

# TWO: DEVELOPMENT OF DEMOGRAPHIC ASSUMPTIONS

## TERMINATION RATES

### What is the Termination Rates Assumption and How do we Use it?

The Termination Rates assumption represents the probability that a member will leave active employment status without becoming disabled or retiring. The goal of this assumption, along with the **Probability of Withdrawing Contributions Assumption**, is to estimate the number of terminated members who defer commencement of their retirement benefit. We assume that members who do not defer the commencement of their retirement benefits will immediately withdraw their accumulated contributions.

This assumption generally varies by retirement plan and service (or age).

### High-Level Takeaways

In general, we observed terminations that were higher than expected since the last experience study. The LEOFF System was the only one that showed terminations less than expected since the last experience study.

In prior studies, we developed a combined termination assumption for Plans 2/3. When looking at each plan separately, the recent experience showed Plan 2 terminations were typically less than expected and Plan 3 terminations were typically higher than expected. Looking back further, we observed Plan 3 members tend to show higher termination rates than Plan 2. This is most pronounced in PERS where we have the longest history of members having the option to choose between Plan 2 and Plan 3. We believe we have credible experience to prepare different termination assumptions for Plan 2 and Plan 3 for early career employees.

We also observed not all active members who are retirement eligible and leave work will collect their retirement benefit immediately. Based on this data, we modified our termination assumption to now assume some members who are retirement eligible will leave work and defer commencing their retirement benefit. In the prior report, this behavior was modeled by a probability applied to retirements.

### Data and Assumptions

We looked at 21 years of experience study records, from 1995-2015. No special data was added for this assumption, but some data was removed as noted in the **Valuation Data Excluded** section.

Because PSERS is a relatively new system, we do not have sufficient data to set a credible termination rates assumption for PSERS Plan 2 from plan experience. Instead, we relied on the PERS Plan 2 termination rates assumption to inform the PSERS Plan 2 assumption. PSERS was created for PERS members meeting certain job specifications and has similar retirement provisions as PERS.

Additionally, SERS is another relatively new system. However, we were able to gather SERS data prior to the creation of the plan by selectively pulling data for PERS members employed at school districts that would have been eligible for SERS had it been in place at that time.

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### Valuation Data Excluded

Consistent with the prior experience study, we excluded specific valuation year data if the year included events that would result in significantly under-estimating (or over-estimating) terminations for that year. Examples include shortened valuation years, plan creation years, and experience that we believe to be an outlier. We summarized the valuation data removed in the following table.

Plan	Valuation Year	Why Valuation Year Removed?
TRS Plan 3	1997	Plan created
TRS Plan 2 and Plan 3	1998	Plan 3 transfer incentive
SERS Plan 2 and Plan 3	2000	Plan 2 and Plan 3 created
All Plans	2001	Shortened valuation years
PERS Plan 3	2002	Plan created
PSERS Plan 2	2007	Plan created
PERS (All Plans)	2007	Transfer incentive to move to PSERS
All Plans	2007	Shortened valuation years
WSPRS (All Plans)	2014 and 2015	Outliers in data

### Data Adjustments

A member is considered terminated if they leave active employment status without becoming disabled or retiring in a given valuation year. Some examples of termination include quitting the job, being fired, or transferring to another retirement system.

We look ahead and perform an adjustment to certain member records under some scenarios. One such scenario is that a member who returns to work within two years will be considered active during their period of absence. The purpose of this adjustment is to remove termination experience that is inconsistent with the purpose of our termination rates assumption. For this reason, we have not included valuation data from 2016 or 2017 in our analysis, since a member who left employment in the last two years could still reasonably return to work in the near future.

### Law Changes

There were two law changes and one budget bill since the last study that could impact member termination behavior:

- ❖ **E2SHB 2872 (2016)** – Addresses WSPRS members recruitment and retention.
- ❖ **SB 5274 (2017)** – Allows voluntary overtime to be included in salaries for calculating retirement benefits of WSPRS members.
- ❖ **ESSB 6032 (2018)** – Increases state funding for basic education.

In valuation years 2014 and 2015, we observed a trend of increasing WSPRS terminations. After that period, the Legislature passed two WSPRS bills during the 2016 and 2017 Legislative Session intended to improve recruitment and retention in WSPRS. Collective bargaining during this time lead to WSPRS members receiving significant salary increases and we expect them to be more in line with market salaries for these positions. The recent legislation and salary increases could improve retention in WSPRS.

Recent increases in state funding for basic education has led to higher than expected short-term salary increases for members of TRS and SERS. The salary increases could improve retention in TRS and SERS.

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### General Methodology

For each retirement plan, we counted the number of active members at the beginning of the year, which we call exposures, and the number of terminations during the year, simply referred to as terminations. We divided the number of terminations by the number of exposures to arrive at the actual rate of termination. The actual rate of termination was calculated for both members not eligible for retirement and members eligible for retirement.

We then compared the actual number of terminations to the number of terminations we expect based on our old assumed rates. To determine how many terminations we expect to occur, we applied our old assumption to the population over the study period. We analyzed this actual-to-expected measurement both on an annual basis, and over the entire study period. This helped us identify trends in the data where the assumption was over or underestimating termination behavior.

We then developed a new termination rates assumption, based on historical actual-to-expected measurements and applied professional judgment on future termination behavior.

### Results

For members not eligible for retirement, we mostly increased termination rates to reflect higher historical terminations. The most pronounced increases were for early career Plan 3 members.

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” represents the number of terminations we observed during the study period, and the “expected” represents the number of terminations our assumption produced based on the number of eligible members. In general, an A/E ratio less than 1.00 indicates lower actual rates of termination relative to our assumption. We see a ratio above 1.00 when members terminate at higher rates than we assume.

The following table summarizes the A/E ratios, by plan, under our old and new assumptions. The table only includes members not eligible for retirement.

Not Eligible for Retirement		
Summary of A/E Ratios		
	Under Old Assumptions	Under New Assumptions
PERS 2/3	1.01	1.00
TRS 2/3	1.04	1.02
SERS 2/3	1.03	1.02
PSERS 2	0.93	0.97
LEOFF 2	0.96	0.98
WSPRS 1/2	1.04	1.02

We excluded Plans 1 from the table above because of the relatively few remaining active members in those plans. We still include a termination assumption for Plan 1 members not eligible for retirement, however we don't believe the Plans 1 A/E metric is a useful target for this study.

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We created a new termination assumption for retirement eligible members. The following table summarizes the A/E ratios, by plan, under our old and new assumptions. The table only includes members eligible for retirement.

Eligible for Retirement*		
Summary of A/E Ratios		
	Under Old Assumptions*	Under New Assumptions
<b>PERS 2</b>	N/A	1.10
<b>PERS 3</b>	N/A	1.21
<b>TRS 2</b>	N/A	1.20
<b>TRS 3</b>	N/A	1.05
<b>SERS 2</b>	N/A	1.56
<b>SERS 3</b>	N/A	1.11
<b>PSERS 2</b>	N/A	1.82

*\*We did not previously assume retirement eligible members would terminate and defer commencement of their retirement benefit.*

While the A/E ratios are relatively high for this new assumption, retirement eligible terminations do not occur frequently so the historical data can be somewhat volatile. We expect these ratios to move closer to 100 percent as more data is collected in future studies. We continue to assume no terminations for members eligible for retirement in Plans 1, LEOFF 2, and WSPRS 1/2. Please see the **Termination Rates Appendix** for additional information on how we set this assumption.