WHAT DO WE KNOW ABOUT PUBLIC TEACHER COMPENSATION?

By Siyan Liu and Jean-Pierre Aubry*

INTRODUCTION

Whether public employees are over- or under-paid relative to their private sector counterparts is a source of lively debate. Much of the research on the relative compensation of public and private workers has focused on teachers – the largest segment of the public workforce. Moreover, the issue of teacher compensation has gained currency since the Great Recession, as states and school districts have frequently faced tough budget decisions to cut benefits or halt pay raises. Teacher compensation has important implications for hiring and retaining high-quality teachers and, consequently, for student academic performance. This *brief* highlights the range of conclusions by researchers who have assessed teacher compensation and attempts to inform the debate through a comprehensive analysis of compensation.

The discussion proceeds as follows. The first section explains the difficulties associated with assessing public teacher compensation. The second section highlights the range of conclusions by researchers to date. The third section attempts to shed new light on this topic by more accurately measuring the cost of retirement benefits, carefully accounting for health and retirement plan coverage, and including all other benefits such as Social Security, supplemental pay, and paid leave. The fourth section briefly discusses the implications of teacher compensation on student outcomes. The final section concludes that public teachers earn roughly the same as similar private sector workers but this equality may turn to a deficit over time as new teachers receive lower retirement benefits.

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CHALLENGES TO EVALUATING PUBLIC TEACHER COMPENSATION

Many different approaches exist for evaluating public teacher pay, but the typical approach in the academic literature – and the one taken in this *brief* – is to compare teacher compensation to that of similar workers in other professions.[1]

One challenge in comparing teachers to other workers is that teachers are much more likely to be college educated than the average private sector worker and more likely than other college graduates to hold an advanced degree. The teaching workforce is also somewhat whiter and much more likely to be female (see Table 1). Fortunately, regression analysis allows researchers to account for these kinds of differences when comparing teachers to other workers.[2]

TABLE 1. CHARACTERISTICS OF PUBLIC TEACHERS AND PRIVATE SECTOR WORKERS IN OTHER PROFESSIONS, 2018

Characteristics	Public teachers	Private sector workers in other professions
Bachelor's degree or above	97%	38%
Master's degree or above	54	12
White	79	60
Female	75	42

Note: Individuals are ages 23-64, have at least a bachelor's degree, are not self-employed, and work full-time.
Source: Authors' calculations based on U.S. Census Bureau, *Annual Social and Economic Supplement* of the *Current Population Survey* (CPS-ASEC) (2019).

In addition to controlling for the differences between public teachers and other workers, evaluating teacher pay involves three other technical issues. First, public teachers typically have 38-week contracts, whereas most U.S. workers are on a 52-week work-year. On the other hand, many teachers tend to work more weeks than their contract period.[3] Thus, comparing pay between teachers and other workers requires determining a reasonable estimate for the number of weeks that teachers work.[4] Second, public teachers are more likely than other workers to live

in areas with lower average pay, raising the need to carefully control for local labor markets when making comparisons.[5] Third, public teachers are more likely to be unionized, employed by large entities, and to receive a more meaningful share of their total compensation in benefits than private sector workers.[6]

WHAT DOES EXISTING RESEARCH SAY?

This section highlights four studies that use regression analysis to compare public teacher wages and/or total compensation (wages plus benefits) to other workers.[7] The takeaway is that while teachers earn less in wages, the conclusion for total compensation is less clear.

WAGES

Two of the four studies find that public teachers earn significantly less in wages than similar workers in other occupations (see Figure 1). These two studies represent an extensive literature that takes the standard approach, which entails estimating wages based on the self-reported hours of work in the *Current Population Survey* (CPS) or the Census, using educational attainment (B.A. and M.A. degrees) as a proxy for worker skills and ability, and accounting for labor market differences by state or locality.[8]

FIGURE 1. PERCENTAGE GAP BETWEEN WAGES OF PUBLIC TEACHERS AND OTHER COLLEGE-EDUCATED WORKERS
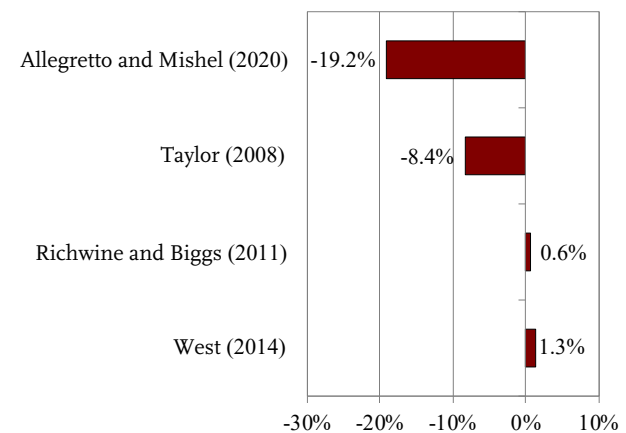
Sources: As noted in the figure.

