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The Role of National Pension System (NPS) In Enhancing Retirement Planning Among Government Employees with Special Reference to NPS Swavlamban

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Abstract

This study examines the impact of the National Pension Scheme (NPS) Swavlamban scheme on retirement planning among government employees in India. Using a mixed-methods approach, the research investigates the perceptions and experience of government employees regarding the effectiveness of NPS Swavlamban in enhancing their retirement preparedness. The main objective of this study is to assess the effectiveness of the National Pension Scheme (NPS) in improving retirement planning for government employees. The study specifically aims to assess how well the NPS contributes to financial stability and retirement readiness for participants. Additionally, the study seeks to explore government employees' perceptions and satisfaction with the NPS, to explore their experiences and perceptions of the programme. A comparative study with traditional pension plans is conducted to highlight the advantages and limitations of NPS in pension planning. It evaluates and compares the performance of four pension schemes: State Bank of India Pension Fund (SBIPF), Life Insurance Corporation Pension Fund (LICPF), Unit Trust of India Retirement Solutions Limited (UTIRSL), and Kotak Pension Fund (KOTAK PF), focusing on annualized returns, standard deviation, and Sharpe ratios. SBIPF demonstrates the highest annualized return and superior risk-adjusted performance, while UTIRSL shows greater volatility and lower returns. The analysis is contextualized within the framework of global and Indian pension reforms. It draws insights from recent literature on pension sustainability and policy impacts. The findings provide valuable insights for investors and policymakers in optimizing retirement planning and improving pension system efficiency.

Keywords: *National Pension System (NPS), Retirement Planning, Social Security, Pension Schemes, Employee Satisfaction, Retirement Readiness*

Introduction

The National Provident Fund (NPS) is a defined contribution plan that is connected to the market and offers pensions to people (Central Government, 2013). It's easy to use, flexible, and optional, and it's governed by the Pension Fund Regulation and Development Authority. (1)

Tax benefits are available to both employers and employees on their NPS payments. These benefits include deductions of up to 10% of pay, up to Rs. 50,000, and 14% of salary if the Central Government makes the contributions. Deductions of up to 20% of gross income, up to Rs. 1.5 lakh, and up to Rs. 50,000 are allowed for self-employed people. While purchases of annuities, retirement at age 60, and superannuation offer tax benefits, partial withdrawals from NPS accounts are not. Sixty percent of the total NPS funds can be withdrawn in one lump amount, tax free. A deduction of up to 10% of the employee's wage from the Profit & Loss Account is one of the corporate/employer tax deductions. (2)

Greater flexibility and development potential are possible since the NPS is handled by experienced fund managers and offers a variety of investment possibilities. According to (PFRDA, 2020), the program promotes systematic savings among employees during their working years, resulting in a consistent accumulation of money that may be accessible following retirement. (3)

The NPS framework is an all-inclusive retirement planning tool that also offers features like tax advantages, mobility, and investment mix selection. (4).

Early retirement planning has several advantages, such as maximizing our money's potential to generate income, obtaining tax advantages, easing financial stress, lessening the load on our family and children, and enabling you to make smarter financial decisions now. We may manage the amount of money that we invest and plan for our goals accordingly by building a diversified financial portfolio and making astute pension plans. Retirement planning is a useful strategy for securing future finances since it provides tax advantages and refunds. Establishing retirement objectives early on might also help with money saving and decision-making. (5)

The main objective of this study is to assess the effectiveness of the National Pension Scheme (NPS) in improving retirement planning for government employees. Specifically, the study aims to assess how well the NPS contributes to financial stability and retirement readiness for participants. Additionally, the study seeks to explore government employees' perceptions and satisfaction with the NPS, to explore their experiences and perceptions

of the programme. A comparative study with traditional pension plans is conducted to highlight the advantages and limitations of NPS in pension planning.

