European Economic Letters
ISSN 2323-5233
Vol 16, Issue 1 (2026)
http://eelet.org.uk

Bridging the Gap: The Mediating Role of Satisfaction in Shaping Perceptions of the National Pension Scheme (NPS)

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Abstract

This study addresses the limited active engagement with the National Pension Scheme (NPS) in India despite widespread enrollment. It examines how psychological and scheme-related factors—awareness, scheme attractiveness, institutional trust, and risk aversion—affect employee satisfaction, which in turn shapes overall perception. Using a combined theoretical framework of Expectation-Confirmation Theory (ECT) and the Theory of Planned Behaviour (TPB), 342 state-sector employees in Karnataka were surveyed using a cross-sectional design. PLS-SEM analysis showed that satisfaction was positively influenced by awareness, scheme attractiveness, and institutional trust, but negatively by risk aversion. Satisfaction fully mediated the effects of institutional trust and risk aversion, and partially mediated awareness and scheme attractiveness. These findings highlight the importance of creating positive user experiences to translate attitudes into lasting perceptions. The study offers policy implications for user-focused interventions and contributes empirically to theoretical models of mediation in public financial schemes.

Keywords: *National Pension Schemes, Smart PLS, Public Finance, PFRDA*

INTRODUCTION

India's changing economy and population have increased the need for a robust and sustainable retirement security system. To address this, the Pension Fund Regulatory and Development Authority (PFRDA) launched the National Pension System (NPS) in 2004, shifting from a defined-benefit to a defined-contribution model with market-linked returns, flexible investment options, and tax incentives (Gurunathan, 2016). By March 2025, NPS had 6.6 crore subscribers and ₹11.73 lakh crore in assets (PFRDA Annual Report, 2025). However, gaps exist between enrollment and active participation, particularly among government employees, with low voluntary top-up contributions reflecting doubts about long-term sustainability (Sinha et al., 2014; Sharma & Verma, 2018).

Evidence from pension schemes, such as the Indira Gandhi National Old Age Pension Scheme (IGNOAPS), shows positive impacts on household well-being, poverty reduction, and health outcomes, particularly for women (Unnikrishnan & Imai, 2020; Das, 2025). Global studies also highlight the importance of awareness and trust for participation, especially in informal sectors (Segbenya et al., 2023; Que & Dai, 2024), though administrative inefficiencies and poor beneficiary identification remain obstacles (Asri, 2018; Narayana, 2019). Previous research identifies key antecedents of NPS adoption. Insufficient knowledge about investment rules, tax benefits, and withdrawals reduces confidence, with some government employees confusing NPS with GPF or EPF (Yadav & Pathak, 2016; Singh & Kumar, 2015; Pushpa, 2021). Scheme attractiveness, trust, and risk perception also affect participation; complex procedures, poor information flow, and market-linked return uncertainty discourage risk-averse employees (Jain et al., 2019; Gupta et al., 2017; Pereira et al., 2017; Alhassan et al., 2017).

Despite these insights, the cumulative effect of these factors on employee satisfaction and overall perception of NPS is underexplored. This study addresses this gap by examining how awareness, scheme attractiveness, trust, and risk perception interact to shape satisfaction, which mediates employees' overall perception. Expectation-Confirmation Theory (Oliver, 1980) and the Theory of Planned Behaviour (Ajzen, 1991) are applied to explain the psychological processes underlying satisfaction and perception.

LITERATURE REVIEW

Awareness of NPS

Prior studies show that limited understanding of the structure, benefits, and functioning of NPS is a major barrier to participation (Singh & Kumar, 2015). Evidence from India and Ghana suggests that low awareness and technological knowledge significantly reduce satisfaction and enrollment, especially among informal sector workers (Panigrahi, 2025; Segbenya et al., 2023). Misconceptions, such as confusing NPS with GPF or EPF, further hinder participation, highlighting the need for improved awareness and clarity (Pushpa, 2021).

Scheme Attractiveness

Investor attitude and satisfaction largely depend on perceived scheme benefits, flexibility, risk–return balance, and communication. While long-term growth prospects and customization encourage participation, complexity and insufficient information often dampen interest (Barik, 2015; Jain et al., 2019; Gupta et al., 2017).

Trust in NPS

Trust in government institutions, regulatory transparency, and fund managers strongly influences satisfaction and adoption of pension schemes. Studies across countries show that institutional mistrust can outweigh financial incentives and significantly reduce participation (Kwon, 2012; Lee et al., 2018; Miti et al., 2023).

