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EXAMINING INEQUITIES IN TEACHER PENSION BENEFITS

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EXAMINING INEQUITIES IN TEACHER PENSION BENEFITS

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Abstract

From funding to teacher quality, inequities exist between school districts. This paper adds to the literature on inequities by examining the impact of pension plan formulas on pension benefits. Using data from the salary schedules of 464 Missouri school districts, this paper analyzes how various final average salary calculations would impact the benefits of teachers in different districts. All of the schools in this analysis belong to Missouri's Public Employee Retirement System, which is a defined-benefit pension plan. A teacher's benefit in this plan is based on her years of experience and her final average salary. The system uses a three-year final average salary calculation. This captures salaries when they are most inequitable, at the end of the schedule. When more years of service are used in the final average salary calculation, inequities in benefits are reduced, but not eliminated.

Introduction

Much has been made of inequities within public education. Often, these discussions center on school funding. In the United States, schools have historically been financed through local property taxes (Koski and Hanel 2008). Of course, the assessed value of land in districts in different locales and of varying sizes can be markedly different. As a result, some school districts can generate significantly more revenue than others. These inequities opened state funding formulas to legal challenges (Augenblick, Myers, and Berk Anderson 1997). Initial challenges at the federal level failed to gain traction, but subsequent trials at the state level would yield different results. Augenblick, Myers, and Berk Anderson (1997) note, “During the 12 years between 1971 and 1983, some 17 state high courts ruled on the constitutionality of their state school finance systems” (p. 67).

After the initial round of “equity” lawsuits, a new wave of litigation challenged state funding formulas on “adequacy” grounds (Koski and Hanel 2008). This new round of litigation shifted the argument from that of equal resources for school districts, to that of ample resources for each school. Despite the noticeable shift in legal challenges, issues of educational equity remain as pertinent today as they were in 1971. Concerns remain about parity in funding and school facilities (Augenblick, Myers, and Berk Anderson 1997).

Additionally, researchers have examined other forms of inequity. For example, it has been documented that teacher salaries can vary considerably between school districts (Lankford, Loeb, and Wyckoff 2002). This, along with other factors, has contributed to differences in terms of teacher qualifications between wealthy and poor school districts. Recent research has even documented differences in spending between more advantaged and disadvantaged schools

within districts (Roza, Hill, Sclafani, and Speakman 2004). This happens as veteran teachers shift to easier work assignments within districts, leaving newer, less expensive teachers at high-needs schools.

This study adds a new layer to the literature of inequities within public education—inequities in teacher pension benefits. As long as teacher salaries vary by school district, inequities will naturally occur in teacher pension benefits. These differences are to be expected. Other inequities, however, are more stealth. Indeed, some inequities appear to be promulgated by pension plan formulas themselves. This paper examines one such formula.

The Public School Retirement System of Missouri (PSRS) is the state's largest public employee retirement system. All public school teachers, except those within the boundaries of the Kansas City and St. Louis school districts, belong to PSRS. According to PSRS (2014), there are "over 120,000 active members and nearly 80,000 retirees" within the pension system. PSRS is a defined-benefit (DB) pension plan. In a DB plan, pension wealth is not tied directly to contributions; rather, a worker's retirement benefit is determined by "a formula which takes into account years of service for the employer" and the final average salary (FAS) (Bodie, Marcus, and Merton 1988 p. 146).

In the PSRS system, the FAS is the three highest consecutive year's salary, typically the last three years of a teacher's career. Since the FAS calculation only considers a narrow band of a teacher's career, it essentially ignores the other years of employment. Of course, teachers contribute to the retirement plan each year they work. In fact, teachers in the PSRS system and their district each contribute 14.5 percent of the teacher's salary.

Since the formula only considers a narrow band of teacher's career, it is possible for some teachers to contribute more to the pension system and receive less than a counterpart in

another district. Consider two districts which start teachers at a similar level and end at the same final average salary, but have different shapes to their salary schedules. District 1 gives teachers the same dollar amount raise for every year of experience. District 2, on the other hand, gives teachers a percentage raise each year. Over the course of a career, a teacher in District 1 would pay more into the retirement system; however, they would receive the same amount in pension benefits. This occurs because only the final average salary, three years, counts towards pension calculations. Essentially, the pension system ignores the career contributions of teachers.

