

October 5, 2010

Mr. George Hopkins
Executive Director
Arkansas Teacher Retirement System
1400 West Third Street
Little Rock, Arkansas 72201

Re: Service Credit Purchases

Dear George:

This memorandum discusses the findings of our analysis of service credit purchases in the Arkansas Teacher Retirement System (ATRS) performed in accordance with your request. The following types of service are eligible for purchase under State of Arkansas law.

Additional Contribution	Repay Refund
Back Contributions	Military
Non-Contrib to Contrib	Erroneous Member
Out of State	Free Military
Free Prior	Overseas/Peace Corp/Vista
Private School	Sabbatical
Purchased Interest	National Guard
Head Start	Overpayment
Purchased Employer	Domestic Federal
Federal Retirement	Underpayment
Military-Deployment	

We received a full list of service purchases by type and amount of payment during Fiscal 2009. The list did not contain examples of every type of service available for purchase. We only reviewed the service purchases for which examples were provided. If additional examples can be provided, we would be happy to expand our analysis to include them.

CURRENT SERVICE PURCHASE COST FORMULAS

Presented below are the service purchases and the applicable sections of the Teacher Retirement Laws that were reviewed:

<i>Arkansas Code Section</i>	<i>Brief Description of Service Credit</i>	<i>Current Purchase Price Per Year</i>
24-7-406	Non Contributory to Contributory	Member contributions plus interest from the date the contributions would have been received by the system to the date of payment in full.
24-7-406	Additional Contribution	Member contributions plus interest plus employer contributions from the date the contributions would have been received by the system to the date of payment in full.
24-7-501	Back Contributions	Member contributions plus employer contributions plus interest from the date the contributions would have been received by the system to the date of payment in full.
24-7-502	Repayment of Refund	The member must repay the amount refunded plus regular interest thereon.
24-7-602	Military	The product of the sum of the employee and employer contribution rates in effect at the time of purchase multiplied by (1) or (2). (1) The rate of pay the member would have received had he not served in the uniform services. (2) The average compensation level during the 12 month period or shorter immediately preceding the service.
24-7-603	Out-of-State	The product of the sum of the employee and employer contribution rates in effect at the time of purchase multiplied by the greater of (1) The annual salary received by the member for his or her first full year of credited service that precedes the fiscal year in which the service is purchased and (2) The average of the three highest salaries earned at the time of purchase plus interest from the end of that year of credited service to the date of payment in full.
24-7-606	Leave of Absence (Sabbatical)	Same as Out of State Service
24-7-607	Private School	Same as Out of State Service
24-7-611	Domestic Federal	Same as Out of State Service

SUMMARY OF DATA RECEIVED

ATRS staff provided examples of 205 active member service purchases during Fiscal Year 2009 for GRS to analyze in connection with this study. A summary of the data received is presented below:

<i>Arkansas Code Section and Description</i>	<i>Number of Service Cases</i>	<i>Averages</i>			
		<i>Age</i>	<i>Salary</i>	<i>Service Before Purchase</i>	<i>Service Purchased</i>
24-7-406 Non-Contributory to Contributory #	52	51.0	\$ 50,064	8.9	6.4
24-7-406 Additional Contributions	2	56.8	50,858	14.9	0.6
24-7-501 Back Contributions	36	55.6	52,877	19.5	2.4
24-7-502 Repayment of Refund	70	56.4	53,254	16.4	4.4
24-7-602 Military service	3	52.1	62,042	21.3	3.5
24-7-603 Out of State	27	55.9	59,319	21.5	2.3
24-7-606 Sabbatical	2	55.3	48,229	27.0	1.0
24-7-607 Private School	12	53.9	56,405	19.3	3.5
24-7-611 Domestic Federal Service	1	46.3	67,426	20.0	1.0
Total	205	54.5	53,487	16.6	4.1

The sample member data provided indicated that 52 members, who had an average of 8.9 years of Contributory service, reclassified another 6.4 years of Non-Contributory service as Contributory service.

