

45th India Fellowship Seminar

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Mortality Pooling Products - Insights and Feasibility

Presented By : Group 3

- 1. Shivam Goel**
- 2. Moorthi**
- 3. Kalpana Sheth**
- 4. Money Gupta**



Case Study - Mortality Pooling Products

Business Context

- A mid-sized Indian life insurance company is exploring expansion of its annuity portfolio.
- As part of its strategic review, company is evaluating mortality pooling products as an alternative to conventional life annuity products.

Perceived Rationale

- Mortality pooling products are viewed as offering:
- Greater capital efficiency, and
- Enhanced actuarial fairness through explicit risk sharing mechanisms.

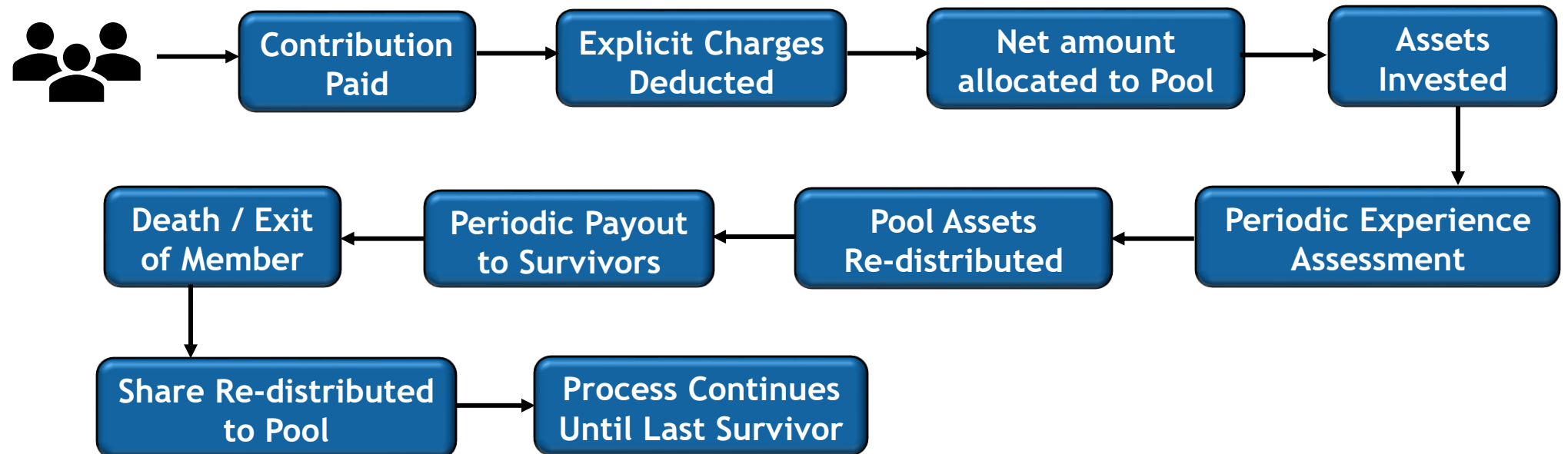
Objective of the Presentation

- Explain mortality pooling products and their key differences from conventional life annuities.
- Analyse pricing, reserving, capital considerations.
- Examine issues of fairness and equity across policyholders.
- Assess the applicability of current Indian regulatory requirements.
- Identify opportunities, challenges, and recommendations in the Indian context.

Mortality Pooling Products

A financial arrangement where:

- Members collectively form an asset pool.
- Each member mutually and irrevocably agrees to receive payouts from the pool while they are alive.
- Upon a member's death, their account is forfeited
- Monies forfeited by those who die increase the returns to those who survive.
- These extra returns are often referred to as “mortality credits”.



Mortality Pooling Products

- **Features**
- Participants bear both mortality risk and investment risk.
- Individual longevity uncertainty is diversified within the pool, with effectiveness dependent on pool size.
- The annuity payouts are not guaranteed and will vary for lifetime.
- The annuity payout will depend on survival probability of the pool, investment return plus mortality credits less charges.
- Death/surrender benefits - Generally not offered, except under certain variations of the product (like, accumulation period under deferred annuity).

Comparison with Conventional Life Annuity Products

Feature	Mortality Pooling Products	Conventional Life Annuity Products
Income	Guaranteed for life, payout is variable	Guaranteed for life, payout is Guaranteed with/without ROP
Type	Deferred/Immediate	Deferred/Immediate
Surrenders	Generally not offered (can be offered during accumulation phase of deferred annuity)	Offered only under ROP policies
Cost	Lower	Higher (includes guarantee loadings)
Risk Bearer	Pool members	Insurance company
Capital Required	Zero or very little (self-sustaining)	Significant
Income Fluctuation	High (linked to pool experience)	None
Behavioural Appeal	Risk-taker	Risk-averse
Transparency	High (investments and charges) if offered under Unit Linked platform	Low - undisclosed assumptions and cost structure

Pricing Considerations

Focuses on fairness and sustainability.

