



TO: Members of the Legislative Commission on Pensions and Retirement

FROM: Ed Burek, Deputy Director

RE: Review of Minnesota Defined Benefit Public Employee Retirement Plan Post-Retirement Adjustment Mechanisms: Retiree Purchasing Power Issues

DATE: September 30, 2013

Introduction

At the September 12, 2013, meeting of the Legislative Commission on Pensions and Retirement, when post-retirement adjustments procedures from the various states were discussed, Senator Rosen asked staff to provide examples illustrating retiree lost purchasing power if post-retirement adjustments were delayed or if adjustments did not fully compensate for inflation. This memo provides that requested information.

Dollar Values Needed to Maintain Purchasing Power

Table 1 is useful to illustrate the amounts needed to maintain purchasing power given various potential long-term inflation rates. Specifically, the table indicates, for every dollar received when retirement begins, the dollar amount needed at future dates to have the same purchasing power. For example, if inflation is 3%, for every dollar of benefits the annuity is providing at the time of retirement the individual would need to receive \$1.09 by Year 3, \$1.34 by Year 10, and \$1.81 by Year 20. At any positive inflation rate, the amounts needed each year increase by an increasing amount due to compounding, and this effect is much more noticeable at higher inflation rates. Consider the implications of 3.5% inflation rather than 1%. If an individual retired now and inflation were a constant 1% per year, every dollar of benefits the individual receives now would have to increase to \$1.22 by Year 20 to keep the individual whole, a 22% increase from the starting value. But with 3.5% inflation, which could be a reasonable approximation of long-term inflation, the table indicates that the individual would need to be receiving \$1.99 in Year 20 to stay whole, which is a near doubling of the benefit level.

Table 1
Dollars Needed to Maintain Constant Purchasing Power

Inflation rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
0.0%	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
1.0%	1.03	1.05	1.10	1.16	1.22	1.28	1.35	1.42	1.65
2.0%	1.06	1.10	1.22	1.35	1.49	1.64	1.81	2.00	2.70
3.0%	1.09	1.16	1.34	1.56	1.81	2.09	2.43	2.81	4.38
3.5%	1.11	1.19	1.41	1.68	1.99	2.36	2.81	3.33	5.59
4.0%	1.13	1.22	1.48	1.80	2.19	2.67	3.24	3.95	7.11
5.0%	1.16	1.28	1.63	2.08	2.65	3.39	4.32	5.52	11.47
10.0%	1.33	1.61	2.59	4.18	6.73	10.84	17.45	28.10	117.39

Table 1 indicates the impact of inflation for various periods ranging from a few years to 50 years. While few individuals or couples will be in benefit receipt status for 50years, these cases will occur. Long periods in benefit receipt are most likely in public safety plans, given the early retirement ages permitted in those plans and the possibility of disability, or a line of duty death resulting in survivor benefits to a young spouse. A member of the Public Employees Retirement Association Police and Fire (PERA-P&F) plan or the State Patrol Retirement Plan who becomes permanently disabled at a young age could be receiving benefits for more than 50 years. If that disabilitant has an even younger spouse covered by a joint-and-survivor annuity, benefits might continue well beyond 50 years.

Purchasing Power Given No Post-Retirement Adjustments: Various Inflation Rates

Table 2 provides another way of viewing the same information. Table 2 is derived by dividing \$1.00 by the dollar values in Table 1. The results can be interpreted as indicating the retiree’s purchasing power if there are no post-retirement adjustments. If there is no inflation, purchasing power does not erode. It remains at 100% regardless of the length of the period. But with inflation the results change, getting progressively worse the longer the period or the higher the inflation rate. Even with modest 2% inflation, purchasing power noticeably erodes. Ten years after retirement, the benefit being received is only 82% of the amount needed to maintain purchasing power. By 25 years, the amount received would be only 61% of the amount needed. Three percent to 3.5% inflation may be reasonable estimates for long-term inflation. With 3.0 % inflation, in the tenth year the benefit would be only 75% of the amount needed for constant purchasing

power, while it would be only 71% of the amount needed if inflation were 3.5%. At 20 years, the amount received would be only 55% needed amounts if inflation were 3%, or 50% of the necessary amount if inflation is 3.5%. With still higher rates, purchasing power erodes very quickly. With 5% inflation, by Year 10 purchasing power would be 61% of the amount needed. If inflation were 10% for ten years, purchasing power would be only 39% of the amount needed. With 10% inflation, by Year 30 purchasing power would have eroded to only 6% of the necessary amount. By Year 50, purchasing power would have eroded to 1%. (Actually, it would be less than 1%. The amount shown was rounded up to equal 1%).