The remaining two studies find parity in teacher wages but depart from using the standard measures for wages and skills. West estimates higher hourly wages for teachers using the *American Time Use Survey* (ATUS), in which teachers report fewer work hours than in the CPS and, therefore, higher hourly pay.[9] Richwine and Biggs replace educational attainment with measures of cognitive ability based on test scores.[10] However, this approach implicitly assumes that education and training do not affect wages, and critics of their work argue strongly against cognitive ability as a substitute for education levels – they suggest it be used as a compliment to education, if at all.[11] Interestingly, when Richwine and Biggs use both education and cognitive ability in their model, the results show teachers earn significantly less in wages.

Total Compensation

Two of the four studies introduced above also assess teachers' total compensation (Allegretto and Mishel, and Richwine and Biggs). Public sector workers tend to receive a larger portion of their compensation in the form of benefits than private sector workers – most of which comes from broader health care coverage and larger retirement benefits. As such, any gap in wages for teachers may be partially – or completely – offset by more generous benefits.

Incorporating health and retirement benefits into the analysis is tricky, leading to contrasting estimates across the two studies. For example, Allegretto and Mishel incorporate the average employer payments toward employee benefits and find that teachers are still significantly underpaid.[12] But, research has shown that employer contributions tend to misstate the true value of deferred retirement benefits.[13] Richwine and Biggs accurately calculate the value of deferred benefits and find that teachers are considerably overcompensated. But, this finding is unsurprising given that their study starts from rough parity in wages when they control for cognitive ability in place of education. Finally, the results from both studies are hampered by the use of overly broad averages for the health and retirement costs, which wash over meaningful differences among workers by region, employer size, and occupation.[14]

In addition, neither study fully explains the role of other benefits, which include Social Security, supplemental pay, and paid leave. As discussed below, these benefits turn about to be important due to differences in coverage or generosity between teachers and their private sector counterparts.

In the end, accurately assessing teacher compensation requires: 1) using standard measures of wages and education; 2) accurately calculating the cost of deferred benefits; 3) carefully accounting for the variation in benefits across employees; and 4) including "other" benefits such as Social Security, paid leave, and supplemental pay.[15] The following section incorporates these four elements into a detailed regression analysis of teacher compensation.

Do Teachers Earn More than Private Sector Workers?

The analysis begins with a standard wage regression using educational attainment to measure skills. For wages, the analysis estimates weekly pay by dividing annual earnings by reported weeks of work and capping teacher work weeks at 46 weeks per year (the full school year plus about half of the time during summer).[16] The results show that teachers earn about 11 percent less in wages (see Figure 2).[17]

Figure 2. Impact of Selected Characteristics on Weekly Wages of Full-time Workers, 2018
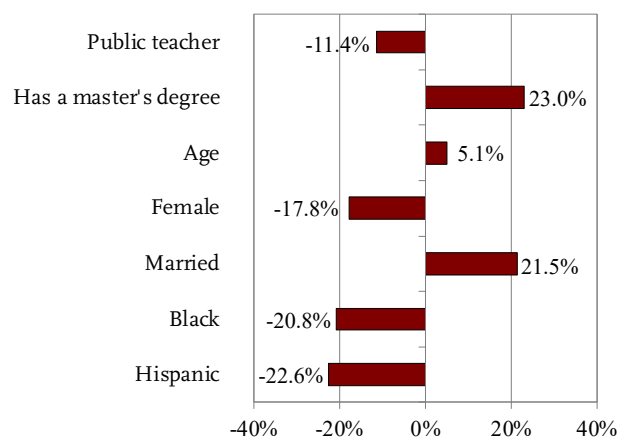
Note: In this figure, the impact of having a master's degree is relative to having a bachelor's degree.
Source: Authors' calculations from CPS-ASEC (2019).

Wages, however, are only part of the story. A complete picture of compensation requires adding the value of health insurance, retirement benefits, retiree health insurance, and other benefits to the wages of each teacher and private sector worker.