Literature Review

Overview of Pension Systems Globally and in India

Examining 1287 papers on pension systems in industrialized nations published between 1936 and 2021, this article concentrates on pension reform and sustainability. Key publications, authors, nations, and institutions are analyzed in a study using SciMAT, VOSviewer, and Datawrapper tools. With the UK, USA, and Netherlands as the top three countries, mathematics is the primary area of study. Age-related pension reform, pension insurance, and sustainability are among the study trends. (Valls Martínez *et.al*, 2020)

The welfare state takes on social responsibility for all of its residents, yet in developing nations, pensions for the elderly only cover a tiny portion of the population. The unanticipated expansion in coverage over the past 25 years has mostly been attributed to non-contributory pensions. Thanks to this, rather than through social insurance as in Western and Northern Europe, emerging nations are now closer to universal coverage. Important elements of the Northern standard explanatory model are equally relevant in development settings. (Böger, T. *et.al*, 2020)

Unnikrishnan, V., & Imai, K. S. (2020) investigated the effects of the Indira Gandhi National Old Age Pension Scheme (IGNOAPS) on family welfare metrics, including poverty, assets, income, and consumer expenditures. The findings indicate that while family labor supply decreases, IGNOAPS membership raises consumer spending, assets, and expenditure on food and non-food items. However, because program requirements changed in 2007, the poverty-reducing effect worsened in 2011–12.

Miti, J. J. *et.al* (2020) examined the variables impacting low- and middle-income countries' (LMICs') informal workers' willingness to pay (WTP) for pension plans and health insurance. Income and trust were linked to WTP for both health insurance and pension plans, according to the analysis, which comprised 34 research from 17 different nations. Common characteristics for both types of social security were family size, age, education, and residential location. WTP was impacted by health insurance, illness history, doctor presence and attitude, and distance from medical facilities. Enrollment and contributions in pension plans were impacted by low contribution rates, benefit packages, government subsidies, and the caliber of management.

Evolution and Key Features of the NPS

Mehrotra, S. K. (2022) studied that critics point out that India's Social Security Code 2020, which attempts to offer social insurance to the 475 million unemployed workers in the nation, ignores the intricate makeup of the labor force. In accordance with the ILO Conventions, the study suggests a comprehensive and difficult reform plan that seeks to include the whole workforce within 10 years.

In examining how policy paradigms affect institutional advancement, the study emphasizes the value of policy concepts above material interests. The two path creation sequences—an institutional drift path and a layering–tipping–displacement path—are highlighted. The case study by Mukherji, R. *et.al* (2020) explained how India's fast economic growth was caused by the country's 1991 transition from a public sector-driven to a private sector-oriented government. The study also emphasizes the material elements that drive these shifts in terms of causal reasoning.

According to the NSO's Periodic Labour Force Survey, 91% of the labor force is employed in informal work and does not have social insurance, indicating that India's social safety and security coverage has been inadequate since independence. The remaining 9% get varied degrees of social security, and this high level of informality has not altered since 2012. (Mehrotra, Santosh, 2020)

Comparative Analysis with Traditional Pension Schemes

In order to address the aging of the population and improve financial sustainability, all member states of the European Union have changed their pension systems within the last 30 years. These changes, however, may raise the likelihood of poverty in old life and offer little possibilities for correction. Preoccupation with long-term financial viability might conflict with the main goal of pension plans, which is to lessen poverty. (Hinrichs, K, 2021).

Due to decline in fertility and death rates, there are changes in the demographics of the world's population. Further, due to advancements in healthcare and medical technology, people are living longer, which has led to changes in social security and pension plans. Promoting holistic health management and preventing social prejudice are two reasons why active aging is encouraged. Academic professionals advocate for higher women's work and

retirement age extensions. The geographical variety of India makes universal solutions difficult, but a mix of healthcare and pension plans might help with the issues posed by the aging population. (Ganapathy V., 2021)

Previous Research on NPS and Retirement Planning

Kapasi, B., & Mahato, S. (2024) examined that in India, the Central Government established the National Pension Scheme (NPS), a contribution-based pension system governed by the NPST and PFRDA. Tier I and Tier II accounts are the two varieties it provides. Four asset classes—equity, corporate debt, government security, and alternative assets class—are used by eight fund managers to oversee the NPS. Before making an investment, investors want to know about the risk and past performance of Tier I and Tier II.