Table 2
Purchasing Power Given No Post-Retirement Adjustments

Inflation rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
0.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1.0%	97%	95%	91%	86%	82%	78%	74%	70%	61%
2.0%	94%	91%	82%	74%	67%	61%	55%	50%	37%
3.0%	92%	86%	75%	64%	55%	48%	41%	36%	23%
3.5%	90%	84%	71%	60%	50%	42%	36%	30%	18%
4.0%	88%	82%	68%	56%	46%	38%	31%	25%	14%
5.0%	86%	78%	61%	48%	38%	30%	23%	18%	9%
10.0%	75%	62%	39%	24%	15%	9%	6%	4%	1%

Table 2 also is useful for observing the impact of delays in starting post-retirement adjustments. Staff noted in prior memos and in discussion at the September Commission meeting that Minnesota's PERA-P&F will have a three-year delay before the commencement of full post-retirement adjustments, and one of more plans in Ohio will impose a five-year delay before the first adjustment. The table indicates that even with modest inflation these delays will cause harm. With 2% inflation, if the first adjustment occurred at Year 3, each dollar being received will have declined in purchasing power to 94 cents. If the first adjustment were to occur at Year 5, each dollar being received will have declined in purchasing power to 91 cents; or, alternatively, the purchasing power of the dollars received will have declined by about 9%. This is a noticeable lessening of purchasing power even if benefit adjustments matched inflation once adjustments commence. If inflation were 5% in the years immediately after retirement, the benefit would have declined to 86% of its purchasing power at Year 3 or to 78% at Year 5. With 10% inflation, which is conceivable for a several-year period, the dollar benefit would have lost one-quarter of its purchasing power by Year 3, or nearly 40% of its purchasing power by Year 5. This illustrates that delays in the first receipt of adjustments create harm, and that the harm can be quite significant if the delay is long and inflation is high.

Impact of Adjustments Not Matching Inflation: Various Inflation Scenarios

Tables 1 and 2 above illustrated the impact on retirees (or more correctly, disabilitants, retirees, and survivors) in various inflation situations if no adjustments are provided. But in Minnesota public plans and in those of nearly every other state, some form of adjustment is provided. If adjustments are designed to match inflation and if no delay in receiving a partial adjustment occurs during the first year of benefit receipt, the annuity's purchasing power is kept whole throughout retirement. The interesting question is what happens to purchasing power if adjustments are provided but they do not match inflation. Further results, shown in Tables 3 through 8 and derived from Table 1, can provide insight on this matter. Tables 3 to 8 demonstrate the impact of providing adjustments ranging from 1% annually to 5% given various rates of inflation. Table 3 is based on a 1% inflation rate; Table 4 is based on a 2% inflation rate, continuing on up to Table 8, which is based on 5% inflation.

Table 1 provides information on the dollars needed to keep the individual whole given different rates of inflation. For instance, at the three-year mark, Table 1 indicates that for each dollar of benefits at the time of retirement, the individual would need \$1.03 if inflation were 1%, but would need \$1.06 if inflation were 2%. Alternatively, we could note that if the plan is paying a 2% adjustment, at Year 3 the individual will be receiving \$1.06 for each dollar initially received, but if inflation is only 1% the person needs only \$1.03 to stay whole. By dividing \$1.06 by \$1.03, we determine that the benefit the individual will receive in Year 3 is 103% of that needed to keep him or her whole.

Using this approach, the results in Table 3 are derived. Table 3 assumes 1% annual inflation and shows the results of paying post-retirement increases of 1% or more. If the plan provides 1% post-retirement adjustments, then the amounts provided will match that needed to stay whole (indicated in the first row of Table 3). The benefit remains fully adequate regardless of the number of years in retirement. If adjustments exceed inflation, the benefit becomes more than necessary to remain whole. With 2% adjustments, at Year 3 the provided annual benefit is 103% of that needed to keep the individual whole, and by Year 10 the benefit is 111% of that necessary. As expected, the gap gets larger the longer increases in excess of inflation are paid, and the gap increases as the percentage adjustment departs further from the inflation rate. For example, at 10 years, the benefit being received will be 111% of that needed if 2% adjustments are provided, 128% of that needed if 3.5% adjustments are paid, and 148% of that needed if the adjustments are 5% per year. Tables 4 to 8 provide results assuming higher inflation rates.

