TWO: DEVELOPMENT OF DEMOGRAPHIC ASSUMPTIONS

SERVICE-BASED SALARY INCREASE

What is Service-Based Salary Increase and How Do We Use it?

Assumptions about salary growth help us project salaries to determine the size of the members' future benefits and calculate contribution rates, which are collected as a percentage of payroll.

The salary increases a member will receive over their career depend on both economic and demographic factors. Likewise, our total salary growth assumption consists of two parts.

- **Service-Based Salary Increase** – We assume active members in each system will receive Service-Based Salary (SBS) increases in the future, as long as they remain active in their plan. This assumption includes increases in salary due to step (or merit increases), promotion, overtime, or extra contracts. This assumption captures the increases to salary applicable to the plan demographics. We would expect this portion of members' salary increases to remain relatively consistent during economic swings.
- **General Salary Growth** – The General Salary Growth (GSG) assumption is a combination of inflation and real wage growth (or productivity). It is the portion of salary increases due to economic factors. We would expect this portion of members' salary increases to fluctuate during economic swings.

For this demographic study, we focused on the SBS increases. For more information on our GSG assumption, please see the 2019 Economic Experience Study.

Please note that the salary increases due to the National Board Certification bonuses for teachers is addressed separately in the **TRS Salary Bonus Assumption** section.

High-Level Takeaways

In general, we have seen a rebound in total salary increases from the Great Recession since our prior study. Across most systems, we observed higher-than-expected SBS increases for members over most service levels. The exception is LEOFF, which experienced SBS increases at a similar rate to our prior assumptions.

Generally, we increased our assumed rates of SBS increases at most service levels. For PERS and PSERS, we slightly extended the service levels at which members receive SBS increases from 17 years of service to 20 years of service.

There have also been recent substantial changes to salary allocations for Washington teachers, school workers, and state patrol officers that impacted our new assumptions. Please see the **Law Changes** section for more information.

Data and Assumptions

We looked at 23 years of experience study records, from 1995-2017, for active members who worked full time for at least two consecutive years. No special data was added for this assumption. We included two years of data, 2001 and 2007, with shortened valuation years because, unlike other assumptions, we aggregate the data over the entire study period.

In the prior experience study, we removed 2008-2012 data for the Great Recession. We included all Great Recession years in this study due to the experienced economic recovery and the expected relatively minor impact that economic swings have on our demographic projections.

We considered a longer study period (1984-2017) for setting rates. However, we believe more recent SBS increases are more indicative of future SBS increases. This is a change from our prior study in which we used historical data from 1984-2009.

Because PSERS is a relatively new system, we do not have sufficient data to set a credible SBS increase assumption for PSERS from plan experience. Instead, we relied on the PERS SBS increase assumption to inform the PSERS assumption.

SERVICE-BASED SALARY INCREASE *continued*

We adjusted the counting method for some of the TRS and SERS members in valuation years 2008-2017. We found that the full-time members in their first year of employment appeared to receive less than a full valuation year of service. This is because TRS and SERS members begin their first year at the beginning of the school year (late August or early September), but the valuation cut-off date is June 30. We adjusted our counting method to compensate.

We also gathered Consumer Price Index (CPI) data of urban wage earners and clerical workers from the Bureau of Labor Statistics (BLS) for the Seattle-Tacoma-Bremerton area to help inform historical inflation.

We assume the SBS increase for new entrants (service equal to zero) will match the SBS increase for members with one year of service.

Law Changes

TRS/SERS

Following the State Supreme Court's decision in *McCleary v. State of Washington* (2012), the Legislature has been making systemic changes to K-12 funding; much of which includes changes to salary allocations. For example, EHB 2242 (2017) and E2SSB 6362 (2018) made many changes to education funding. One of these changes was an increase to salary allocations, subject to a phase-in period and regionalization factors.