The above illustration is just one way in which the three-year FAS calculation may favor some districts over others. Essentially, depending on the slope and concavity of a school district's salary schedule, it is possible for some districts to subsidize the pension of other districts. This is particularly important as compensation varies markedly between wealthy and poor school districts; as does the shape of salary schedules.

This research paper is primarily descriptive. That is, it displays actual teacher salaries of districts across the state of Missouri. Following this descriptive analysis, the paper analyzes what would happen to teacher pension benefits under various iterations in the benefit formula. Thus, the research questions in this paper are fairly straightforward.

(1) How do the particulars of FAS calculations affect pension benefits?

(2) How do alternate FAS calculations affect pension benefits?

In the next section, I review the related literature on teacher pensions. The literature helps give context to this paper. The literature review is followed by a description of the methodology used in the study. Next, the results are displayed. Finally, I offer thoughts and conclusions about the relationship between teacher pay and teacher benefits

Literature Review

Like many public employee retirement plans, PSRS is a defined-benefit (DB) system. In a DB plan, retirement benefits are not tied to contributions. Rather, they are determined by a formula. In the case of PSRS, the formula takes into account a final average salary calculation and years of service. This is in contrast to a defined-contribution (DC) plan, where contributions, not benefits are clearly defined. As Bodie, Marcus, and Merton (1988) note, “DB and DC plans have significantly different characteristics with respect to the risks faced by employers and employees, the sensitivity of benefits to inflation, the flexibility in funding, and the importance of government supervision” (p. 140).

In a DC plan, the brunt of the risk is shouldered by the worker (Bodie, Marcus, and Merton 1988). In contrast, the employer holds the risk in a DB plan. Of course, these are not the only differences between the two types of plans. As a matter of fact, recent analyses have highlighted numerous differences between the two types of plans. Many of these differences stem from the accrual pattern of benefits.

In DC plans, benefits accrue smoothly (Bodie, Marcus, and Merton 1988; McGee and Winters 2013). This is a result of the benefit being tied directly to contributions. In DB plans, where the benefit is based on a formula, which typically considers only a few years of service, benefits are back loaded (Costrell and Podgursky 2009a; Costrell 2014; McGee and Winters 2013; Bodie, Marcus, and Merton 1988). This is illustrated clearly by Costrell (2014). He illustrates how back loading occurs because of the PSRS plan’s features, such as the final average salary calculation; but also because of enhancements, such as early retirement options. In Missouri, for example, teachers can retire when the sum of their age and their years of

experience reaches 80 (Costrell and Podgursky 2009a). The rule of 80 allows teachers to reach retirement faster, significantly increasing their pension wealth.

The structure of DB plans creates numerous incentives for teachers. First, the spike in pension benefits pulls teachers to stay until they can reap their maximum benefit (Costrell and Podgursky 2009a). After this, pension wealth declines. This occurs because DB plans offer an annual benefit. If a teacher works a year longer, their annual benefit may increase; however, they will also collect their benefit for one fewer year. Thus, the declining pension wealth acts as a push to retire (Costrell and Podgursky 2009a). Moreover, it pushes teachers to retire around a relatively narrow band of time (Koedel, Podgursky, Shi 2013).

The manner in which teacher pension wealth accrues also has implications for portability. Clearly, DC plans offer more portability than DB plans (Bodie, Marcus, and Merton 1988). In a DC plan, a teacher can take all of their contributions with them. This is not the case in a DB plan. Indeed, teachers lose a significant portion of their pension wealth if they leave a DB plan before reaching their peak retirement age (Costrell and Podgursky 2010b). Costrell and Podgursky (2010a) estimate “a teacher who has put in the same years but split them between two systems will often lose well over one-half her net pension wealth” (p. 522). This again is a feature of the system. It is designed to incentivize people to stay in the profession and to punish those who leave. In other words, there is a significant penalty when moving across state boundaries (Costrell and Podgursky 2010a). In Missouri, there is even a penalty when moving from PSRS to the St. Louis or Kansas City school districts, which have their own pension systems.