Table 3
1.0% Inflation Rate
Percentage of Purchasing Power Maintained Under Various Annual Adjustments

Post-Retirement Adjustment Rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
1.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2.0%	103%	105%	111%	116%	122%	128%	134%	141%	164%
3.0%	106%	111%	122%	134%	148%	163%	180%	198%	265%
3.5%	108%	113%	128%	145%	163%	184%	208%	235%	339%
4.0%	110%	116%	135%	155%	180%	209%	240%	278%	431%
5.0%	113%	122%	148%	179%	217%	265%	320%	389%	695%

Table 4
2% Inflation Rate
Percentage of Purchasing Power Maintained Under Various Annual Adjustments

Post-Retirement Adjustment Rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
1.0%	97%	95%	90%	86%	82%	78%	75%	71%	61%
2.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3.0%	103%	105%	110%	116%	122%	127%	134%	141%	162%
3.5%	105%	108%	116%	124%	134%	144%	155%	167%	207%
4.0%	107%	111%	121%	133%	147%	163%	179%	198%	263%
5.0%	109%	116%	134%	154%	178%	207%	239%	276%	425%

Estimates of long-term inflation vary with the person or organization doing the predicting. Long-term inflation of 3% to 3.5% is a reasonable guess, but arguments certainly can be made for higher or lower rates. Table 5 presents results assuming 3% inflation and indicates that the amounts an individual will receive over time will be fully adequate to retain the individual's purchasing power if adjustments match that 3% inflation rate. If adjustments exceed 3%, the amounts to be received are more than necessary. For example, if 5% adjustments are provided, by Year 10 the benefits will be 122% of that necessary to keep the individual whole. Even percentage adjustments which are modestly higher than inflation will create benefits that are noticeably more than needed. Adjustments that are just one-half a percent high, 3.5% rather than 3.0%, will create a benefit by Year 10 that is 105% of that necessary to keep the individual whole, and 110% of that needed by Year 20.

Table 5 also indicates the harmful impact if adjustments are too low. If inflation is 3% but post-retirement adjustments of just 1% annually are paid, by Year 3 the benefit provided will be only 94 percent of that needed to keep the individual whole. By Year 10, the benefit will be only 82% of that needed, and by Year 20, the benefit will have lost one-third of its purchasing power. If the plan instead is providing 2% adjustments, that helps, but the deterioration is still noticeable. By Year 10 the benefit is only 91% of that needed to keep the individual whole, and at 20 years the benefit is only 82% of that needed.

Table 5
3% Inflation Rate
Percentage of Purchasing Power Maintained Under Various Annual Adjustments

Post-Retirement Adjustment Rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
1.0%	94%	91%	82%	75%	67%	61%	56%	51%	38%
2.0%	97%	95%	91%	87%	82%	78%	75%	71%	62%
3.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3.5%	102%	103%	105%	108%	110%	113%	116%	119%	128%
4.0%	104%	105%	110%	115%	121%	128%	133%	141%	162%
5.0%	106%	110%	122%	133%	146%	162%	178%	196%	262%

Table 6 depicts results assuming the true long-term inflation rate is 3.5%. Adjustments above 3.5% will produce excessive benefit levels. Adjustments of 5%, which is only 1.5% above inflation, produce results which are considerably more than needed. At Year 20, for example, the benefit will be 133% of that needed to keep the individual whole. On the flip side, adjustments which are considerably less than inflation can cause considerable harm. If the adjustments are only 1% per year, by Year 5 the benefits retain only 88% of the original purchasing power, and by Year 20, only 61% of original purchasing power.

