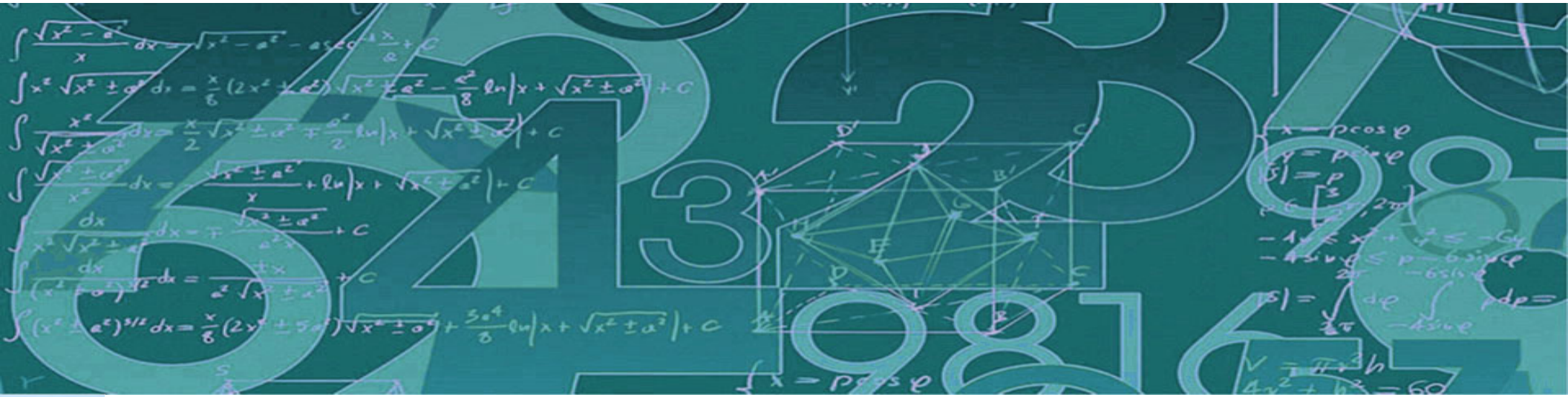
Educational Presentation on Administrative Factors



Office of the State Actuary

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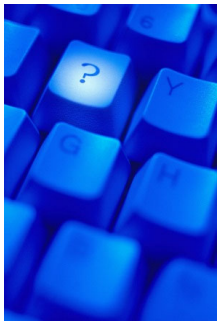
Updated in 2022

Key Questions Addressed

- What are administrative factors?
- Why would you want to know about them?
- Where do they come from?
- How are they developed?
- Why do they change?



What Are Administrative Factors?

- Tables of numbers in decimal form
  - Examples: .5940, .884, .0079809
- Sometimes called “reduction” or “actuarial” factors
- Applied to benefit calculations and purchases that are optional
- Give members flexibility to choose optional payments without increasing plan costs
  - Factors are calculated to offset the additional plan costs

Why Would You Want to Know About Them?

- Appear in member's benefit calculations
- Appear in member's purchases of optional benefits
- Helps you understand how your pension would be reduced for an optional benefit

Where Do Administrative Factors Come From?

- Jointly developed by OSA and DRS
- DRS sets administrative policy for factors
  - Typically consults with OSA's actuaries
- OSA's actuaries develop factors consistent with
  - Administrative policy
  - Actuarial Standards of Practice
- Most factors calculated using complex mathematical models
  - Based on actuarial equivalence using assumptions about the future
  - Simplified for administrative purposes

Two Basic Types of Administrative Factors

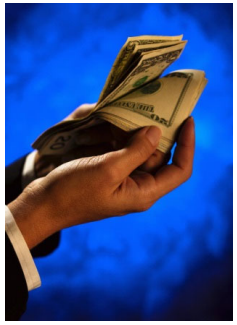
- Reduction factors
- Annuity factors
- Used for different purposes