Each of these benefit components is described briefly below (also see Table 2).

Employee Health Insurance. While virtually all public sector workers have access to employer-provided health insurance, the same is not true in the private sector (see Table 2).[18] Fortunately, the CPS indicates whether a private sector worker is covered by an employer plan.[19] Each covered private sector worker and each teacher is matched – based on location and employer size – to private and public sector employer premiums reported in the *Medical Expenditure Panel Survey* (MEPS).[20]

Retirement Benefits. Again, while public sector workers are generally covered by a retirement plan, many private sector workers are not. So, for private sector workers, the analysis also relies on the CPS.[21] To estimate the cost of retirement benefits, each private sector worker in a plan is matched to the appropriate occupation-specific retirement cost from the *Employer Costs for Employee Compensation* (ECEC) dataset, while each teacher is matched to a retirement plan in the *Public Plans Database* (PPD).[22]

Retiree Health Insurance. The MEPS data suggest that only 13 percent of private sector workers are eligible for retiree health benefits, while the vast majority of teachers have access to this benefit.[23] To estimate the cost for teachers, each teacher is matched to a state retiree health plan.[24] Unfortunately, the CPS does not include any data on whether a private sector worker is covered by an employer-provided retiree health plan, and no data are available on the cost of private sector plans. So, private sector retiree health costs are estimated to be a fraction of employer health premiums and are applied to each private sector worker covered by a health plan.[25]

"Other" benefits. We also add to the benefits calculations three categories of occupational-level benefits in the ECEC data: paid leave, supplemental pay, and legally required benefits.[26] Legally required benefits include Social Security, Medicare, federal and state unemployment insurance, and workers' compensation.[27] In contrast with the employee health, retirement, and retiree health benefits discussed above,

teachers are *less likely* to be covered by some of the benefits in this "other" category compared to their private sector counterparts. For example, only about 60 percent of teachers are covered by Social Security. This pattern, which is not highlighted in the previous literature, has noticeable effects on compensation (see Appendix B for details).

Table 2. Average Coverage and Costs for Benefits, by Worker Type, 2018

Benefit	Coverage		Average cost for uncovered workers	
	Public teachers	Private sector	Public teachers	Private sector
"Other" benefits	*	*	18% of wages	28% of wages
Health	100%	56%	$11,200 per person	$8,200 per person
Retirement	100	55	20% of wages	8% of wages
Retiree health	100	13	$3,500 per person	$380 per person

* All workers have access to some types of these benefits; but certain benefits in this category are not universal.
Notes: Private sector workers include full-time non-teachers who are ages 23-64 and not self-employed. See endnote 28.
Sources: Authors' calculations based on CPS-ASEC (2019), ECEC (2018), and MEPS (2018).

After the cost of all benefit components are estimated for each teacher and private sector worker, the initial wage regression is re-run with "wages plus benefits" as the dependent variable.[29] Figure 3 (on the next page) shows the estimated differential between teachers and private sector workers at four different stages: 1) wages only; 2) wages plus "other" benefits; 3) wages, other, and employee health care; 4) wages, other, employee health, and retirement; and 5) wages, other, employee health, retirement, and retiree health. The results show that teachers and similar private sector workers earn roughly the same, with teacher compensation 3 percent higher in this analysis.[30]

FIGURE 3. SUMMARY RESULTS FOR PUBLIC TEACHER COMPENSATION RELATIVE TO THE PRIVATE SECTOR, 2018
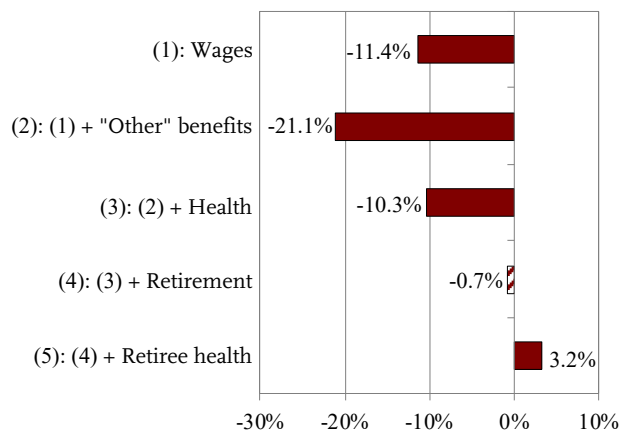
Note: The top three bars are statistically significant at the 1-percent level. The bottom bar is significant at the 5-percent level.
Sources: Authors' calculations from CPS-ASEC (2019), ECEC (2018), MEPS (2018), and PPD (2018).