For the purposes of this study, we have assumed that the FY 2009 experience is reasonably representative of experience generally.

RESULTS OF THE SERVICE PURCHASE ANALYSIS

Listed on the following page are the results of the service purchase analysis. The “actuarial cost” is an approximation of the value that the person received in connection with the service purchase. Technically, it is the difference between the accrued liability with the additional or reclassified (i.e., non-contrib. to contrib.) service credit, and the accrued liability without it. The actuarial cost of a service purchase can vary widely based upon an individual’s amount of service before the purchase, the gender of the individual, and in most cases, the age of the individual at the time of purchase.

<i>ATRS Service Purchase Results for FY 2009</i>								
<i>Type</i>	<i>Code Section</i>	<i>Description</i>	<i>No.</i>	<i>Total Years</i>	<i>Actuarial Cost</i>	<i>Amount Paid By Member</i>	<i>Net Cost to ATRS</i>	<i>Atrs / Total%</i>
10	24-7-406	Additional Contribution	2	1.25	12,831	1,535	11,296	88%
11	24-7-502	Repay Refund	70	306.75	4,034,733	1,161,000	2,873,733	71%
12	24-7-501	Back Contributions	36	87.75	1,098,070	205,722	892,348	81%
13	24-7-602	Military	3	10.25	172,151	71,139	101,012	59%
14	24-7-406	Non-Contrib to Contrib	52	330.75	1,255,553	1,244,191	11,362	1%
16	24-7-603	Out of State	27	61.50	970,754	609,731	361,023	37%
20	24-7-607	Private School	12	42.50	715,228	394,374	320,855	45%
21	24-7-606	Sabbatical	2	2.00	32,828	26,100	6,728	20%
28	24-7-611	Domestic Federal Service	1	1.00	20,823	11,689	9,134	44%
Totals			205	843.75	8,312,971	3,725,481	4,587,490	55%

DISCUSSION

Based on the examples provided, ATRS is bearing 55% of the cost of service purchases, with an annual cost of \$4,587,490. A discussion of service purchase costs by type follows:

Additional Contributions relate to unreported service, and do not appear to be cost neutral. The results seem extreme, though, likely because of the small sample size. Part of the reason for the lack of neutrality is that historically, interest is not charged on the employer contributions. However, effective in October, 2009, interest is being charged on the employer portion.

Repayment of a Refund is clearly not cost neutral to ATRS, and accounts for over 60% of the service purchase cost incurred based on 2009 samples. The repayment consists solely of member contributions plus interest. Employer contributions are not repaid. It could be argued that since employer contributions were not refunded but remained in the system they do not need to be repaid. However, once a person quits, the employer contributions that were nominally made on behalf of the person, are applied to the funding of other plan members. This means that mathematically all or a portion of the employer contributions in fact need to be repaid when a member repays a refund in order to move toward cost neutrality. This is almost never done in public employee retirement systems. Reinstatement of service credit upon repayment of a refund is usually considered to be a right of the participant and the associated cost is spread over all employers. While the cost could be borne by the employer who rehired the person, we have not seen that done in practice.

Back Contributions appear to be far from cost neutral, and there are enough cases to produce somewhat credible results. Back Contributions are paid when service that was not reported, but that was optional at the time it was accrued, is purchased. The member must pay employee and employer contributions plus interest which would generally be a formula that approximates cost neutrality. However, for cost neutrality to occur, the salary used in the calculation would need to be the current salary. It could be that the salary used to calculate the amount of contributions for a purchase of this type of service is the salary paid when the service was earned, rather than the current salary.

Military Service purchase cases appear not to be cost neutral. This is most likely because interest is not charged on the contributions and because the rate of pay used in the calculation could be from many years ago. It should be noted that these are generally cases involving inactive members, who served in the military following covered employment, and are later hired into a position covered by ATRS. Our understanding is that such cases are not covered by USERRA.

