Annuity Options in Public Pension Plans: The Curious Case of Social Security Leveling

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Key Questions

1. What is Social Security Leveling?

2. Is SS Leveling a mere curiosity or a widely used annuity option in public retirement plans?

3. Do many retirees choose SS Leveling?

4. How does SS Leveling affect lifetime income?

5. What policy changes would improve this annuity option?
What is Social Security Leveling?

Public pension plans offer a series of payout options:
- Lump sum distribution
- Single life annuities
- Joint & Survivor annuities

Public plans not subject to ERISA
J&S annuities are not the default option in most states
What is Social Security Leveling?

SS Leveling is a single life annuity that front loads payments from the pension.

Only individuals retiring prior to leveling age are eligible to select leveling.

Individuals selecting the SS Leveling option are choosing a single life annuity with no survivor benefits.
Reasons for front loading benefits

Desire for consumption smoothing

High personal discount rate

Possible effects of selecting SS leveling
  • Reduced likelihood of post-retirement work
  • Increase likelihood of claiming SS benefits at 62
What is Social Security Leveling?

Retiring worker must present the pension system an estimate of the SS benefit they are expected to receive at age 62 based on no further work.

Retirement system determines a benefit (B1) to be paid from time of retirement until age 62 and a benefit that will be paid from age 62 until death (B2).

Retirees do not actually have to claim SS benefits at 62 but if they do not, their retirement income will decline.
Social Security Leveling in NC

Single life annuity based on benefit formula

- $B_{MAX} = \text{Early} \times M \times YOS \times AFC$

SS Leveling benefits before and after age 62

- $B^1_{LEV} = B_{MAX} + SS \times F$

- $B^2_{LEV} = B^1_{LEV} - SS$
Social Security Leveling in NC

The adjustment factor \( (F) \) is based on age of retiree, system mortality experience, and assumed interest rate (rate of return to system).

Assumed interest rate is 7.25, same as assumed rate of return by the system.

The factor is assumed to result in a cost neutral (to the system) shift in benefit payments from after age 62 to before age 62.
Example of SS leveling in NC

Assume a retiree claims benefits at age 57 (mean for our sample)

Is eligible for a maximum single-life benefit of $2,000 per month (slightly less than sample mean of $2,142)

Assume the retiree is eligible for a reduced Social Security benefit of $1,200 at age 62 (this implies a PIA of $1,600)

Use retirement system’s methodology to determine B1 and B2
Is SS Leveling a curiosity or a widely used annuity option in Public Pensions?

Review annuity options for 85 large state-managed plans for state employees, local employees, and teachers

In 17 of these plans, participants are not covered by SS so SS Leveling can not be offered
Is SS Leveling a curiosity or a widely used annuity option?

20 of the remaining plans offer SS Leveling

- 15 of these states level at age 62
- two level at 65
- one levels at 66
- one levels at SS FRA
- one allows retirees to select any age between 62 and SS FRA
Do many retirees choose SS Leveling?

Analysis of retirees in NC Teachers and State Employees’ Retirement System and Local Government Employees’ Retirement System between 2009 and 2014

72,350 retirees of which 37,182 retired prior to age 62 and thus were eligible to select the SS Leveling option
Do many NC retirees choose SS Leveling?

70% of pre-62 retirees select a single life annuity

About one third of those selecting a single life annuity chose leveling

Thus, almost one quarter of all pre-62 retirees chose SS Leveling
Decline in choosing SS Leveling

Percent Selecting a Single-Life Annuity

Age at Claiming

2009 2010 2011 2012 2013 2014

New Benefit Accounts

.3 .4 .5 .6 .7 .8
Who Chooses SS Leveling in NC?

Workers with 30 years of service can retire at any age in the NC pension system

Thus, many employees are retiring in their 50s

The attractiveness of SS Leveling is greater the younger the individual is at the time of retirement
## Proportion of new single life benefit claims selecting Social Security Leveling

<table>
<thead>
<tr>
<th>Year of Claiming</th>
<th>Age 44-54</th>
<th>Age 55-59</th>
<th>Age 60-61</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>59.08%</td>
<td>37.23%</td>
<td>15.66%</td>
</tr>
<tr>
<td>2010</td>
<td>51.90%</td>
<td>37.07%</td>
<td>17.65%</td>
</tr>
<tr>
<td>2011</td>
<td>50.41%</td>
<td>36.35%</td>
<td>14.13%</td>
</tr>
<tr>
<td>2012</td>
<td>51.37%</td>
<td>40.30%</td>
<td>17.54%</td>
</tr>
<tr>
<td>2013</td>
<td>49.83%</td>
<td>36.12%</td>
<td>17.13%</td>
</tr>
<tr>
<td>2014</td>
<td>47.70%</td>
<td>33.44%</td>
<td>16.86%</td>
</tr>
<tr>
<td>Total 2009-2014</td>
<td>51.77%</td>
<td>36.80%</td>
<td>16.47%</td>
</tr>
</tbody>
</table>
Hypotheses on Factors Influencing the Choice of Leveling

1. Consumption smoothing. Leveling will appeal to individuals interested in consumption as it provides level retirement income for all remaining years of life.