WHY DOES TEACHER COMPENSATION MATTER?

One of the main motivations for evaluating teacher pay is to see whether current compensation levels are sufficient to recruit and retain high-quality teachers to promote better student outcomes.

Studies have generally found a positive relationship between wages and teacher quality – with quality measured by undergraduate college selectivity, subject matter expertise, or average aptitude of students entering teacher education courses.[31] Although the research has found that mid- and late-career teachers respond only modestly to compensation shifts in deciding to leave the profession or retire, the quality of new and recently hired teachers is significantly related to compensation changes.[32]

That new hires and early-career teachers are more responsive to compensation has important policy implications on hiring the next generation of teachers. While we find rough pay parity for the current teaching workforce, future teachers may earn less in compensation due to reductions to benefits since the Great Recession.[33] Given the responsiveness of new teachers, underpayment may result in lower quality applicants for the next generation of teaching positions and ultimately worse outcomes for students.[34]

CONCLUSION

Accurately evaluating teacher pay is difficult but important for setting compensation levels that attract and retain quality teachers. This *brief* finds that teachers currently earn roughly the same as similar private sector workers in other professions. But, given the benefit cuts in recent pension reforms, average compensation for teachers is likely to worsen as newer teachers hired after the Great Recession form the majority of the teaching workforce. Uncompetitive compensation may make it harder to recruit high-quality individuals into the teaching profession – potentially leading to worse outcomes for students.

Endnotes

1 Due to the difficulties with valuing non-pecuniary aspects of teaching jobs, the typical approach to assessing teacher pay has been to compare the monetary compensation of public teachers to workers in other professions with similar skills measured by education.

2 Given the somewhat unique characteristics of teachers, one's first thought might be to simply compare public school teachers to private school teachers. However, private teachers are deliberately paid less than their public counterparts because they have more favorable working conditions, such as smaller class sizes and better prepared students. For this reason, most academic research compares public teachers to workers in other occupations.

3 See Krantz-Kent (2008) and Schumann (2008).

4 A debate exists in the literature regarding the appropriate type of earnings (weekly vs. hourly) and dataset (self-reported or employer-reported) to use, with concerns that teachers may over-report their work hours so that researchers using self-reported data underestimate teacher pay when converting total earnings into weekly or hourly pay. On the other hand, using employer-reported hours is similarly criticized because teachers work more hours than their contract requires. See Podgursky and Tongrut (2006) and Allegretto and Mishel (2019).

5 Taylor (2008) finds that analysis will tend to understate teacher compensation relative to other workers if detailed geographic information is not taken into account.

6 Ninety percent of public teachers are employed by entities with 100 or more employees, based on calculations from the 2019 CPS. Larger firms in the private sector tend to pay higher benefits. See Munnell et al. (2011) for a more thorough discussion on the implications of firm size in pay comparisons.

7 An extensive literature exists on teacher pay. We highlight four papers that are representative of studies with similar methodologies. Taylor (2008) and Allegretto and Mishel (2020) follow a series of reports and books such as Allegretto, Corcoran, and Mishel (2004, 2008). West (2014) builds on works like Podgursky and Tongrut (2006) and Richwine and Biggs (2013) that question the reliability of self-reported

work hours in the CPS. Richwine and Biggs (2011) conclude that fringe benefits of teachers more than make up any gaps in wages, similar to Podgursky (2003). Another line of research on teacher pay, while not highlighted in this *brief,* focuses on teachers who leave the profession to evaluate alternative job market opportunities and finds that whether leavers earn more in non-teaching jobs depends on gender and teacher quality (see Chingos and West 2012).

8 Taylor (2008) shows that the teacher pay gap would increase from 8.4 to 11.1 percent if state-level indicators are used instead of Census labor market areas (LMAs). LMAs are groups of counties designed to contain at least 100,000 residents.

9 West's approach to teacher work hours is appropriate conceptually but potentially hampered by data limitations. In the ATUS, teachers' weekly diary hours of work vary greatly by the year of the survey – between 31 and 38 hours – while non-teachers report similar levels of work hours over the years, suggesting that the ATUS sample size of teachers may not be sufficient for extrapolating results to the CPS.

10 Richwine and Biggs (2011) use test scores from the Armed Forces Qualification Test (AFQT) in the *National Longitudinal Survey of Youth* (NLSY79).