Non-Contributory to Contributory Conversion seems to be approximately cost neutral based upon the data provided. This is not surprising since that was part of the original design of the non-contributory plan. However, if a member who has some non-contributory service credit quits and later returns to service all prior non-contributory service is restored at no cost to the member. That transaction is 100% paid by ATRS. This information is not reflected in the chart above.

The remaining types appear not to be completely cost neutral. All of them are structured along the idea that repayment of member contributions plus employer contributions plus interest will approximate cost neutrality. This simple formula is common among Public Employee Retirement Systems. However, in a defined benefit plan, such as ATRS, the value of the retirement benefit is the accumulation of member and employer contributions made on behalf of the individual, investment return, and employer contributions that were made on behalf of *other people* who terminated employment without eligibility for a benefit. Therefore, depending on the ages and service of the individual involved, payment of member plus employer contributions and interest can turn out **not** to be cost neutral. This is seen in the above examples.

Actual costs for an individual depend heavily on individual demographics. No single percentage rule for service purchases, including employer plus employee contributions can treat all people fairly and make the system whole at the same time. The following describes some reasons for this effect.

PROMOTION OF EXISTING SERVICE

The value of a year of service depends upon the age of the member at time of purchase and the member's expected date of retirement. (It also depends upon the member's sex and a variety of other factors.) Since the member's eligibility for retirement depends upon the service credit before and after the purchase, purchasing a year of service can, in some cases, alter the member's retirement eligibility date. (Note that this effect does not occur with non contrib. to contrib. conversions, which is the only type that appears to be truly cost neutral). Therefore, the cost of a year of service credit depends upon the amount of service credit before the purchase. Whether or not this effect should be recognized is a policy matter, but from an actuarial perspective, such a dependency exists and in some cases can be significant.

For example, if a person is 59 years old with 27 years of service, that person would normally have to wait until age 60 to retire with full benefits. If one year of service is purchased, the person is eligible to retire with full benefits immediately following the purchase. Effectively, the value of the original 27 years of service is increased (or "promoted") because the related benefits are payable one whole year earlier. Therefore, the value of a year of service to a person who is 59 years old with 27 years of service is much greater than the value of a year of service to the same person one year later, or to another person who is 59 but who already has 28 years of service. Because of this issue, which we refer to as "promotion of existing service", the cost of a year of service credit is a complicated function of both the age and service of the individual. The function cannot really be encapsulated into a single flat number for all ages, or even into an age based column of numbers, without sacrificing accuracy. Various approximations can be made, but when that is done, it will always be possible to uncover cases for which the approximations do not work well. Some will pay too much, while others will get a bargain.

COMPETING OBJECTIVES

In establishing a policy with respect to service purchases, it is important to remember that there may be competing objectives in these types of calculations. Some possible objectives are listed below, not necessarily in order of importance.

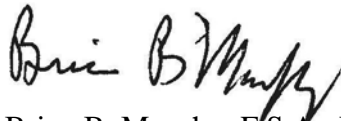
- Individual Equity. The calculation should produce a fair measure of the value received by the member for the amount of money transferred to ATRS. There should be no individual winners or losers. However, if the person is required to pay the exact full cost of the added service, the only theoretical value to making the back payment is to lock in a favorable return. The person is essentially buying a deferred annuity, and the amount the person pays is calculated by assuming it will earn 8% between the payment date and the retirement date. Commercial deferred annuities would most likely cost considerably more in today's interest rate environment.
- Global Equity. ATRS should be neither advantaged nor disadvantaged by member service purchases.
- Portability. People should be able to move between Arkansas Systems or from ATRS to the private sector and back, without significant loss of accrued benefits. Permitting certain types of service purchases at subsidized rates provides a measure of benefit portability for workers, although it violates both individual and global equity.
- Public Policy. In some instances, it may be determined to be in the public interest to permit/encourage subsidized service purchases.
- Consistency among methods used in other Arkansas retirement systems.

This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,



Judith A. Kermans, E.A., M.A.A.A., F.C.A.



Brian B. Murphy, F.S.A., E.A., M.A.A.A., F.C.A.

JAK:BBM/bd

cc: Gail Bolden