A research aimed to investigate the impact of many factors, including risk tolerance, financial literacy, retirement goal clarity, future time perspective, attitude toward retirement, and social group support, on women's retirement planning behavior. The results show a favorable correlation between these factors and the habit of saving for retirement, with financial literacy serving as a moderator. Those engaged in financial planning, both professionals and consumers, ought to observe the outcomes. (Tomar, S. *et.al* 2021)

Research Gap

While many research have explored pension systems globally and in India, there's a significant gap in understanding how these systems specifically affect various groups and their long-term viability. Studies like those by Valls Martínez et al. (2020) and Böger et al. (2020) offer valuable insights into general trends and policies but often miss the nuanced impacts on low-income or informal workers. In India, though work by Mehrotra (2022) and Mukherji et al. (2020) sheds light on systemic issues, there is limited exploration of how the National Pension Scheme (NPS) addresses the diverse needs of informal workers and regional variations. Additionally, while global comparisons by Hinrichs (2021) and Ganapathy (2021) provide context, they don't fully connect with local challenges in India. Therefore, more targeted research is needed to understand the specific effects of pension schemes like the NPS on different socio-economic groups in India and to develop solutions that improve coverage and effectiveness.

Methodology

To understand the role of the National Pension System (NPS) in enhancing retirement planning among government employees, this study have used a mixed-methods approach.

Results and Discussion

Data on the National pension scheme has been gathered from <https://www.india.gov.in/spotlight/national-pension-system-retirement-plan-all#nps4>.

The collected information has been presented in the table-1

Particulars	SBI PF	LIC PF	UTI RSL	KOTAK PF
Assets (Rs in crore)	2,321.97	1,679.32	1,645.78	89.81
Scheme Inception Date	16-Sep-10	4-Oct-10	4-Oct-10	30-Jan-12
NAV (28-Jun-24)	36.4885	36.4322	36.2031	31.7138
52 Week High	36.5020	36.4562	36.2187	31.7299
52 Week Low	32.7277	32.7998	32.4978	28.2621
3 Months	2.95%	2.96%	2.96%	3.25%
6 Months	6.42%	6.28%	6.51%	6.62%
1 Year	11.48%	11.16%	11.41%	12.21%
2 Years	11.41%	11.33%	11.34%	11.64%
3 Years	8.05%	8.06%	7.97%	8.32%
5 Years	8.76%	8.88%	8.82%	8.89%
7 Years	8.44%	8.65%	8.48%	8.45%
10 Years	9.59%	9.56%	9.52%	9.46%
Since Inception	9.84%	9.86%	9.81%	9.74%
Top 5 Holdings	7.30% G-Sec 2053;	7.25% G-Sec 2063;	7.30% G-Sec 2053;	G-Sec 7.18% 2037;
	7.25% G-Sec 2063;	7.30% G-Sec 2053;	7.57% G-Sec 2033;	G-Sec 7.30% 2053;
	7.34% GOI 2064;	8.17% G-Sec 2044;	6.68% G-Sec 2031;	G-Sec 8.3% 2042;

	7.69% G-Sec 2043;	9.23% G-Sec 2043;	7.18% G-Sec 2037;	G-Sec 7.25% 2063;
	7.23% GOI 2039;	7.73% G-Sec 2034;	8.17% G-Sec 2044;	G-Sec 7.34% 2064;
Weightage of Top 5 Holdings%	17.75%	17.11%	12.34%	25.03%
Top 3 Sectors	Government Securities;	Government Securities;	Government Securities;	Government Securities;
	State Development Loans;	Banks;	State Development Loans;	Other Credit Granting;
	Monetary Intermediation of Commercial Banks, Saving Banks;	Finance;	Monetary Intermediation of Commercial Banks, Saving Banks;	Monetary Intermediation of Commercial Banks;

Table 1 NPS swavlamban scheme

To compare the 4 schemes we have utilised the financial modelling – *Annualized return computed by the model*

$$\text{Annualized return} = \left(\frac{P_{\text{end}}}{P_{\text{start}}} \right)^{\frac{1}{n}} - 1 \quad \dots\dots\dots[1]$$

Where P_{end} is the end price and P_{start} is the starting price and n is the number of years.