Risk Perception

Market-linked features of NPS raise concerns about fund safety, particularly among risk-averse investors. International evidence indicates that uncertainty and fear of losses can undermine pension reforms unless disclosure and scheme design are strengthened (Fultz, 2012; Alhassan et al., 2017).

Satisfaction and Perception

Satisfaction is a key driver of continued participation and positive word-of-mouth. Research indicates that NPS features positively affect investor satisfaction in India, while inadequate pension income in other contexts reduces retiree well-being and satisfaction (Panigrahi, 2025; Ongoh et al., 2023).

Hypotheses of research and theoretical background.

The study conceptual framework is based on the two behaviour theories that have already been demonstrated through empirical studies Expectancy-Confirmation Theory (ECT) and the Theory of Planned Behaviour (TPB) in the formation of perceptions towards the National Pension Scheme (NPS) by the workers. Collectively, these frameworks can provide a complementary knowledge of how expectations attitudes and experience can intervene to moderate satisfaction and then finally the long term judgments of financial programmes pursued by a particular population.

Expectancy - Confirmation Theory (ECT) and Satisfaction

Oliver (1980), proposed one of the most popular consumer satisfaction theories herein referred to as Expectancy-Confirmation Theory. It states that satisfaction will take place when performance of a product or service is greater or the same as the performance before, and vice versa it will lead to dissatisfaction.

- Subscribers expect clear returns, account safety, tax benefits, and flexible withdrawals from NPS. When these expectations are met or exceeded, satisfaction increases. Empirical studies confirm a strong positive relationship between NPS features and investor satisfaction (Panigrahi, 2025; Shabana et al., 2024). While satisfaction reflects short-term experience, it also mediates long-term perceptions and evaluations of the scheme.
- H1: NPS awareness has a positive impact on employee satisfaction.
- H2: Perceived attractiveness of the NPS has a positive relationship with employee satisfaction.

- H3: The level of trust in the NPS has a positive effect on employee satisfaction.
- H4: Risk perception has a negative impact with the employee satisfaction.
- H5: The overall perception of the NPS is positively impacted by the employees who are satisfied.

Antecedent Factors and Theory of Planned Behaviour(TPB).

The Theory of Planned Behaviour (TPB) by Ajzen (1991) explains behavioural intention through attitude, subjective norms, and perceived behavioural control. This study applies TPB to understand how employees form attitudes toward the NPS.

Attitude toward NPS reflects an overall evaluation of the scheme and is shaped by perceived attractiveness, trust, and risk perception. Participation willingness increases when NPS is viewed as beneficial, understandable, and safe. Conversely, mistrust or heightened risk perception can reduce participation, even when awareness is high (Fultz, 2012; Miti et al., 2023; Panigrahi, 2025).

Perceived behavioural control refers to individuals' confidence in their ability to engage with NPS, which improves with better awareness and understanding of the scheme. Prior studies confirm that low awareness is a key barrier to pension enrollment (Segbenya et al., 2023).

Combined Conceptual Model & Mediation Pathway.

This study integrates Expectation–Confirmation Theory (ECT) and the Theory of Planned Behaviour (TPB into a single model, where awareness, scheme attractiveness, trust, and risk affect satisfaction, which in turn shapes overall perception of NPS. While these variables are well studied individually, their indirect influence through satisfaction as a central psychological mediator remains underexplored.

The model captures perception shifts as indirect emotive–cognitive processes, where employees evaluate expectations, personal circumstances, and perceived control. This integrated approach offers a deeper understanding of how perceptions toward a compulsory pension scheme are formed:

- H6a: There is a mediation between awareness and perception of NPS by satisfaction.
- H6b: Scheme attractiveness mediates the relationship between perception of NPS and satisfaction.
- Hypothesis: H6c: Trust and perception of NPS have an intermediate, which is satisfaction.
- H6d: Satisfaction is an intermediate between satisfaction and perception of NPS.

METHODOLOGY

Research Design

The research has been provided as a quantitative study, which is a cross-sectional research design, to explore the variables that influence the level of satisfaction the government employees are experiencing with the National Pension Scheme(NPS). The research design involves testing the hypotheses and also an analysis of the direct and mediator effect PLS - SEM analysis.