The importability of DB pensions may become an increasing problem in the retirement security of entering teachers. Data suggest younger workers tend to be more mobile than workers in previous eras (Jaeger and Stevens 1999; Stewart 2002). This means fewer entering teachers

today will make it to full retirement. The plan, of course, banks on this. After all, the benefit redistributes wealth from individuals who work a short-time to those who work for a full career (Costrell and Podgursky 2010a; McGee and Winters 2013).

The biggest beneficiaries of this system are school district administrators (Koedel, Ni, and Podgursky 2013). Teachers who go into administration, especially as a superintendent, realize a significant raise in their salary. This yields significant gains in pension wealth, again because of the three-year FAS calculation. A story in the *St. Louis Post-Dispatch* highlights this fact (Bock 2013). A superintendent who was near retirement took a one-year interim superintendent job in another district. The job came with a significant raise. By working this one additional year at the higher rate, the superintendent buoyed his FAS. According to the paper's calculations, this will yield him an additional \$20,000 for each year of his retirement.

For obvious reasons, there is significant support for the current DB system among superintendents. There also appears to be significant support among veteran teachers. This was the finding in a study of Washington state teachers, where teachers belong to one of three pension plans; one of which includes a DC component (DeArmond and Goldhaber 2010). It makes sense for administrators and veteran teachers to be supportive of DB plans. These plans are generous to individuals who stay until full retirement. If anyone is going to make it to that point, administrators and veteran teachers are the most likely.

The peculiar incentives embedded in Missouri teacher pensions are almost nonexistent in the private sector (Costrell and Podgursky 2009a). This is because many private firms have shifted to DC retirement plans. It also appears that private sector retirement plans are not as generous as teacher retirement plans (Costrell and Podgursky 2010a). Using data from the National Compensation Survey and the Bureau of Labor Statistics, Costrell and Podgursky find

that benefits are significantly higher for teachers (Costrell and Podgursky 2009b). On average, “the employer contribution rate for public K-12 teachers (14.6 percent) was 4.2 points higher than that for private-sector professionals (10.4 percent).”

Clearly, current DB teacher plans have features that create peculiar incentives and potentially negative outcomes. This paper adds to the literature by highlighting another potentially unintended consequence of the DB plan. Specifically, this paper highlights the impact the three-year FAS calculation has on pension benefits. It explores the relationship between the three-year FAS calculation and pension benefits and how those benefits would change under alternate FAS calculations.

Methods

The Missouri Department of Elementary and Secondary Education regularly report average teacher salaries for each school district. Of course, average salaries capture both the level of a school district’s pay schedule and the teacher’s years of experience. While the former may influence the latter, there are a number of other factors that may also contribute to teacher retention. For example, teachers may be more inclined to stay in districts that have easier to serve students. This adds imprecision into comparisons of teacher salary schedules.

Other agencies, such as the Missouri National Education Association, have compiled district salary information (2014). The MNEA report indicates each district’s minimum and maximum salary for a teacher with a bachelor’s, master’s, and non-doctorate degree. It also includes the number of “steps” and “lanes” on the salary schedule. While also useful, this information alone cannot tell us about the shape or overall generosity of a district’s salary schedule. It is quite possible for two districts to have the same starting and ending salary, but to have a different shape between these points. To truly examine the relationship between teacher

salaries and teacher pensions, we must examine the entire salary schedule. After all, teachers contribute to the pension system every year they work.

More than 500 school districts belong to the Public School Retirement System (PSRS). An effort was made to obtain the salary schedules for the 2014-15 school year of each of these districts. Nearly 400 schedules were obtained from the Missouri School Board Association's "Salary Schedule Bank" (2015). Requests were sent through email to the remaining districts. This yielded another 70 schedules, for a total of 464. One administrator indicated his district did not have a schedule and a few sent the schedule for the wrong year. In total, schedules were not obtained from 51 districts. These data were merged with publicly available data from the Missouri Department of Elementary and Secondary Education (DESE). The DESE data include student demographic information and school finance statistics.