Reduction Factors

- Reduce monthly pensions to pay for optional benefits
- Used to
  - Spread member's pension over a longer period of time
  - Pay for additional benefits over a member's lifetime
- Examples
  - Joint and Survivor factors
  - Early Retirement factors
  - PERS and TRS 1 Optional COLA factors

Annuity Factors

- Convert between one-time lump sum and lifetime payments (annuity)
- Used to
  - Purchase additional benefits up front
  - Cash-out small pensions
- Examples include
  - Monthly Benefit per $1.00 of Accumulation factors
    - Purchase additional service credit
    - Small pension cash-outs
    - TRS 1 partial pension cash-outs
  - TAP Annuity factors
    - Purchase a pension using Plan 3 member DC accounts
  - Service Credit Restoration factors
    - Restore withdrawn service credit



Administrative Factors Based on Actuarial Equivalence

- Different payment streams can be adjusted to have the same value
  - Defined as being Actuarially Equivalent (AE)
- Can be used to equalize expected costs for different benefits
- Compares expected cost of plan's base benefit to expected cost of the member-elected optional benefit
- AE Administrative factors adjust cost for optional benefits to make similar to base benefit

Illustration of Different Payments with Equal Value

- AE further adjusts payments for
  - Time value of money
  - Probability that the payment isn't made (life expectancy)

Administrative Factors Target Plan-Level AE

- Optional benefits expected to be cost-neutral to the plan
  - For entire group
  - Not necessarily an individual
- Calculation based on an “average” member
- Why not individual AE?
  - Administrative complexity
  - Legal constraints

Four Basic Steps in Developing an Administrative Factor

- Project future benefit payments under the base and optional benefit
- Determine the expected plan cost for each
  - Convert future payments to specific point in time by discounting with interest
  - Add them up to find plan costs
- Divide expected base cost by optional cost to get the factor
- Group/summarize factors for administration
- Steps require assumptions about
  - Future payments
  - Trust fund earnings (time value of money)
  - Group characteristics

Actuaries Use Assumptions to Estimate Future Events

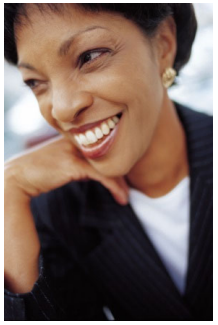
- When benefits begin
- How long they are paid
- How much is paid
- Expected financing cost

Several Key Assumptions Impact Administrative Factors

- Investment Rate Of Return (ROR)
- Annual Cost-Of-Living Adjustment (COLA)
- Mortality
- Average retirement age
- Percent male/female
- Factors may be updated when assumptions change

Data for Hypothetical Examples

- Plan Provisions
  - Fixed annual benefit = $25,000
  - Normal retirement age = 65
  - Benefit paid until age 70
- Key Plan Assumptions
  - No mortality
  - No COLA
  - 7.0 percent investment ROR
- Plan provides two AE optional benefits
  - Early retirement starting at age 60
  - Additional annuity purchase up to $1,000/year



Hypothetical Example: Early Retirement Reduction Factor

- **Member A**—Retires at 65 and will receive annual benefits of $25,000 until 70
  - Adjusted for interest, this amounts to a present value of $78,201
- **Member B**—Retires at 60 and, without any adjustment, will also receive annual benefits of $25,000 until 70
  - Adjusted for interest, this amounts to a present value of $187,881
- To provide Member B with an early retirement benefit that is expected to be cost-neutral to the plan, an AE factor of $78,201/$187,881 = 0.416 is applied
  - Member B's annual benefits will be $25,000 x 0.416 = $10,406
  - Adjusted for interest, this amounts to a present value of $78,201

Hypothetical Example: Annuity Purchase Factor

- A member retires at 65 and wants to purchase a 5-year additional annuity of $1,000 per year
- The purchase price of this annuity will be $4,387, which is equivalent to the present value of the annuity
- The associated AE annuity purchase factor is equal to the annual annuity amount of $1,000 divided by the annuity present value of $4,387, or 0.228.

