.886235
12	ASSET CLASS G-II	2021	9.651429	1.047438	6.26	3.677328
12	ASSET CLASS G-II	2022	9.05	0.974621	7.19	1.671062
12	ASSET CLASS G-II	2023	8.672857	0.89487	7.22	0.606506
12	ASSET CLASS G-II	2024	8.79	0.723523	6.93	-0.78813
13	TIER II-TTS	2022	5.054286	1.500218	7.19	0.260537
13	TIER II-TTS	2023	5.254286	1.091223	7.22	-1.36062
13	TIER II-TTS	2024	7.61	0.732471	6.93	-1.85112

Source: Compiled by the researcher from various secondary sources

Note: PSCD = Pension Scheme Code; CG = Central Government; SG = State Government; APY = Atal Pension Yojana; Corporate CG = Corporate Central Government Pattern; Asset Class E = Equity; Asset Class C = Corporate Bonds; Asset Class G = Government Securities; A - I = Alternative Investment Funds; Asset Class E-II = Equity Tier-II Scheme; Asset Class C-II = Corporate Bonds Tier-II Scheme; Asset Class G-II = Government Securities Tier-II Scheme; Tier II TTS = Tier-II Tax Saver Scheme.