Descriptive statistics for school districts that are included in this analysis and for those that are not were analyzed for differences. T-Tests indicate the two groups are different on a few measures. For example, the missing school districts had higher per-pupil expenditures, were smaller, had fewer teachers, and lower average teacher salaries. There were not significant differences in: the percent of students qualifying for free or reduced price lunches, the percent minority students, the percent scoring proficient or advanced on state exams, or the percent of funding from local sources. In many regards, the missing districts resemble the districts in Quartile 1 of the subsequent analyses.

Once the schedules were obtained, the data were hand entered into a spreadsheet. After data entry was completed, a series of checks were conducted to ensure data accuracy. First, the data were sorted for each step and analyzed for outliers. Next, a year-to-year difference was

calculated for each step. Again, these data were analyzed for outliers. Finally, line graphs were created for each district. These graphs were visually inspected for any irregularities.

Next, the salary schedules were used to generate final average salary (FAS) figures for each district. PSRS uses a teacher's three highest consecutive years in FAS calculations. In addition to computing a three-year FAS figure, additional calculations were generated using five, 10, 20, and 30 years. In Missouri, retirement benefits peak between 25 and 30 years of experience. Additionally, most districts do not give raises beyond 30 years of service. Thus, this seemed an appropriate number of years to cap the investigation. For the 30 year calculation, it was assumed that a teacher would work five years with a bachelor's degree and then switch to the master's degree schedule.

The purpose of this paper is to examine inequities that exist in teacher pensions, especially those that are created by the pension formula itself. To better understand these inequities, districts were broken into quartiles, weighted and unweighted, based on the three-year FAS calculation. The unweighted quartiles consisted of four groups of roughly the same number of districts. These quartiles could be thought of as a district level analysis. A second set of quartiles was generated using the same data, but with weights for the number of full-time equivalent teachers in each district. Thus, the weighted quartiles have roughly the same number of teachers in each group and can be thought of as a teacher-level comparison.

Using PSRS' benefit formula, I calculated the annual retirement benefit for each district. The PSRS formula is as follows:

$$(1) \textit{Benefit}_i = \textit{FAS}_i \times \textit{YOS}_i \times \textit{Multiplier}$$

Where *FAS* is the final average salary, *YOS* is years of service, and the multiplier is a figure assigned by PSRS. In the current formula, the multiplier is 2.5 percent. Thus, a teacher who

works for 30 years would receive 75 percent of their final average salary. For this analysis, the only independent variable that varies between districts is the final average salary.

When including more years in the FAS calculation, it naturally leads to a lower FAS. If the multiplier were unchanged, this would yield lower benefits for retired teachers. That, of course, is not the goal. Rather, the goal is to understand how using more years of the salary schedule would impact benefits for teachers in different types of districts. Therefore, an adjustment was made to the multiplier. It was assumed, that the total benefit distributed would remain the same. The new multiplier for the district level analysis, unweighted by the number of teachers, was generated by the following formula:

$$(2) \text{ Unweighted Multiplier}_{AltFAS} = TB_{3FAS} \div YOS \div TFAS_{AltFAS}$$

where TB is the total benefits awarded to all districts when using a three-year FAS calculation, YOS is years of service, and $TFAS$ is the total final average salary for all of the districts under an alternate FAS calculation.

The formula for the finding the multiplier when districts are weighted by the number of full-time equivalent teachers is slightly different. To generate a multiplier which takes into account the number of teachers in each district and would yield the same total benefits under each FAS calculation, the following formula is used:

$$(3) \text{ Weighted Multiplier}_{AltFas} = \sum_{i=1}^n \frac{(B_i \div YOS \div AltFAS_i) \times FTE_i}{Total\ FTEs}$$

Where B , is the benefit for district i using the PSRS three-year FAS formula, $AltFAS$ is the new FAS for district i when an alternate FAS formula is used, FTE is the number of full-time equivalent teachers in each district. The end result of modifying the multiplier is that the total annual benefit remains roughly the same. Using the new multiplier and the alternate FAS formulas, an annual benefit was generated for teachers in each district.

It is important to note, the multiplier used here may not be the appropriate multiplier for PSRS to use were the system to move to a different FAS calculation. The plan would want to take into account survival probabilities for teachers in each school district and health care benefits, which are included in pension calculations. Those data were not available for this analysis.