Population and Sample

This study focuses on Indian government employees enrolled in the National Pension Scheme (NPS). Data were collected using convenience sampling through face-to-face interviews across government offices in Karnataka. After data screening, 342 valid responses were retained. The sample size is adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM) and robust model evaluation (Hair et al., 2019).

Participant Demographics

Table 1 shows that most respondents were male (82.2%) and aged 30–40 years (53.6%), indicating strong representation of mid-career civil servants. The majority worked in state government departments (92.7%) and had 5–10 years of service (52.5%). Over half of the respondents (54.5%) contributed more than ₹12,500 per month to their NPS accounts.

Table 1: Participants details

Variable	*Category*	*Frequency (N)*	*Percentage (%)*
Gender	*Female*	*61*	*17.8%*
	Male	*282*	*82.2%*
Age Group	*Below - 30*	*43*	*12.5%*
	31 – 40	*184*	*53.6%*
	41 – 50	*104*	*30.3%*
	Above 51	*12*	*3.5%*
Job Level	*Class - I*	*146*	*42.6%*
	Class - II	*71*	*20.7%*
	Class - III	*105*	*30.6%*
	Class - IV	*14*	*4.1%*
	Not Prefer to say	*7*	*2.0%*
Type of Government Employment	*Central Government*	*12*	*3.5%*
	State Government	*318*	*92.7%*
	Not Prefer to say	*13*	*3.8%*
Years of Service	*Less than 5 years*	*42*	*12.2%*
	6 – 10 years	*180*	*52.5%*
	11 – 20 years	*101*	*29.4%*
	More than 20 years	*7*	*2.0%*
	Not Prefer to say	*13*	*3.8%*
Monthly Contribution to NPS (₹)	*Up to ₹5,000*	*14*	*4.1%*
	₹5,001–₹7,500	*64*	*18.7%*
	₹7,501–₹12,500	*65*	*19.0%*
	More than ₹12,500	*187*	*54.5%*
	Not Prefer to say	*13*	*3.8%*
Opinions	*Negative or against NPS*	*28*	*8.2%*
	Positive or supportive of NPS	*3*	*0.9%*
	Neutral or no response	*305*	*89.2%*
	Total	*342*	*100%*

The instrument development and data collection.

A five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was used in the questionnaire. All items were adapted from validated scales to suit the NPS context. NPS awareness was measured through knowledge of tax benefits, contribution rules, and withdrawal procedures (Kumar et al., 2020). Scheme attractiveness items were adapted from Jain et al. (2019), while institutional trust was based on confidence in fund managers and regulators (Pereira et al., 2017; Zhao et al., 2015). Risk perception captured concerns about market volatility and potential losses (Shaikh & Jabeen, 2019). Satisfaction reflected perceptions of scheme performance and usability (Oliver, 1980; Panigrahi, 2025). Overall perception of NPS measured trust and recommendation intention, drawing on Ajzen (1991).

Data analysis and Plan

The analysis of the study was carried out in two steps using the SmartPLS 4 program. First, the reliability and validity of the measurement model have been measured using the Partial Least Squares Structural Equation Modeling (PLS-SEM) procedure that is optimized by the principles used by Hair et al. (2018) only. The structural model was then tested to test the proposed relation of constructs.

RESULTS:

Descriptive Statistics

Table 2 summarizes factor loadings, means, standard deviations, and VIFs. All items showed strong loadings (≥0.81), confirming good construct validity. One item (AWR1) showed high multicollinearity (VIF = 6.371) and was excluded from further analysis.

Mean scores indicated generally moderate to low agreement across items. Perception and satisfaction recorded the lowest means, reflecting weaker support for NPS, while awareness and risk aversion showed relatively higher mean values, indicating basic familiarity with the scheme and notable concern about investment risk.