Sharing of Risk:

- No Guaranteed benefits
- Longevity and Investment risk shared among policyholders

Mortality Assumptions:

- Selection of appropriate base mortality tables.
- Adjustment to be made to the mortality table for the expected experience
- Incorporating mortality improvement factors
- Managing anti-selection at entry and cohort differences.

Pool Size & Demographic Mix:

- Large pools reduce payout volatility.
- Homogeneous pools increase fairness (Age, Gender etc.).
- Optimizing of Cohort Pooling needed

Pricing Considerations

Expense, Commissions & Loadings:

- Initial, maintenance and investment management expenses.
- Expense would involve in setting up new systems, Training sales staff, Marketing, advertising, compliance etc
- Subject to IRDAI (EoM, including Commission, of Insurers) Regulations, 2024
- Charges will be deducted (% of fund, per policy, allocation charges)
- Adherence to reduction in yield requirement, Evenness of charges

Investment Strategy & Returns:

- Asset mix
- Investment returns affect payout

Fairness & Equity Considerations:

- Fairness across age and cohorts.
- Transparent mortality credit methodology.

Pricing Considerations

Profit Loading:

- Profit margin - Explicit % of charges
- Check various profitability metrics (IRR, NPV, DPP, NBM)

Sensitivity and Scenario Testing:

- Model mortality, investment returns, and expenses.
- Stress testing under adverse scenarios.
- Calculation and distribution of expected payouts.

Expertise and Support:

- Lack of experience for such type of products
- Inputs from global markets, where products exist.

Regulatory Considerations:

- Solvency capital will be as per current factor-based regime
- Segregated pool governance.
- Compliance with all Regulations
- Disclosure of non-guaranteed nature and risk borne by the Policyholder.

Reserving Considerations

- **Regulatory Compliance**

- Reserves to comply with:
 - IRDAI (Actuarial, Finance & Investment function of the Insurer), Regulations 2024
 - Actuarial Practice Standards

- **Reserve Methodology**

- Similar principles to ULIP/ Variable Insurance products
- Policy account Value/ Unit reserves and General fund reserves/Non-unit reserves
- Policyholder Fund = liabilities
- MAD as per APS7

- **Guarantees**

- No guarantees → lower reserve strain
- Avoidance of reserve strengthening due to no longevity risk and benefits varies

- **Operational risk reserve**

Capital Requirement Consideration



IGAAP

- The current capital requirement is based on factor-based regime
- The Required Solvency Margin (RSM) is $\text{first factor} * \text{Mathematical} + \text{second factor} * \text{Sum at Risk}$
- As per the current regulation, the first factor is 3% for annuity products and second factor is 0%.
- For this product, since there is no guaranteed, a lower first factor may be used, similar to Unit linked products (without guarantee).
- Hence, low capital requirement

Capital Requirement Consideration

RBC

- Expense Risk
- Market Risk (minimal) as the investment risk is passed on to the Policyholder
- Low ALM mismatch risk (matching liquidity)
- No Longevity Risk, as it is passed on to the Policyholder
- Lapse / Surrender Risk : minimal (example for deferred annuity, if offered)
- Operation Risk
 - Mortality credit calculation error
 - Payout calculation
 - System/process failures

Fairness and Equity

- Fairness in insurance products, especially innovative ones like mortality pooling, is governed by IRDAI's principle-based regulations under the Insurance Products Regulations, 2024, Protection of Policyholders' Interests Regulations, 2024, and related circulars.
- The benefit allocation under mortality pooling products should be equitable. The allocation formulas should be transparent, consistent and avoid any arbitrary adjustments.
- Ensure products deliver reasonable benefits relative to contributions paid.
- Limits on investment in risky assets
- **Non-discrimination:**
 - The pricing should be fair and not unfairly vary by location , occupation etc. The coverage provided should not discriminate against the vulnerable groups
 - There should be compliance with Master Circular on Policyholder Protection (2024)

Fairness and Equity

- **Disclosures:**

- Transparent documentation
- Investment philosophy disclosed at outset
- Communicate product features, variability of payouts, and mortality credit mechanism in simple, understandable language.
- The benefit illustration should include different investment returns and longevity stress scenarios.

- **Governance:**

- Board-approved pricing policy and calculation of payouts
- Oversight by Product Management Committee (PMC).
- File & Use submission must justify fairness in pricing and benefit structure.
- IRDAI requires insurers to conduct suitability assessments and strictly prohibits any form of unfair trade practices during the sales process.
- Offer a free-look period of 30 days for customers to review and cancel if dissatisfied.
- Provide robust grievance redressal mechanisms in line with IRDAI norms, including access to the Insurance Ombudsman.

Applicability of current Indian regulatory requirements

The product is not explicitly recognised under the IRDAI Insurance Product Regulations, 2024, and may therefore require consideration under the Regulatory Sandbox framework (2025).