Results

The first step to examining whether the final average salary calculation may contribute to inequity in teacher pensions is to understand how the calculation impacts districts at different points of the salary spectrum. I calculated the final average salary (FAS) using Missouri's current formula of the three-highest consecutive year's salary and alternate FAS calculations using 5, 10, 20, and 30 years of data. As expected, the average FAS drops when additional years of data are included. This decrease, however, does not impact all districts the proportionately. For example, when comparing the three-year FAS and the 30-year FAS the minimum FAS drops just \$1,323; while the maximum FAS drops by \$20,211. This implies that more inequity exists in teacher salaries at the end of a teacher's tenure, rather than at the beginning. Some districts give significantly larger raises than others.

To better understand how shifting the FAS calculation would impact teachers differently depending on where they teach, the districts were separated into quartiles based on the three-year FAS calculation. This provided four groups, roughly equal in the number of school districts. The difference in FAS between Quartile 1 and 4 is quite stark, \$21,657 in the 3 year FAS calculation. This difference diminishes as more years are added to the FAS calculation. When the entire salary schedule is used, 30 years, the difference between the first quartile and the fourth is reduced to \$15,014.

The above information presented FAS data for districts regardless of their size. The truth is, some districts serve many more students than others and employ significantly more teachers. Therefore, a more fitting analysis should take into account district size. To do this, districts were weighted by the number of full-time equivalent teachers (FTE) employed by the district. Like before, these data were then divided into quartiles based on the three-year FAS calculation. Table 1 presents the results of these calculations. Unlike before, where the quartiles contained roughly the same number of districts, here the quartiles contain roughly the same number of teachers. As the data make apparent, there are a number of small districts in Missouri and these districts tend to pay teachers less. Indeed, there are 312 districts in Quartile 1 and just 24 districts in the fourth quartile. The difference in the three-year FAS between these two groups is \$33,065. The difference drops nearly \$11,000 to \$22,233 in the 30 year FAS calculation.

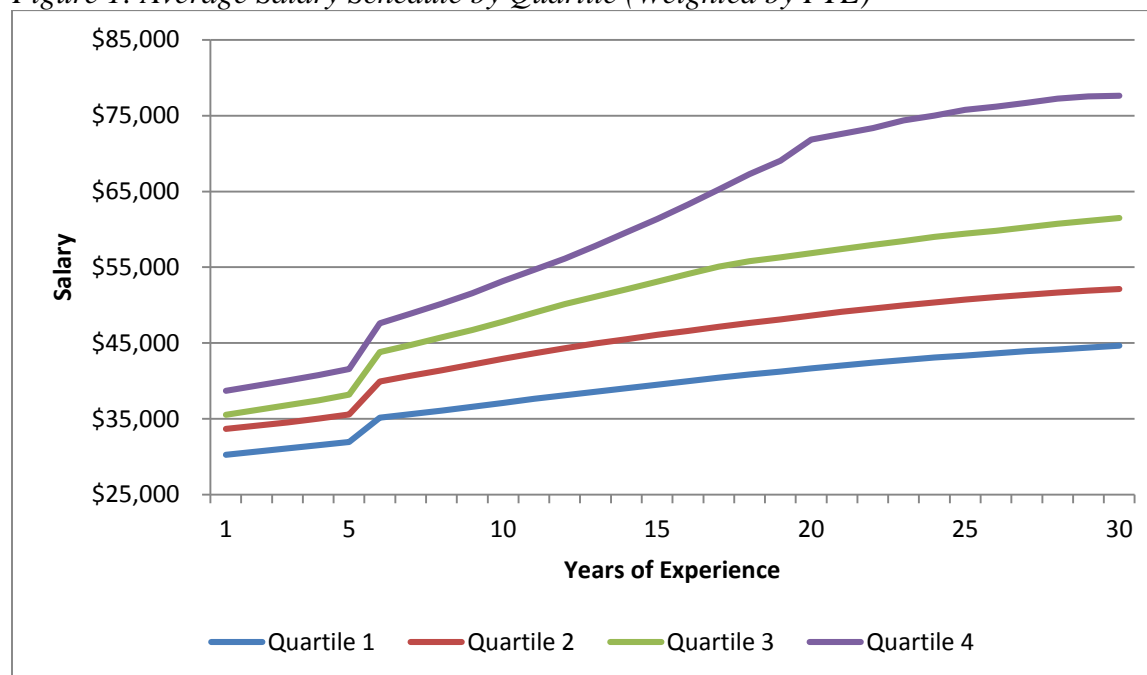
Table 1: Final Average Salary Calculations by Quartile (Weighted by FTE)