We will know the full extent of the salary increases when fully allocated and reflected in our data. Until that time arrives, it is difficult for us to predict the full impacts of these changes. This is because salary allocations are the amounts the state provides to each school for each position, but the schools can determine how those funds are actually proportioned. In other words, the increase in allocations could go toward hiring more staff, paying existing staff higher salaries, or some combination thereof. Salaries may also be affected by local collective bargaining agreements.

WSPRS

The Legislature passed a number of bills since our prior study that may influence future salary increases for members of WSPRS:

- **E2SHB 2872 (2016)** – Requires that future salaries remain competitive with other law enforcement agencies in the state.
- **SB 5274 (2017)** – Allows a certain amount of voluntary overtime to be included in salaries for purposes of calculating retirement benefits in WSPRS.
- **SHB 2692 (2018)** – Makes permanent the process used for setting competitive minimum salaries under 2016 Legislation (E2SHB 2872).

General Methodology

We began our study by examining the salaries of active members who worked full time for two consecutive years from 1995-2017. By comparing aggregated salaries at the beginning and end of each year, we were able to determine total salary increases over different time periods and service levels for each retirement system.

After determining total salary increases at each level of service, we isolated historical SBS increases from our range of estimated historical GSG. This was performed by dividing the total salary increase at each service level by our estimates for inflation and real wage growth.

Furthermore, we examined recent, or anticipated, changes in salary allocations that would cause future experience to deviate from historical trends. After considering historical experience and anticipated trends, we applied professional judgement to set new rates by system.

SERVICE-BASED SALARY INCREASE *continued*

Results

We generally increased our assumed rate of SBS increases at most service levels. The exception is LEOFF and WSPRS, where we made only minor adjustments to our prior assumption.

Based on our combined economic assumptions for GSG and SBS increases, we anticipate long-term future salaries will grow at a rate higher than experienced from 1995-2017 for all systems. In particular, we anticipate TRS and SERS to receive higher salary increases in the future due in part to the State Supreme Court's decision in *McCleary v. State of Washington* (2012).

We did not rely on historical experience when setting the PSERS and WSPRS SBS increases assumptions. PSERS is a relatively young plan and does not have enough credible experience to set assumptions. Instead, we relied on assumptions developed for PERS. Recent legislation altered WSPRS salaries to remain competitive with members of other law enforcement agencies. As a result, we believe historical experience is no longer a good indicator of future experience and instead relied on assumptions developed for LEOFF.

We calculated an Actual-to-Expected (A/E) ratio to better understand how our assumptions compare to plan experience in our study period. The "actual" is the average total salary increase a member received during a single year of service and the "expected" is the total average increase in salary we expect a member to receive during a single year of service. We include both demographic and economic salary assumptions in this comparison.

The calculated A/E ratio for total salary growth is helpful for understanding how our combined assumptions for GSG and SBS increases compare to historical experience. If we anticipated future experience to match our study period exactly, we would select new assumptions that had an A/E ratio of one. When determining total salary growth, we look at both historical experience and expectations for the future. Therefore, the following table can inform if our assumptions are reasonable, but it does not necessarily determine the best estimate projections for the future. For example, the total historical A/E for PERS worsened under our new assumptions because we anticipate future salary increases will be higher than both historical experience and our prior assumptions. Please see the **Service-Based Salary Increases Appendix** for additional information on how we set this assumption.

Total Average Annual Salary Increase (1995-2017)

System	Actual	Under Old Assumptions*	Old A/E	Under New Assumptions**	New A/E
PERS	4.4%	4.8%	0.93	4.8%	0.92
TRS	5.0%	5.3%	0.93	5.5%	0.90
SERS	4.9%	5.0%	0.97	5.2%	0.94
LEOFF	5.1%	5.5%	0.93	5.4%	0.94

**Includes the current 3.5 percent GSG assumption and SBS assumptions developed as part of the* 2007-2012 Demographic Experience Study.

***Includes the current 3.5 percent GSG assumption and the new SBS assumptions.*