Age	Purchased Annuity Amount	Interest Discount	Annuity Present Value
65	$1,000	1.000	$1,000
66	1,000	0.935	935
67	1,000	0.873	873
68	1,000	0.816	816
69	1,000	0.763	763
Total	**$5,000**		**$4,387**

Why Do Factors Change Over Time?

- Assumptions change
  - Actuaries routinely review assumptions and update as needed
    - Past experience
    - Expectations for the future
  - Statutory cycle
- Benefits or administrative practice changes
  - Legislation
  - DRS policy/rules

How Frequently Can Factors Change?

- Factors should be reviewed and updated, as needed, with changes to assumptions, benefits, or policy
- Two-year review cycle for assumptions related to economy
  - Includes investment return, inflation, and salary growth
- Six-year review cycle for assumptions related to member demographics
  - Includes mortality, retirement age, and percent male/female
- Benefit changes could occur during legislative session
- Updating factors requires balancing impact on the plan, members, and administration
  - Changes from different sources may be coordinated to limit the number of updates

Wrap-Up

- Administrative factors can impact members' benefits if they choose optional payment forms
  - Reduction in monthly pension
  - Up front member payment
- Designed to make optional benefits cost-neutral to the plan
  - Based on theory of AE
- Require assumptions about future
  - Benefit payments
  - Investment earnings
- Jointly developed by OSA and DRS
- May be updated with changes to assumptions, benefits, or policy

Where Can I Get More Information?

- Appendix includes additional details about specific factors
- Check the DRS website for factors and your specific retirement estimator

Appendix

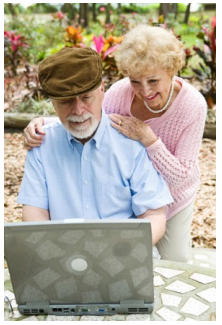
- Joint and Survivor factors
- Early Retirement factors
- Monthly Benefit Per $1.00 Of Accumulation factors
- Service Credit Purchase factors
- PERS and TRS 1 Optional COLA factors
- TRS 1 Option 1 Benefit factors
- TAP Annuity factors
- Glossary of Actuarial and Pension Terms on OSA's website

Joint and Survivor Factors

- Standard benefit = annuity paid over the life of the member
  - Except: LEOFF 1 and WSPRS 1 include survivor benefit
- Members can elect an AE survivor benefit
  - Spreads payments over two lives
  - Includes “pop-up” to original benefit when beneficiary predeceases member
- Joint life annuity = single life annuity x factor
- Tables based on age difference, plan, and option selected
  - Age difference = member age – beneficiary age
  - WAC 415-02-380

Early Retirement Factors

- Standard benefit = member's accrued benefit paid at the plan's Normal Retirement Age (NRA)
- Plan 2/3 members can take AE early retirement
  - Spreads payments over more years of retirement
- Immediate (early retirement) annuity = deferred (NRA) annuity x factor
  - NRA annuity based on member's accrued benefit
- Tables based on months retiring early and plan
  - WAC 415-02-320
- Factors also used for some
  - Pre-retirement death benefits
  - Disability benefits

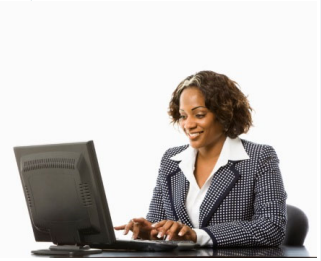


Monthly Benefit per $1.00 of Accumulation Factors

- Basic Annuity factors
  - Convert between one-time lump sum and lifetime payments
- Members can increase their pension by purchasing up to 5 years of extra service credit at retirement
  - Pay actuarial cost up front
  - One-time cost = increased annuity/factor
- Members can cash out small pensions
  - Receive the AE value in a one-time payment
  - One-time payment = pension/factor
- TRS 1 members can withdraw their contributions at retirement and receive an actuarially reduced pension
  - Monthly pension reduction = contributions withdrawn x factor
- Tables based on age and plan
  - WAC 415-02-340