Table 2: Factor Loadings

		Item Statement	***Factor loadings***	***Mean***	***Standard deviations***	***VIF values***
Awareness of NPS	*AWR1*	*I understand the regulations regarding contributions associated with the NPS.*	*0.959*	*3.959*	*1.238*	***6.371***
	AWR2	*I comprehend the tax advantages provided by NPS.*	*0.927*	*3.886*	*1.208*	*3.729*
	AWR3	*I'm familiar with the exit and withdrawal terms of NPS.*	*0.897*	*3.411*	*1.426*	*2.636*
Design Attractiveness	*ATTR1*	*NPS provides attractive and competitive returns over the long term.*	*0.880*	*3.000*	*1.400*	*2.966*
	ATTR2	*The terms and conditions of NPS are explicitly stated.*	*0.811*	*2.965*	*1.207*	*2.230*
	ATTR3	*The investment options available in*	*0.815*	*2.980*	*1.263*	*2.358*

		NPS are adaptable.				
	ATTR4	*The fees and charges in NPS are fair.*	*0.910*	*3.303*	*1.164*	*3.782*
	ATTR5	*NPS is created with consideration for the future requirements of employees.*	*0.896*	*2.980*	*1.423*	*3.415*
Institutional Trust	*TRUST1*	*I have confidence in the government to oversee the NPS with care.*	*0.903*	*3.224*	*1.359*	*3.224*
	TRUST2	*I think the NPS system is clear.*	*0.913*	*3.026*	*1.134*	*3.489*
	TRUST3	*I have confidence in the fund managers managing NPS investments.*	*0.919*	*2.994*	*1.127*	*3.694*
	TRUST4	*I am confident that my input in NPS is protected.*	*0.879*	*2.939*	*1.257*	*2.618*
Risk Aversion	*RISK1*	*I am concerned that NPS returns could vary excessively.*	*0.899*	*3.644*	*1.089*	
	RISK2	*I believe NPS investments carry too much risk for my retirement strategy.*	*0.913*	*3.732*	*1.306*	
	RISK3	*I worry about losing funds in the NPS because of market risks.*	*0.958*	*3.662*	*1.337*	
Satisfaction with NPS	*SAT1*	*I am pleased with how the NPS is performing.*	*0.841*	*2.915*	*1.133*	*2.226*
	SAT2	*NPS fulfills my requirements for retirement planning.*	*0.817*	*2.429*	*1.109*	*2.558*
	SAT3	*I consider the NPS platform and services easy to use.*	*0.858*	*2.956*	*1.146*	*2.733*
	SAT4	*I am generally satisfied with my NPS experience.*	*0.895*	*2.571*	*1.161*	*3.467*
Perception	*PER1*	*I hold a favorable*	*0.865*	*2.741*	*1.385*	-

Toward NPS		*general view of NPS.*				
	PER2	*NPS is a dependable and credible retirement plan.*	*0.910*	*2.691*	*1.245*	-
	PER3	*I would suggest NPS to my coworkers or associates.*	*0.876*	*2.630*	*1.418*	-
	PER4	*In my view, NPS is the top pension plan for government workers.*	*0.908*	*2.251*	*1.290*	-

Measurement model

The measurement model's reliability and validity were comprehensively assessed employing various indicators, including factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). Additionally, the Fornell-Larcker criterion was employed to assess discriminant validity.

Internal Consistency and Validity

All constructs demonstrated strong reliability and validity as shown in Table 3, thereby meeting the required psychometric criteria. The Cronbach alpha coefficients (ranging from 0.823 to 0.925) and the composite reliability (CR) values (all exceeding 0.70) show strong point-biserial correlations. Moreover, AVE scores (0.731 to 0.850) surpassed the suggested threshold (0.50), demonstrating outstanding convergent validity.

Table 3: Constructs Reliability and Validity

Construct	***Cronbach's Alpha***	***Composite Reliability (rho_a)***	***Composite Reliability (rho_c)***	***Average Variance Extracted (AVE)***
Awareness of NPS	*0.823*	*0.824*	*0.919*	*0.850*
Institutional Trust	*0.925*	*0.926*	*0.947*	*0.816*
Perception toward NPS	*0.913*	*0.915*	*0.938*	*0.792*
Risk Aversion	*0.896*	*0.900*	*0.935*	*0.828*
Satisfaction with NPS	*0.877*	*0.880*	*0.916*	*0.731*
Scheme Attractiveness	*0.914*	*0.920*	*0.936*	*0.746*

European Economic Letters
ISSN 2323-5233
Vol 16, Issue 1 (2026)
http://eelet.org.uk

Discriminant Validity

The Fornell-Larcker criterion was used to make tests of discriminant validity. As Table 4 indicates, the square root of the AVE of each construct (at the diagonal) is greater than the correlation between it and the other construct in the model. It implies that all constructs are empirically differentiated in terms of mediators about they.