11 See Keefe (2012) and Morrissey and Mishel (2011). For more on the problems of using cognitive ability to predict wages, see Cawley, Heckman, and Vytlacil (2001) and Heckman and Rubinstein (2001).

12 The *Employer Costs for Employee Compensation* (ECEC) reports average employer contributions towards health and life insurance, retirement plans, paid leave, payroll taxes (i.e., Social Security, unemployment insurance), and worker's compensation.

13 In general, annual employer contributions to pension funds *understate* the value of benefits earned each year because they are based on the expected return on pension fund assets, which is much higher than the market rate for a guaranteed future annuity. However, employer contributions also *overstate* the value of benefits earned each year if they include payments towards unfunded actuarial accrued liabilities (UAAL), which represent the cost of benefits earned for prior years of employment.

14 Allegretto and Mishel (2020) use the ECEC to esti-mate one uniform benefit cost for all teachers and an-other uniform benefit cost for all other college-educat-ed workers, assuming they are civilian professionals. Richwine and Biggs (2011) assume uniform pension normal costs of 12.4 percent of payroll for all teach-ers. Then, based on an actuarial report of the Florida Retirement System (FRS), they increase the uniform normal cost by a factor of 2.94 to reflect a change in the discount rate from 8 percent to 4 percent.

15 The Center for Retirement Research performed such an analysis in 2011 to evaluate compensation for all public sector workers and found that they earned roughly the same as their private sector counterparts. However, this study also relied on overly broad aver-ages of health and retirement benefits (Munnell et al. 2011).

16 Weekly wages are calculated by dividing annual earnings by weeks of work. We cap teacher work weeks to address the issue that over three quarters of teachers in our CPS-ASEC sample report 52 weeks of work. Self-reported work weeks and annual earnings among teachers, however, may reflect both the full-time teaching job and part-time work from another job. Our adjustment may bias teacher wages upwards due to the possible inclusion of part-time pay in the numerator.

17 See Appendix A for full results. The analysis is based on the 2019 CPS-ASEC. We follow the stan-dard approach in Allegretto and Mishel (2020) and use teachers' log weekly earnings. Our regression specification includes indicators for public teachers, gender, race, educational attainment, marital status, age, age squared, and race interacted with gender. We only include public teachers who are elementary, middle, or secondary teachers. Unlike Allegretto and Mishel (2020), our sample excludes public sec-tor workers who are not K-12 teachers because the purpose of this analysis is to compare teachers to their private sector counterparts who are presumed to receive efficient compensation through the private sector labor market. We also follow the basic ap-proach of Taylor (2008) by controlling for local labor markets using the metropolitan area where workers reside, rather than just using state controls. However, metropolitan areas include larger expanses than the local labor markets (LMAs) used by Taylor.

18 Access to employer-sponsored health insurance is more important than actual participation, because the wages of individual workers are not adjusted to account for whether an employee participates in the plan. However, it is possible that employers discrimi-nate based on characteristics that affect health care costs, such as age, and offer lower wages for employ-ees with these characteristics.

19 Self-reported health care coverage in the CPS is slightly lower than reported in the *National Compen-sation Survey* (NCS). The CPS suggests just under 60 percent of private sector workers are covered by health plans through their employer, while the NCS suggests 63 percent of workers participate in employ-er-provided plans.

20 Because teachers make up the vast majority of local government employees, the analysis uses MEPS data on the average employer premiums for local governments, by region and employer size. For the private sector, the analysis uses MEPS data on the average employer premiums for firms by state and employer size.

21 Some have raised questions about the reliability of traditional survey questions on employer retirement plan coverage in the CPS. We follow Copeland (2020) to address the issue by incorporating information on interest income from retirement accounts. Post-adjustment private-sector retirement plan coverage is consistent with the NCS.

22 In general, each public teacher in the CPS is matched to a state-administered defined benefit (DB) pension plan in the PPD based on the state of resi-dence. To account for the eight locally administered teacher plans in the United States, teachers within the metropolitan area of a local teacher plan are assigned to that plan. Private sector workers are matched to ECEC data on full-time workers based on their oc-cupation. For private sector workers, the ECEC costs represent average employer payments to both DB and defined contribution (DC) plans (although mostly the latter). To obtain average costs as a percentage of wages for private sector workers with retirement plan coverage, ECEC retirement costs are divided by ECEC wages and then NCS coverage rates.