Annualised Standard deviation

This measures the volatility or risk of the fund's returns. A lower standard deviation indicates less variability and, hence, lower risk.

$$\text{Annualized Std Dev} = \sigma \times \sqrt{n} \dots\dots\dots[2]$$

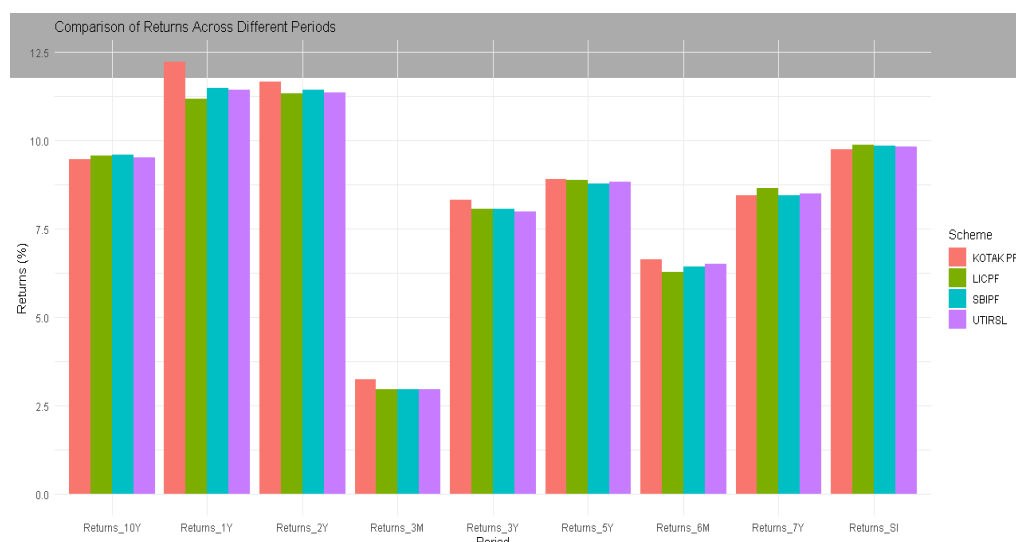
Where σ is the standard deviation of returns and n is the number of periods in a year.

Annualized Sharpe Ratio ($R_f=0\%$):

An investment's risk-adjusted return is measured by the Sharpe ratio. It shows the amount of excess return you get in exchange for the additional volatility you experience when holding a riskier asset.

$$\text{Sharpe Ratio} = \frac{\text{Annualized Return} - R_f}{\text{Annualized standard deviation}}$$

Where R_f is the risk-free rate, which is assumed to be 0% in this model.



Results and Discussion

The **fig.1** shows the comparative plot of the various schemes for the NPS scheme. Four pension funds—SBIPF, LICPF, UTIRSL, and KOTAK PF—have their returns visually compared in this research. Three months, six months, a year, two years, three years, five years, seven years, ten years, and since the beginning are all included in the comparison. Understanding the long-term performance patterns and stability of each fund is made easier with the aid of this thorough assessment.

Four pension funds—SBIPF, LICPF, UTIRSL, and KOTAK PF—are included in this analysis's thorough performance report. The performance of these funds over a given time period is seen and compared in this analysis using time series data. An overview of each fund's returns, risk, and stability is given by the performance summary graph, which assists investors in making wise choices.