Calculation	Quartile 1	Quartile 2	Quartile 3	Quartile 4
3 Years	\$44,406	\$51,899	\$61,105	\$77,471
5 Years	\$44,159	\$51,631	\$60,681	\$77,059
10 Years	\$43,446	\$50,791	\$59,568	\$75,641
20 Years	\$41,576	\$48,527	\$56,462	\$69,138
30 Years	\$38,922	\$45,020	\$51,408	\$61,155
Number of districts	312	83	45	24
Number of teachers	14,668	14,609	14,554	14,210

To understand why the difference in FAS drops as more years of data are included, a graphical representation is helpful. Figure 1 presents the average salary by quartile (weighted by FTE) at each pay step. Here again, quartiles were determined by the three-year FAS. In each line, there is a noticeable jump from the fifth to the sixth year. This bump is the master's pay bump. As mentioned above, the calculations assume a teacher works five years with a bachelor's degree and another 25 with a master's degree. In both the unweighted and weighted graphs, there is a clear difference in slope between the fourth quartile and the others. The difference in slope is

much less pronounced between the first, second, and third quartiles. Still, the differences in slope, combined with different starting salaries, create greater inequity in salaries at the end of the schedule.

Figure 1: Average Salary Schedule by Quartile (Weighted by FTE)



It is obvious that differences exist between the districts in Quartile 1 and Quartile 4. As the data have made clear, the districts in Quartile 1 tend to be smaller and pay teachers less than the districts in Quartile 4. However, these are not the only differences between groups. Table 2 presents descriptive statistics for each of the four weighted quartiles. Paired T-tests were conducted to evaluate the differences between Quartile 1 and the other quartiles. Thus, the T-Tests indicate whether Quartiles 2, 3, and 4 are significantly different from Quartile 1.

Table 2: Descriptive Statistics of Districts by Weighted Quartile

Characteristic	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Enrollment (2015)	556	2,409***	4,767***	8,772***
Percent of Students Qualified for Free or Reduced Price Lunches (2015)	58.8%	58.0%	48.5***	40.8***
Percent Minority Students (2015)	6.3%	13.0%***	18.3***	40.5***
Percent of Students Proficient or Advanced in English Language Arts (2014)	52.5%	53.9**	56.4***	58.0

Percent of Students Proficient or Advanced in Math (2014)	52.2%	53.9%*	56.1%**	57.7%
Full-Time Equivalent Teachers (2014)	47.0	176.0***	323.4***	592.1***
Average Teacher Salary (2014)	\$35,311	\$41,246***	\$47,368***	\$57,896***
Per Pupil Expenditure (2014)	\$9,581	\$8,950***	\$9,135***	\$11,212***
Percent of Funding from Local Sources	44.9%	48.2**	53.7***	68.2***
Tax rate ceiling	\$3.61	\$3.48*	\$3.70	\$4.43***
N.	312	83	45	24

*p< 0.01; **p<0.05; ***p<0.01

Interestingly, the districts in Quartile 1 spend significantly more than those in Quartile 2 and 3, and significantly less than those in Quartile 4. This seems like a contradiction, as we might expect each subsequent quartile to spend more money per pupil. These data are better understood when taken with the demographic data. As can be seen below, the average number of students in Quartile 1 districts is 556. This compares to 2,409, 4,767, and 8,772 in each subsequent quartile. Additionally, Missouri offers financial assistance to school districts with fewer than 350 students (Shuls 2012). This may be a significant factor in raising Quartile 1's per pupil expenditure past Quartile 2 and 3. Quartile 4, on the other hand, consists of a narrow subset of districts. They are almost all located in the St. Louis metropolitan area, are relatively large and likely benefit from economies of scale, have the highest local property taxes, and generate the much of their funds locally.