23 In the private sector, the MEPS provides information on the percentage of employers offering retiree health insurance by firm size, and the Census Statistics of U.S. Businesses provides the distribution of workers by firm size. Combining the two pieces of information yields an estimate of private sector coverage of 13 percent.

24 Munnell, Aubry, and Crawford (2016) point out that teachers are covered by state-administered OPEB plans in 35 states. For these states, retiree health normal costs are based on the most recent actuarial valuation for the appropriate state OPEB plan. For the remaining 15 states, retiree health normal costs are based on the financial reports of the five largest school districts.

25 To estimate private sector retiree health costs, the analysis begins with the teacher retiree health ratio in each state – i.e. the ratio of teachers' employer health premiums to their retiree health normal costs. Because private sector retiree health plans tend not to provide premium subsidies, the teacher retiree health ratio is only calculated for states where the teacher retiree health plans also do not provide premium subsidies. For all other states, the ratio is equal to the average calculated ratio among states in the same Census region. Then, the retiree health ratio for each state is applied to the private sector employer health premiums of the state to obtain initial estimates of private sector retiree health costs. Finally, given that 56 percent of private sector workers have health insurance and only 13 percent have retiree health, the retiree health cost actually applied to each private sector worker covered by a health plan is further scaled down by 77 percent.

26 We match each public teacher and private sector worker to occupation-specific ECEC data to calculate average costs for each category of other benefits as a percentage of wages.

27 The total amount of other benefits is adjusted downwards in states where teachers are not covered by Social Security and upwards in other states. We deduct the average employer costs of Social Security across all teachers (both covered and noncovered), 4.1 percent of payroll, and add employer costs of 6.2 percent back to only the teachers covered by Social Security.

28 The estimated 8-percent average retirement plan cost for the private sector is slightly higher than the average of 6.4 percent reported in Vanguard (2021). The estimated private sector retiree health costs are slightly lower than the average retiree health costs reported by some of the largest publicly held firms that offer retiree health, which is $423. Results using alternative private sector benefit amounts are similar to our baseline findings and are available upon request.

29 For teachers, annual employer costs on health and retiree health insurance are divided by the lesser of 46 weeks or self-reported weeks worked, and then added to weekly earnings. For private sector workers, the costs are divided by self-reported weeks worked.

30 In our regression models, we leave out two controversial variables – firm size and unionization – because it is not clear that a teacher's comparable job in the private sector is a union job at a large employer, especially given the dearth of union jobs in the private sector. Large firms and unionization are both related to greater compensation. The vast majority of teachers are in unions and work for large employers compared to only a fraction of private sector workers. As a result, omitting firm size and unionization from the regression may bias the results towards higher compensation for teachers.

31 For example, see Figlio (2002), Gilpin (2012), and Hendricks (2014).

32 Koedel, Podgursky, and Shi (2013), Fitzpatrick and Lovenheim (2014), Fitzpatrick (2015), and Quinby and Wettstein (2019) all find that the separation and/or retirement of existing teachers was minimally affected by pension reforms. Munnell and Cannon Fraenkel (2013) find that the quality of new and recently hired teachers is related to compensation and/or benefit levels. Knapp et al. (2016) find reducing the benefit multiplier from 2.2 percent to 1 percent results in significantly lower retention for early-career teachers. Similarly, Quinby and Sanzenbacher (2020) find a positive relationship between benefits and quality for newly hired public sector workers generally.

33 Aubry and Crawford (2017) document these pension cuts. Even in the absence of pension cuts, the plan-reported average pension costs used in our current analysis would mask the fact that pension wealth in a final-pay DB plan accumulates slowly early in the career and fast later in the career, which results in younger teachers earning less in pension wealth than older teachers in any given year (see Costrell and Podgursky 2009). However, if younger and older teachers have the same career trajectories, both would ultimately receive the same benefits for their time spent teaching.

34 A large literature directly links teacher pay to student outcomes, and many find a positive association between student attainment and teacher pay (e.g., Britton and Propper 2016; Card and Krueger 1992; and Loeb and Page 2000). One exception is Greaves and Sibieta (2019), who find no relationship between increases in teacher pay and student test scores in England.