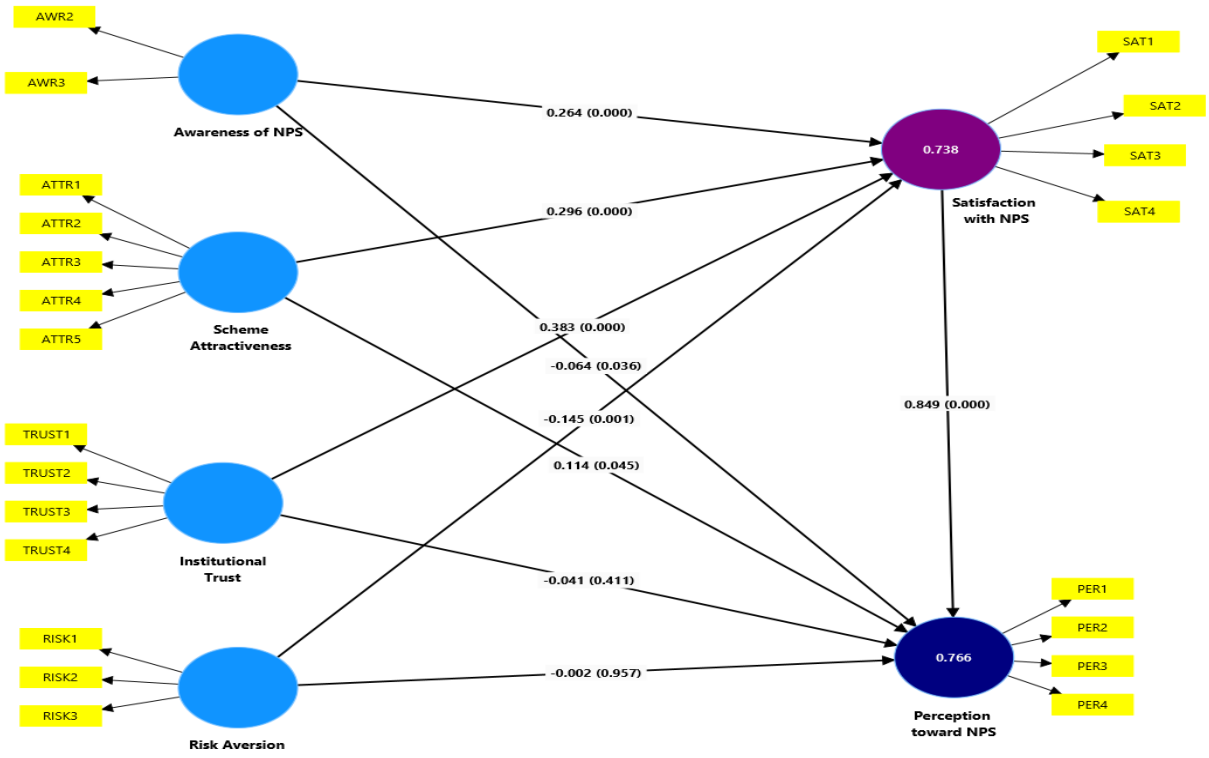
Table 4: Discriminant Validity (Fornell-Larcker Criterion)

Construct	*Awareness of NPS*	*Institutional Trust*	*Perception toward NPS*	*Risk Aversion*	*Satisfaction with NPS*	*Scheme Attractiveness*
Awareness of NPS	***0.922***					
Institutional Trust	*0.340*	***0.903***				
Perception toward NPS	*0.415*	*0.671*	***0.890***			
Risk Aversion	*-0.240*	*-0.494*	*-0.510*	***0.910***		
Satisfaction with NPS	*0.533*	*0.763*	*0.871*	*-0.565*	***0.855***	
Scheme Attractiveness	*0.350*	*0.740*	*0.702*	*-0.564*	*0.754*	***0.864***

Structural Model Assessment

To test the hypothesized relationships and predictive power of the model, the structural model was tested.

Figure 1: Structural model for perception towards NPS with satisfaction as mediator



European Economic Letters
ISSN 2323-5233
Vol 16, Issue 1 (2026)
http://eelet.org.uk

Table 5: Coefficient of Determination (R^2) and Predictive Relevance (Q^2)

Endogenous Latent Factors	*R^2*	*R^2 adjusted*	*Q^2*
Perception toward NPS	*0.766*	*0.763*	*0.598*
Satisfaction with NPS	*0.738*	*0.735*	*0.532*

The model predictive power (R2 and Q2) is shown below:

Table 5 reports the coefficients of determination (R^2) and predictive relevance (Q^2) for the endogenous variables. The model shows strong explanatory power, explaining 73.8% of variance in satisfaction ($R^2 = 0.738$) and 76.6% in perception ($R^2 = 0.766$). High Q^2 values for satisfaction (0.532) and perception (0.598) further confirm strong predictive relevance and model robustness.