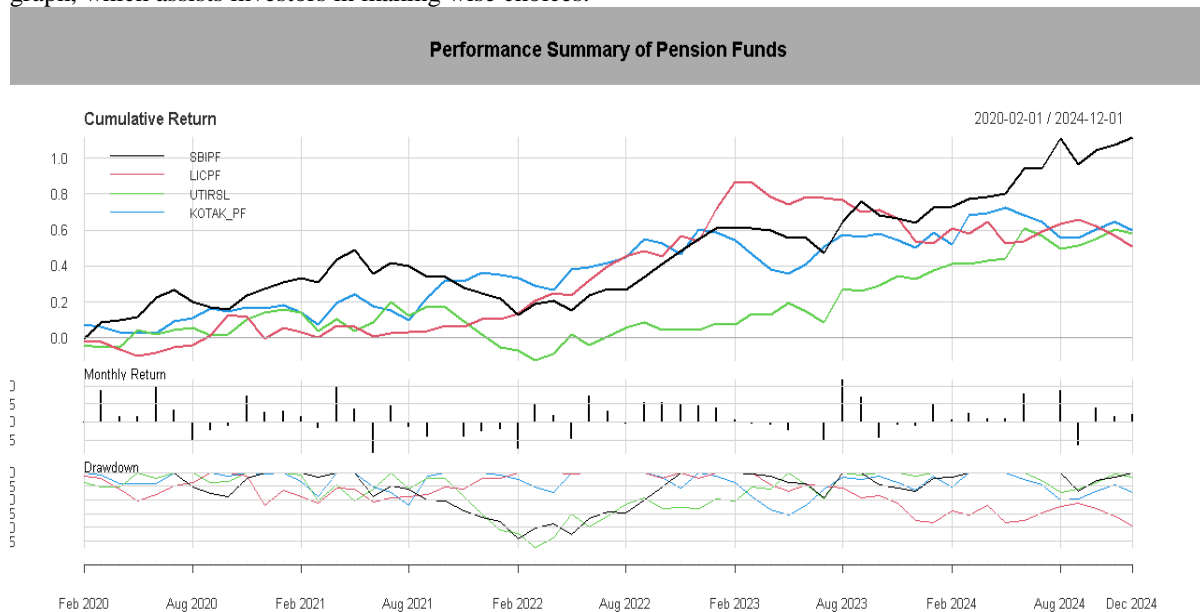


Figure 1 Performance summary of various schemes

Annualized Returns

Annualized returns, standard deviation, and Sharpe ratio are important metrics to assess the performance and risk profile of investment funds in this study, we compare these metrics for four pension funds: SBIPF, LICPF, UTIRSL, 2015; and KOTAK PF. Understanding these metrics helps investors make rational decisions based on risk tolerance and expected returns.

The returns for the each scheme in the NPS swavalamban has been evaluated and the results are shown in the Table-2

Table-2

Metric	SBIPF	LICPF	UTIRSL	KOTAK PF
Annualized Return	0.1649	0.0867	0.0975	0.1003
Annualized Standard Deviation	0.1584	0.1540	0.1843	0.1582
Annualized Sharpe Ratio (Rf=0%)	1.0408	0.5631	0.5292	0.6343

Table 2 Annualized return

The annual return represents the average amount of money that the investor earns over a period of time each year. It provides a clear picture of how the bank performs in terms of growth rates.

SBIPF:

With an annualized return of 16.49%, SBIPF leads the overall performance, which means it delivered the highest annualized returns among the four banks this high return reflects strong growth and improved management of the bank revealed.

Kotak P.F.

Kotak PF shows an annualized return of 10.03%, making it the second best performing stock. These gains reflect strong performance, and provide investors with a balance of growth and comfort.

UTIRSL:

UTIRSL has an annualized yield of 9.75%. While lower than SBIPF and Kotak PF, this still shows respectable performance, producing solid returns over the investment period.

LICPF:

LICPF's annualized return of 8.67% is the lowest among the four banks. Despite this, it still shows positive growth, making it a viable option for more conservative investors who require less flexibility.

Detailed annual standard

The annual standard deviation measures the volatility of a fund's returns. A low standard deviation indicates that there is little variability, and therefore low risk.

SBIPF and Kotak PF:

Both SBIPF and Kotak PF have similar standard deviations (0.1584 and 0.1582, respectively), indicating similar variability is obtained. This medium volatility implies a balanced risk and return profile.

LICPF:

LICPF has a slightly lower standard deviation (0.1540), indicating that it experiences less variation in returns compared to other funds. This low volatility makes it safer for risk-averse investors. UTIRSL shows reasonable but highly volatile returns and low risk-adjusted returns, indicating that potential investors need to consider it carefully.