35 Goodman and Turner (2010), U.S. Department of Labor (2019).

36 U.S. Bureau of Labor Statistics (2018b).

37 Moored (2012).

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APPENDICES

Appendix A: Wage and Total Compensation Regressions using the *Current Population Survey*

Baseline Sample and Regressions

The baseline wage regression uses data from the 2019 *Annual March Supplement* of the *Current Population Survey* (CPS-ASEC), which provides information on earnings in 2018. The dependent variable is the log of weekly earnings. Weekly earnings are calculated by dividing annual income from wages by self-reported weeks of work (up to a cap of 46 weeks for public teachers). The sample is at the individual level and imposes the following restrictions:

- ages 23 to 64;
- full-time, working more than 35 hours per week;
- not self-employed;
- not working for state and local governments if not a public teacher;
- not a member of the armed forces; and
- currently living in the United States.

Summary statistics and full regression results for our baseline models are presented in Tables A1 and A2 (on the next page).

Table A1. Summary Statistics for Regression on Weekly Wages, 2018

	Mean	Standard deviation	Minimum	Maximum
Weekly pay	$1,283	$1,472	0	$30,769*
Public teacher	0.03	0.18	0	1
Female	0.43	0.50	0	1
Bachelor's degree	0.40	0.49	0	1
Master's degree	0.11	0.31	0	1
Professional degree	0.01	0.12	0	1
Ph.D.	0.02	0.13	0	1
Black	0.61	0.49	0	1
Hispanic	0.12	0.32	0	1
Other race	0.18	0.39	0	1
Married	0.57	0.50	0	1
Age	41.73	11.65	23	64

* Capping private sector annual earnings at $1 million (equivalent to weekly earnings of $19,230 on a 52-week basis) does not change the results.
Source: Authors' calculations from CPS-ASEC (2019).

TABLE A2. FULL BASELINE REGRESSION RESULTS FOR PUBLIC TEACHER COMPENSATION RELATIVE TO THE PRIVATE SECTOR, 2018

Variable	Weekly wages	Wages, "other" benefits	Wages, other, health	Wages, other, health, retirement	Wages, other, health, retirement, retiree health
	(1)	(2)	(3)	(4)	(5)
Public teacher	-0.114***	-0.211***	-0.103***	-0.007	0.032**
	(0.016)	(0.016)	(0.013)	(0.014)	(0.014)
Female	-0.178***	-0.182***	-0.176***	-0.181***	-0.181***
	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)
High school	0.266***	0.269***	0.289***	0.299***	0.300***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Some college	0.417***	0.423***	0.443***	0.458***	0.458***
	(0.014)	(0.016)	(0.015)	(0.016)	(0.016)
Bachelor's degree	0.751***	0.766***	0.772***	0.793***	0.793***
	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)
Master's degree	0.981***	1.001***	0.998***	1.022***	1.022***
	(0.017)	(0.018)	(0.018)	(0.018)	(0.018)
Professional degree	1.271***	1.278***	1.262***	1.290***	1.289***
	(0.038)	(0.043)	(0.042)	(0.042)	(0.042)
Ph.D.	1.230***	1.239***	1.228***	1.253***	1.253***
	(0.031)	(0.033)	(0.033)	(0.033)	(0.033)
Black	-0.208***	-0.211***	-0.207***	-0.213***	-0.213***
	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)
Hispanic	-0.226***	-0.230***	-0.239***	-0.248***	-0.248***
	(0.014)	(0.015)	(0.014)	(0.015)	(0.015)
Other race	-0.134***	-0.138***	-0.140***	-0.148***	-0.149***
	(0.017)	(0.017)	(0.016)	(0.016)	(0.016)
Married	0.215***	0.218***	0.197***	0.202***	0.202***
	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)
Age	0.051***	0.051***	0.048***	0.050***	0.049***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Number of observations	48,813	48,813	48,803	48,802	48,797
R-squared	0.309	0.309	0.327	0.332	0.333

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All dependent variables are in logs. Standard errors are calculated based on IPUMS replicate weights for CPS-ASEC. For brevity, four control variables that were included in the regression are not shown above: age squared and three interaction terms with female (married, Black, and Hispanic).
Source: Authors' calculations from CPS (2019).

Appendix B: A Closer Look at "Other" Benefits

Most analyses of public and private employee compensation focus on three types of benefits: employee health, retirement, and retiree health. With respect to these prominent benefits, private sector workers are less likely to have coverage and, when covered, their benefits tend to be less generous. Interestingly, though, the opposite is true for other types of employee benefits, a topic largely unaddressed in prior studies. Therefore, it is important to understand the contribution of each component in this category.