The districts in Quartile 1 are clearly different from the districts in other quartiles. They are small, primarily rural districts. Though they have lower rates of minority students, they have the highest percentage of students qualifying for free or reduced price lunches, though the statistics is not significantly different from Quartile 2. Free or reduced price lunch figures are a traditional indicator of poverty. The districts in the first quartile also tend to raise less of their funds locally; this despite having a tax rate that is higher than districts in Quartile 2 and not significantly different from those in Quartile 3, on average. In Missouri, property taxes are per \$100 of assessed valuation. Thus, local property taxes in Quartile 1 are \$3.61 per \$100 of

assessed valuation. These facts taken together signal that Quartile 1 consists primarily of poor, rural school districts.

Benefits

The data above highlight some important facts. First, inequities exist in teacher compensation and these inequities grow with each year of teacher experience. Second, the current PSRS calculation captures teacher salaries when they are at their most inequitable, the final three years. Finally, the districts with the lowest salaries tend to be poor rural districts. This information is important as we examine pension benefits.

As was previously noted, FAS drops when we add more years of data. This impacts the highest paying districts the most. The end result is that FAS becomes more equitable when additional years of data are included. Table 3 presents the average annual benefit for teachers (weighed by FTE) in each quartile. In both the unweighted and weighted calculations, teachers in Quartiles 1 and 2 would receive a greater pension benefit under the alternate FAS calculations. Conversely, teachers in Quartile 4 would receive a reduced pension benefit.

Table 3: Annual Benefit by Quartile (Weighted)

Benefit Calculation	Quartile 1	Quartile 2	Quartile 3	Quartile 4
3 Years	\$33,305	\$38,924	\$45,829	\$58,104
5 Years	\$33,307	\$38,942	\$45,768	\$58,121
10 Years	\$33,352	\$38,990	\$45,728	\$58,066
20 Years	\$33,857	\$39,518	\$45,980	\$56,302
30 Years	\$34,670	\$40,102	\$45,792	\$54,474
Difference between 3 and 30 Year FAS	\$ 1,364	\$ 1,160	\$ 24	\$(3,646)
Number of districts	314	83	43	25
Number of teachers	14,668	14,609	14,554	14,210

The data are clear, inequities exist in teacher compensation. This is evident in the district salary schedules for teachers. The data also reveal that inequities are perpetuated by the narrow

three-year FAS calculation. Extending the FAS calculation to include more years of service, would diminish some of this inequity.

Discussion and Conclusion

Poor districts, particularly small, rural ones tend to have lower salaries than their urban and suburban counterparts. It appears that these disadvantaged districts attempt to keep pace with salaries in other districts at the beginning of the schedule, but quickly fall behind. Undoubtedly, this causes problems in teacher recruitment and retention for poor school districts. To add to the problem, pensions for Missouri teachers are based off of a narrow band of the three years. Not only does this incentivize teachers to leave low paying districts, it exacerbates the inequities that exist in teacher compensation.

The three-year final average salary calculation used by PSRS robs from the poor and gives to the rich. There is simply no better way to say it. Teachers make contributions to their retirement accounts throughout their entire career, but earn benefits for only the tail end. If we assume the total amount of money available for benefits is relatively fixed, the current setup acts as a transfer of wealth from low-paid teachers to high-paid teachers. This occurs for two reasons related to the slope and the concavity of a district's salary schedule. The slope between the starting salary and the FAS tends to be steeper for wealthy districts than for poor districts. Additionally, poor school districts tend to have a more concave schedule than wealthy districts. This results in greater differences between starting and ending salaries in wealthy school districts. When FAS is calculated at the end of the schedule, it does not capture all of this information. As the data show, the choice of the number of years used in FAS calculations impacts the benefits that teachers receive.

Changing the FAS calculation would not alleviate all of the inequity that exists in teacher pay, nor does it need to. Indeed, some inequity may be desirable. For example, we may want to pay teachers more where the cost-of-living is higher. However, changing the formula would yield higher retirement benefits for teachers in Missouri's most lowest-paying districts. It would also remove what appears to be an unfair penalty against poor school districts.

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