Overview of Pension Systems Globally and in India

As demonstrated by an analysis of 1,287 publications published between 1936 and 2021, research on pension systems in industrialized nations focuses on pension reform and sustainability. In this study, mathematics is the main field of study, and the leading countries are the UK, the USA, and the Netherlands. Age-related pension reform, pension insurance, and sustainability are among the trends in this body of work (Valls Martínez et al., 2020). Non-contributory pensions, which have increased significantly over the past 25 years, are the result of pension systems in emerging nations. According to Böger et al. (2020), developing nations, including those in Western and Northern Europe, are approaching universal coverage as a result of this trend.

The Indira Gandhi National Old Age Pension Scheme (IGNOAPS) had a positive effect on family welfare statistics in India, reducing poverty and increasing assets and disposable income. However, the program's requirements changed in 2007 and from 2011 to 2012, the impact of poverty reduction was lessened (Unnikrishnan, V., & Imai, K. S., 2011). 2020). On the other hand, several factors such as income, reliability, family size, age, education, and place of residence influence low- and middle-income countries' (LMICs') willingness to pay (WTP) for health insurance and pension plans (Miti, J. J. J. et al., 2020).

Evolution and Key Features of the NPS

India's social security status has greatly improved thanks to the National Pension Scheme (NPS). Social Security Code 2020 detractors claim that because it ignores intricate workforce regulations, a sizable section of the workforce is underfunded (Mehrotra, S. K., 2022). This emphasizes that, in accordance with International Labor Organization (ILO) rules, a comprehensive reform program is required for the participation of all workers within ten years.

A multitude of policies and material interests have contributed to the institutional development of the Indian pension system. The shift from a public to a private administration, which was the primary driver of the economy's quick expansion after 1991, emphasizes the significant variables influencing this change (Mukherjee, R. et al., 2012).

The large percentage of informal labour 91 per cent of those working in this capacity lack social insurance—confirms that India has not provided appropriate social security since gaining its independence (Mehrotra, Santosh, 2020).

Comparative Analysis with Traditional Pension Schemes

EU member states have reformed their pension systems over the past 30 years to cope with population growth and to boost economic growth. However, these changes may increase the risk of poverty in old age, highlighting

potential conflicts between long-term economic growth and the primary goal of pension planning—reducing poverty (Hinrichs, K). , 2021).

Global demographic change driven by falling birth and death rates has called for reforms in social security and pension systems. Promoting active aging and comprehensive health care, as well as increasing women's employment and extending the retirement age, are key strategies to address these challenges (Ganapathi V., 2021). . India's geographic and demographic diversity makes universal solutions difficult, but integrated health and pension schemes can alleviate issues related to the aging population

Previous Research on NPS and Retirement Planning

Eight fund managers with Tier I and Tier II accounts oversee investments in four asset classes: investments, corporate debt, government securities, and other assets. NPS was primarily launched by the Indian government and provides a contribution-based pension scheme administered by the NPST and PFRDA (Kapasi, B., & Mahato, S., 2024). A favorable correlation has been shown between financial literacy, risk tolerance, retirement goal clarity, future time perspective, and social group support in studies on the variables influencing retirement planning behavior among Indian women (Tomar, S., et al., 2021). These results emphasize the necessity of focused monetary policy initiatives as well as the role that financial literacy plays as a facilitator.

Finding

SBIPF, LICPF, UTIRSL, and KOTAK PF pension fund surveys offer a strong framework for evaluating their performance using important financial indicators like Sharpe ratios, yearly returns, and standard deviations. According to the data, SBIPF has the best risk-adjusted performance when compared to other funds and the highest annual returns as determined by the Sharpe ratio. Conversely, UTIRSL has increased volatility, which suggests reduced risk-adjusted returns.

Conclusion

Our results are consistent with more general trends in pension reforms and sustainability in the context of the Indian and global pension systems. According to research, India's social security system needs extensive reform in order to serve the country's whole workforce and deal with the country's high level of informality. Pension reforms should take into account both immediate poverty alleviation and long-term viability, as evidenced by comparisons with traditional pension schemes in Europe and other countries that demonstrate a balance between financial sustainability and poverty reduction.

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