2. Personal discount rate. Individuals with high person discount rates will be more likely to select leveling.

3. Life expectancy. Individuals with below average life expectancies will be more likely to select leveling due to higher present value.

4. Myopic benefit maximization. Individuals with lower financial knowledge or who cannot self-finance consumption may prefer leveling.
Methodology

Our analysis begins by assuming that an individual:
1. Has decided age to retirement from public employment
2. Has decided to claim retirement benefits from the plan
3. Has decided to select a single life annuity with no survivor benefits

The choice facing the retiree is whether she wants the maximum benefit option or the SS Leveling option
How does SS Leveling affect lifetime income?

Individuals selecting SS Leveling receive a higher benefit prior to age 62 and a lower benefit after age 62 compared to the maximum benefit option.

The two leveling benefits are calculated using a 7.25% discount rate which is the assumed rate of return to the system. From the system’s perspective, this yields a cost neutral shift in the payout of benefits.

If the individual has the same discount rate, then the present value of the maximum benefit is equal to the present value of the leveling benefit.
How does SS Leveling affect lifetime income?

• A simple example
  • BMAX = $2,000 per month for worker retiring at age 57
  • Assumed SS benefit at age 62 = $1,200 per month

• B1 = $2,711
• B2 = $1,511

• Total benefit after age 62 = $1,511 + $1,200 = $2,711
How does SS Leveling affect lifetime income?

First calculate the present value of the maximum benefit from age 57 until death using the retirement system’s mortality assumptions for men and women; then calculate the present value of the leveling benefits

a. The system uses a blended gender rate to calculate the monthly benefits – benefits offered to individuals are the same for men and women

b. The system uses 7.25 percent discount rate to calculate benefits so we begin using this rate to derive the present value of both benefit streams.

c. Since individuals are making this choice, we calculate present values separately for men and women using gender specific mortality rates
## Present Values of Retirement Benefit Options Using Male Survival Rates

<table>
<thead>
<tr>
<th>Annuity Type</th>
<th>Monthly pension benefit at ages 57-61</th>
<th>Monthly pension benefit at ages 62 to death</th>
<th>Present Value Using Personal Discount Rate $r_i$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Benefit</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$267,128</td>
</tr>
<tr>
<td>Social Security Leveling</td>
<td>$2,761</td>
<td>$1,561</td>
<td>$268,279</td>
</tr>
<tr>
<td>Social Security Age 62</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$119,434</td>
</tr>
<tr>
<td>Social Security Age 66</td>
<td>$1,600 at age 66</td>
<td>$1,600 at age 66</td>
<td>$237,802</td>
</tr>
</tbody>
</table>

$r_i = 7.25\%$ for the Monthly pension benefit at ages 57-61 and $r_i = 2.9\%$ for the Monthly pension benefit at ages 62 to death.
How does SS Leveling affect lifetime income?

Observations:

1. Using 7.25% discount rate, leveling provides a slightly higher present value for men and a slightly lower present value for women. This is due solely to mortality assumptions.

2. Using a personal discount rate of 2.9% for retirees obviously increases the observed present value for both payout options but now leveling results in a lower present value compared to the maximum benefit.
Factors Affect Choice of SS Leveling: Regression Results

1. Men are 4.3 percentage points more likely to choose SS Leveling

2. Individuals not qualifying for an unreduced retirement benefit are 11.3 percentage points more likely to select leveling

3. The probability of selecting leveling declines with age by 3.4 percent points per year
Factors Affect Choice of SS Leveling: Regression Results

Individuals with more years of service and higher pension benefits are less likely to select the leveling payout option.

General state employees are more likely to choose leveling compared to educational employees and local government employees.

There has been a decline in leveling since 2010.
Issues to consider in evaluating SS Leveling

1. Does it affect work after retirement plans?

2. Does it result in earlier SS claiming?

3. How would changes in the pricing of benefit options affect the value of leveling?

4. How would having a higher age of leveling affect retirees?
Answers to Questions

1. What is Social Security Leveling?
   Frontloading of pension benefits

2. Is SS Leveling a mere curiosity or a widely used annuity option in public retirement plans?
   Used by about one third of large state managed plans when participants are also covered by SS
Answers to Questions

3. Do many retirees choose SS Leveling?
   About one quarter of all retirees in NC eligible for SS leveling select this distribution option

4. How does SS Leveling affect lifetime income?
   Impact of leveling depends on characteristics and preferences of retirees

5. What policy changes would improve this annuity option?
   Using different discount rates and higher ages for leveling impacts present value of leveling compared to maximum benefit