The first column of Table B1 shows the cost of these other benefits as a percentage of wages for teachers in the CPS-ASEC, who are matched to the ECEC by occupation. The second column shows adjusted numbers for teachers to reflect the fact that the published cost rates are based on contract weeks (typically 38 weeks per year), while – as noted earlier – we assume 46 weeks. More weeks imply a lower hourly wage and therefore a higher benefit cost rate – modifying the difference between teachers and private sector workers. The third column provides the data for comparable private sector workers. Each of the benefits in this category is described briefly below.

Table B1. Cost of "Other" Benefits as a Percentage of Hourly Wage, by Worker Type

Benefit	Public teachers	Public teachers adjusted for weeks worked*	Private sector
Total	14.6%	17.7%	27.9%
Social Security	4.1	4.1	6.2
Supplemental pay	0.5	0.6	6.0
Paid leave	7.1	8.6	10.7
Miscellaneous	2.9	4.4	5.0

* Based on 46 weeks worked instead of the typical 38 contract weeks used in the ECEC in our assumptions.
Note: Private sector workers include full-time non-teachers who are ages 23-64 and not self-employed.
Sources: Authors' calculations based on CPS-ASEC (2019) and ECEC (2018).

Social Security

The different cost rates for Social Security reflect a coverage issue. All workers covered by Social Security receive a contribution of 6.2 percent from their employers. But, only 60 percent of teachers are covered by Social Security. These covered teachers earn 66 percent of total teacher payroll, so the 4.1 percent in Table B1 is simply 66 percent of 6.2 percent.

Supplemental Pay

Supplemental pay in the ECEC accounts for overtime, shift differentials, bonuses not directly tied to production (such as end-of-year and profit-sharing bonuses), and other forms of additional compensation available to employees beyond their base salary or wage. Unsurprisingly, the largest recipients of supplemental pay are private sector workers in the financial and business sectors, who see the largest portion of their total compensation come from bonuses (typically around 11 percent of wages). Even private sector employees in occupations with lower supplemental pay rates typically receive around 4 percent of their wages in additional compensation.

The teaching occupation is less structured around incentive-based pay than other occupations, and they do not earn overtime.[35] Hence, they typically receive no supplemental pay, or a much smaller amount than their private sector counterparts (around 0.6 percent of wages).

Paid Leave

Paid leave is job-protected time off in which employees still receive their regular compensation. Leave in this case incorporates vacation, holiday, sick, and personal leave. Teachers generally have less access to most types of leave than workers in the private sector.[36] Teachers generally do not receive paid vacation time during the school year.[37] They are expected to take vacations during the summer months, which are typically outside their contract period and therefore not strictly 'paid' by the employer. Thus, schools on average have lower costs of paid leave than private sector employers, where most salaried workers work year-round and can take leave on a more balanced schedule throughout the year, at full cost to the employer.

Miscellaneous

This category includes unemployment insurance, Medicare, and workers' compensation. On balance, these costs are very similar for teachers and private sector workers.

Impact of "Other" Benefits on Compensation Differential

Together, the various types of other benefits have a substantial impact on total compensation, reducing teacher pay relative to the private sector by about 10 percentage points (the difference between bar 1 and bar 2d in Figure B1). The single largest impact is from supplemental pay, followed by Social Security, paid leave, and miscellaneous.

Figure B1. Summary Results for Public Teacher Compensation Relative to the Private Sector, 2018
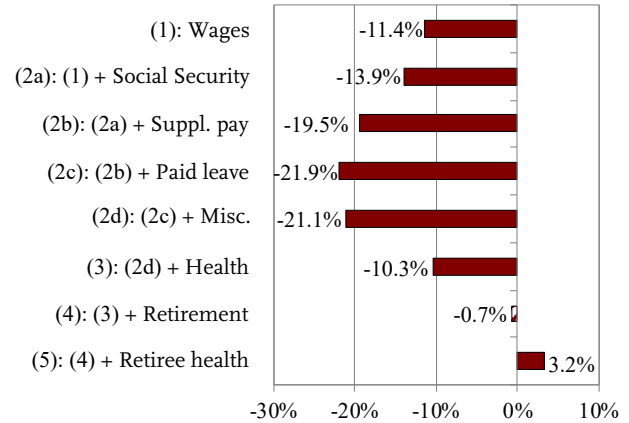
Note: The top six bars are statistically significant at the 1-percent level. The bottom bar is significant at the 5-percent level.
Sources: Authors' calculations from CPS-ASEC (2019), ECEC (2018), and MEPS (2018), and PPD (2018).

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