

Southeast Public Employee Retirement Systems (SEPERs) Forum

Making the Right Assumptions:
Basic Actuarial Science

Panelists

- Jose Fernandez, Consultant, Buck Consultants
 - Over 25 years of Actuarial Experience
- Ed Koebel, Senior Actuary, Cavanaugh Macdonald Consulting, LLC.
 - Over 12 years of Actuarial Experience

Selecting Assumptions

- Predicting the future
- Reflect past experience and future expectations
- Develop a best-estimate range

Types of Assumptions

- Economic
- Demographic

Economic

- Real return for assets
- Inflation
- Salary Increases
- Cost of Living Adjustments (COLAs)

Demographic

- Withdrawal
- Death in active service
- Disability
- Retirement
- Death after retirement
- Special Terminations (e.g. Shutdowns)
- Spouse Assumptions

Economic Assumptions

- Inflation should be consistently applied
 - Asset return
 - Salary increases
 - COLAs
- Real returns should reflect asset mix

Understanding Economic Assumptions

$$\begin{aligned} & \text{Interest Rate} \\ & - \text{Inflation Rate} \\ & = \text{Real Rate of Return} \end{aligned}$$

Interest rate determines how much money we think we'll have.

Inflation rate tells us what we think it will buy.

Other Economic Assumptions

- Salary increases
 - Current & anticipated practice
 - Collective bargaining agreements
 - Single rate
 - Age and/or service related
- Cost of Living Adjustments (COLAs)
 - Inflation related
 - Percent determined by plan

Demographic Adjustments

- Experience Investigations
 - Compares actual plan experience with actuarial assumptions used in the valuation
 - Performed every 5 years
- Follow experience
- Watch trends (e.g. Improving Mortality)
- Factor in special events (e.g. re-employment legislation)

What happens when assumptions are wrong?

- Actuarial valuations to make adjustments in contributions
- When to change assumptions
 - Economic or other conditions change
 - New trend established

Changes in Major Assumptions Effect on Liabilities and Contributions

| <u>Assumption</u> | <u>Action</u> | <u>Usual Effect</u> |
|-------------------|-------------------|---------------------|
| Interest Rate | Increase | Decrease |
| Retirement Rate | Retire younger | Increase |
| Turnover Rate | More Terminations | Decrease |

Other Actuarial Assumptions

- Cost Methods
- Asset Methods
 - Market Value vs. Smoothing Method
- Postretirement Assumptions
 - Claim Rates
 - Trend Rates
 - Plan Participation
 - Spouse Coverage