Table 6. Direct Effects (Hypothesis Testing)

Hypothesis	***Path***	***β (Path Coefficient)***	***T-Statistic***	***P-Value***	***Result***
H1	*Awareness → Satisfaction with NPS*	*0.264*	*9.538*	*0.000*	*Supported*
H2	*Scheme Attractiveness → Satisfaction with NPS*	*0.296*	*5.839*	*0.000*	*Supported*
H3	*Institutional Trust → Satisfaction with NPS*	*0.383*	*8.117*	*0.000*	*Supported*
H4	*Risk Aversion → Satisfaction with NPS*	*–0.145*	*3.311*	*0.001*	*Supported*
H5	*Satisfaction with NPS → Perception toward NPS*	*0.849*	*17.179*	*0.000*	*Supported*

Table 7. Mediation Analysis (Indirect Effects via Satisfaction)

Hypothesis	*Mediation Path*	*Indirect Effect (β)*	*T-Statistic*	*P-Value*	*95% Confidence Interval*	*Mediation Type*
H6a	*Awareness → Satisfaction → Perception*	*0.224*	*8.143*	*0.000*	*[0.172, 0.281]*	*Partial Mediation (Direct effect also significant)*
H6b	*Scheme Attractiveness → Satisfaction → Perception*	*0.252*	*5.518*	*0.000*	*[0.159, 0.339]*	*Partial Mediation (Direct effect also significant)*
H6c	*Institutional Trust → Satisfaction → Perception*	*0.325*	*7.183*	*0.000*	*[0.245, 0.420]*	*Full Mediation (Direct effect not significant)*
H6d	*Risk Aversion → Satisfaction → Perception*	*–0.123*	*3.305*	*0.001*	*[–0.199, –0.054]*	*Full Mediation (Direct effect not significant)*

Discussions:

This study examines how four established variables—awareness, scheme attractiveness, institutional trust, and risk aversion—influence employee satisfaction with the National Pension Scheme (NPS) and, in turn, overall perception of the scheme. Findings show that greater awareness, perceived value, and institutional trust positively affect satisfaction, while risk aversion has a negative effect, consistent with prior research (Zhao et al., 2015; Miti et al., 2023; Alhassan et al., 2017). These results confirm that satisfaction is shaped not only by scheme features but also by underlying psychological attitudes.

Mediating Role of Satisfaction: A key contribution of the study is confirming satisfaction as a central mediator between the predictors and overall perception of NPS. Awareness and scheme attractiveness showed partial mediation, while institutional trust and risk aversion were fully mediated through satisfaction. This highlights the relevance of Expectation Confirmation Theory (ECT) in explaining long-term perceptions beyond direct effects.

Managerial Implications: Policy makers should focus on enhancing user satisfaction by improving awareness, perceived value, transparency, and trust. Clear communication on benefits, governance, and risk management, along with effective grievance redressal systems, can strengthen confidence and participation in NPS.

Theoretical Implications: The study integrates ECT and the Theory of Planned Behaviour (TPB) to explain adoption of a compulsory pension scheme, extending their applicability to public policy and financial decision-making. By establishing satisfaction as a key psychological mechanism linking trust and risk perception to scheme evaluation, the research offers a robust framework for future studies in behavioural economics and pension policy.

Limitations and Future Research Directions.

Despite its contributions, this study has several limitations. The use of convenience sampling of mostly state employees in Karnataka limits the generalizability to private-sector workers or other regions. Future studies should employ more representative and geographically diverse samples to improve external validity.

The cross-sectional design captures perceptions and satisfaction at a single point in time, making it difficult to account for changes in employees' experiences over their careers. Longitudinal studies could address this limitation.

Additionally, future research could examine demographic factors (e.g., age, income, tenure) as potential moderators and compare NPS with other pension schemes in India or internationally to better understand contextual influences on adoption. Combining quantitative methods with qualitative approaches, such as interviews or focus groups, could also provide deeper insights into user experiences, barriers, and decision-making processes.

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