Table 6
3.5% Inflation Rate
Percentage of Purchasing Power Maintained Under Various Annual Adjustments

Post-Retirement Adjustment Rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
1.0%	93%	88%	78%	69%	61%	54%	48%	43%	30%
2.0%	95%	92%	87%	80%	75%	69%	64%	60%	48%
3.0%	98%	97%	95%	93%	91%	89%	86%	84%	78%
3.5%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4.0%	102%	103%	105%	107%	111%	113%	115%	119%	127%
5.0%	105%	108%	116%	124%	133%	144%	154%	166%	205%

Table 7 depicts results assuming 4% inflation. With that inflation rate, if 1% adjustments are paid the benefits will retain only 74% of original purchasing power by Year 10, and will have lost nearly half its

purchasing power by Year 20. If 3.5% adjustments are paid, only 0.5% less than the assumed 4% inflation rate, by Year 10 the benefits paid will be 95% of that needed to stay whole, deteriorating to 91% at Year 20.

Table 7
4% Inflation Rate
Percentage of Purchasing Power Maintained Under Various Annual Adjustments

Post-Retirement Adjustment Rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
1.0%	91%	86%	74%	64%	55%	48%	42%	36%	23%
2.0%	94%	90%	82%	75%	68%	61%	56%	51%	38%
3.0%	96%	95%	91%	87%	83%	78%	75%	71%	62%
3.5%	98%	98%	95%	93%	91%	88%	87%	84%	79%
4.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%
5.0%	103%	105%	110%	116%	121%	127%	133%	140%	161%

Table 8
5% Inflation Rate
Percentage of Purchasing Power Maintained Under Various Annual Adjustments

Post-Retirement Adjustment Rate	3 yrs	5 yrs	10 yrs	15 yrs	20 yrs	25 yrs	30 yrs	35 yrs	50 yrs
1.0%	89%	82%	67%	56%	46%	38%	31%	26%	14%
2.0%	92%	86%	75%	65%	56%	48%	42%	36%	24%
3.0%	94%	91%	82%	75%	68%	62%	56%	51%	38%
3.5%	96%	93%	87%	81%	75%	70%	65%	60%	49%
4.0%	97%	95%	91%	87%	83%	79%	75%	72%	62%
5.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Observations, Conclusions

1. The adequacy of the benefit during retirement is just as important as the adequacy of the benefit at retirement, and both are needed for consistency with the Commission's Principles of Pension Policy. Principle II.C.7. states that the benefit should be adequate at the time of retirement for those who have provided at least 30 years of public employment. Principle II.C.8. states that these benefits should be kept adequate during retirement by adjustments which increase benefits to compensate for inflation.
2. Post-retirement adjustments matching inflation are needed to avoid considerable harm to retiree purchasing power. Adjustments in excess of inflation place an unnecessary burden on plan contributors. Adjustments below the rate of inflation harm the retirees.
3. While retirees from all plans are at considerable risk, the impact of lost purchasing power may be most serious in public safety plans because of the long period in benefit receipt by disabilitants, and the long period in benefit receipt by retirees and survivors due to the early normal retirement age in these public safety plans.
4. Delays in the start of adjustments can cause considerable loss of purchasing power, and, even if inflation matching adjustments were provided thereafter, that loss will never be recovered.

Tables 4 to 8 amply demonstrate that adjustments which are less than inflation can lead to significant loss of purchasing power. These losses are greater the larger the difference between the adjustment percentage and the inflation rate, and the longer the time period.

Fixed percentage adjustments designed to match the long-term inflation rate could reasonably approximate a system paying variable adjustments, whatever rate is necessary given the most recent year's inflation. A fixed percentage adjustment intended to match long-term inflation would work reasonably well if the inflation estimate on which it is based is accurate. Under this approach, the retirees are at some risk. If 2.5% adjustments are provided, based on a belief that the long-term inflation rate will be 2.5%, retirees could receive a considerable windfall if there is a prolonged period of 2% inflation. On the other hand, retirees could lose considerable purchasing power if inflation turns out to be 3% or higher.

A system which provided, on an annual basis, whichever rate of adjustment is needed given the most recent year's inflation would keep retirees whole. Risk is shifted from the retirees to the plan contributors; high inflation could burden plan contributors. In response to the needs of retirees and the risk to plan financing, the Minnesota Legislature has created capped inflation matches in a few plans, although in current law those will not be effective financial stability is regained. For the Duluth Teachers Retirement Fund Association and the St. Paul Teachers retirement Fund Association, once these associations achieve a 90% funding ratio they will begin paying an inflation match, capped at 5%. The plan law does not include any provision to later make whole any individual who had one or more years of capped increases because actual inflation in a year exceeded 5%. Accepting this imperfection may be a reasonable compromise, but the result will not be fully consistent with the Commission's policy principles.