IRDAI Insurance Product Regulation, 2024

- Product covers an insurable risk with an underlying risk transfer.
- Product Classification:
 - Life/Pension/General Annuity/Health or fifth category
 - General Annuity: Conventional/Variable or non-guaranteed benefits category
 - Linked/Non-linked
 - Linked:
 - Presently Annuity not allowed under Linked platform
 - Revisit cap on charges
 - Reduction in yield requirement
 - Individual/group platform
 - Group platform
 - Involuntary participation reduces risk of anti-selection
 - Minimum group size

Applicability of current Indian regulatory requirements

IRDAI (Actuarial, Finance and Investment Functions of Insurers), Regulation 2024

- Limits, if any for pool investment such that maximum equity investment.
- Valuation of asset
- Reserving should be defined - such as policy account value/unit fund value plus general fund reserve/non-unit reserve.
- Solvency factor should be defined for such products.

IRDAI (EOM, including Commission) Regulation, 2024

- Limits for EoM could be as per General Annuity or defined separately.

APS 5: Benefit Illustrations

- Lower(4%) and Upper(8%) rate for non-guaranteed benefits.
- Fluctuations in payout due to adverse longevity experience should be added as part of illustration.
- Disclaimer in BI regarding investment and longevity risk.

Applicability of current Indian regulatory requirements

Filing Norms

- Innovative products like pooling likely under File & Use with detailed actuarial justification.
- IRDAI may guide on explicit pooling norms for such products.

Others

- Disclosure norms in sales literature, brochure etc. regarding investment and longevity risk.
- Mortality credit rule should be clear and unambiguous
- Annual statement showing annuity payout movements due to charges, market changes, and mortality credits.
- Explicit mention that benefits are non-guaranteed and no surrender value/ROP is payable (except for deferred annuity, if offered).
- RBC - Operational risk formula may need to be defined separately.

Opportunities

Growing Retirement Market:

- ✓ India's aging population
- ✓ increased life expectancy
- ✓ Mandatory annuitisation under NPS
- ✓ Low annuity penetration create demand for flexible retirement solutions.
- ✓ Pooling offers higher potential returns than guaranteed annuities.

Regulatory Push for Innovation:

- ✓ IRDAI encourages product diversity and digital distribution under initiatives like Bima Sugam and Use & File norms - IRDAI Sandbox Regulation, 2025.
- ✓ Opportunity to cross-sell.
- ✓ First mover advantage.

Opportunities

Lower Costs vs. conventional annuities:

- ✓ Without insurer guarantees, this product can be cheaper than traditional annuities, making it attractive to retirees who want higher potential payouts with lower fees.
- ✓ Payouts have potential to increase over time, which feels rewarding for longer-lived survivors.

Capital Efficiency:

- ✓ Minimal reserving and solvency requirements compared to conventional annuities reduce capital strain.

Digital Enablement:

- ✓ Uses online platforms for enrollment, mortality tracking, and clear communication.

Challenges

Regulatory Uncertainty:

- ✓ No explicit IRDAI guidelines for mortality pooling;
- ✓ Approval under File & Use requires detailed actuarial justification and consumer protection measures.

Complex Design & Fairness:

- ✓ Ensuring “fair” payouts is mathematically and actuarially challenging.
- ✓ If not designed properly, some cohorts may subsidize others disproportionately, undermining trust.
- ✓ Framing investment policy and ensuring liquidity for periodic distributions.

Challenges

Customer Awareness:

- ✓ Explaining variable payouts and mortality credits may be difficult. Risk of mis-selling if disclosures are inadequate.
- ✓ *Surrender & Re-entry Risk*: Annuity holders may surrender policies to switch to pooling products, creating churn and possible re-entry challenges.

Operational Complexity:

- ✓ Managing large pools, tracking mortality and calculating payouts requires strong systems, quality data, and tech support.

Market Acceptance:

- ✓ Bias towards guarantees.
- ✓ Absence of return of premium or beneficiary payouts under immediate annuity reduces attractiveness.

Reputational Risk:

- ✓ Payouts may vary, causing dissatisfaction if expectations aren't managed, and errors in mortality credits can result in payouts that are too low/high.

Recommendation

- Engage early with IRDAI with concept note: seek guidance and align with annuity frameworks.
- **Product Design/Pricing Principles:**
 - Simple and transparent
 - No guarantees
 - Flexible payout frequency & structure
 - No surrender (may be offered under deferred annuity)
 - Free look provision comply with IRDAI norms
 - No death benefit (may be offered under deferred annuity)
 - Pricing discipline: robust assumption setting, sensitivity analysis, and capital assessment.
- **Target Market - rollout in phases:**
 - Phase 1: Start with a group / employer-sponsored pilot (prefer involuntary admission to avoid anti-selection)
 - Phase 2: Select Retail

Recommendation

- **Distribution & Controls:** Trained specialist channels only, with strong disclosures, suitability checks, and clear positioning as a “higher income, no guarantees” complement to annuities.
- **Product Design & Risk Communication:** Simple, conservative investment strategy; clear communication of payout variability and risks using outcome-based illustrations.
- **Governance & Fairness:** Board-approved Product Management Committee, independent oversight, quarterly experience reviews, and transparent annual member disclosures (mortality credits, charges, returns).
- **Operations & Risk Management:** Robust data and systems (cohort accounting, payout engine, communications) and a dedicated fraud-monitoring framework.

Thank you!