Service Credit Purchase Factors

- Members can restore withdrawn service or establish optional service
  - Make required contributions by the statutory deadline
  - Pay full expected actuarial cost after deadline and prior to retirement
- Specialized form of annuity factor since purchased before retirement
  - Projects retirement eligibility and starting retirement benefit
  - Calculates the increased plan cost for the additional service
  - Requires additional assumptions
- Applied differently than other Annuity factors
  - Calculation includes average salary, years of service, years purchased, and applicable factors



PERS and TRS Plan 1 Optional COLA Factors

- Standard PERS and TRS 1 benefit = life annuity without automatic COLA
  - Except for member's receiving minimum benefit
- Members can elect an AE automatic CPI-based COLA
  - Shifts portion of the payments to the future
- Single life annuity with a COLA = single life annuity x factor
  - Assumes long-term inflation consistent with rates adopted by the Pension Funding Council
- Tables based on age and plan
  - WAC 415-02-360

TAP Annuity Factors

- Plan 3 members have a DC account
  - May self-direct investments or invest with the state in the Total Allocation Portfolio (TAP)
- Members can buy an AE annuity from the plan using their TAP funds
  - Provides lifetime income
  - Includes a COLA and a death refund
  - Paid from the TAP
- Specialized form of the basic Annuity factors
- Annuity = DC account payment x factor
- Tables based on age and plan

Questions? Please Contact: The Office of the State Actuary

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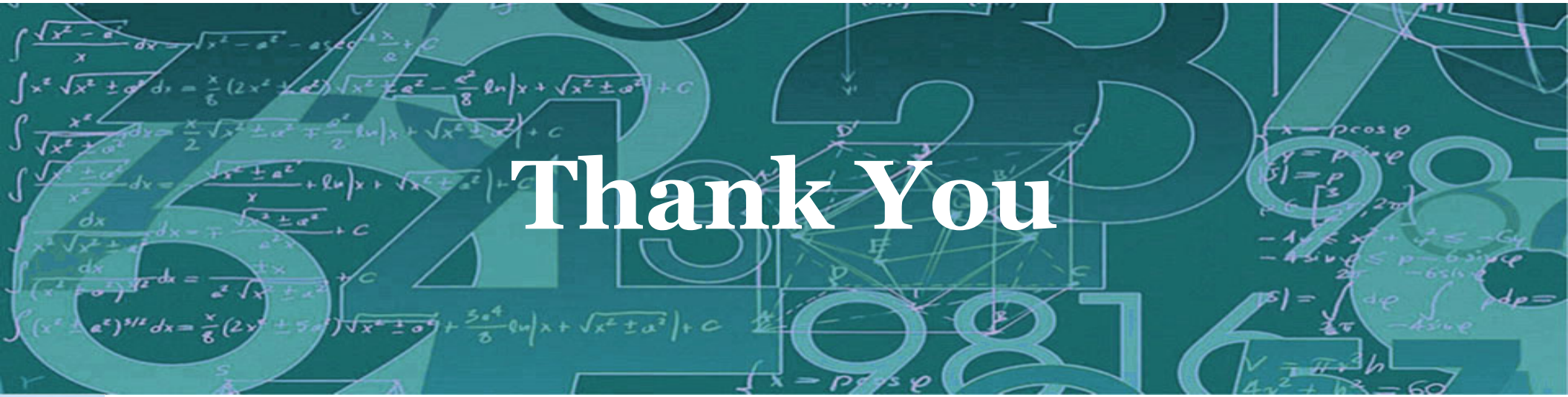

Thank You

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