

The Effect of Teachers' Unions on Student Achievement in the Short Run: Evidence from Wisconsin's Act 10



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ABSTRACT

This study examines the short-run impact of a weakening of teachers' unions on student achievement. In 2011, Wisconsin enacted the Budget Repair Bill, or Act 10, which significantly limited the power of teachers' unions in the state by restricting their fundraising abilities and limiting the scope of collective bargaining. Exploiting plausibly exogenous variation in the timing of exposure to Act 10 due to differences in the expiration dates of pre-existing collective bargaining agreements across school districts, I find that the law reduced average test scores on the state's standardized exam by approximately 20% of a standard deviation. Results from quantile regressions indicate that this effect was largely driven by declines in the lower half of the student achievement distribution. Lastly, the study explores plausible mechanisms behind the observed decline in achievement, and presents evidence that the law led to a significant increase in teacher turnover and a large reduction in teacher salaries.

1. Introduction

Throughout the second half of the twentieth century, the United States experienced a steady increase in public sector unionism (Freeman, 1988). This phenomenon started in the 1960s when various states passed favorable collective bargaining legislation for government workers (Frandsen, 2016). In an effort to address state budget deficits resulting from the Great Recession, however, policymakers throughout the country have recently implemented legislation that limits the influence of public sector unions. The architects of these laws argue that reducing union power allows states to decrease the salaries and pensions of government workers, which can generate significant cost savings (Freeman & Han, 2012). Wisconsin's 2011 Budget Repair Bill (or Act 10), a well-documented example of such legislation, severely reduced the influence of public sector unions in Wisconsin by limiting the scope of union negotiations and restricting their fundraising abilities.

Roughly half of Wisconsin's public sector employees belonged to a union prior to 2011, well above the national average of 30%. Fig. 1 shows the dramatic decline in public sector union membership in Wisconsin following the enactment of Act 10 in 2011. While the national average stayed constant at 30%, Wisconsin's public sector union membership plummeted from 50% in 2011 to 37% in 2012, and con-

tinued to decrease in the following years to roughly 22% in 2016. This effect was largely driven by declines in the membership of teachers' unions in the state. Reports from the local press indicate that the state's largest teachers' union, the Wisconsin Education Association Council (WEAC), experienced a decline in membership of more than 50% (or 60,000 members) from 2011 to 2015.¹

This paper seeks to identify the short-run impact of a weakening of teachers' unions on student achievement by exploiting a natural experiment that took place in Wisconsin following the enactment of Act 10. While the bill was signed into law on June 29, 2011, Act 10's provisions became effective only after the expiration of pre-existing collective bargaining agreements (CBAs). Therefore, public school districts whose labor contracts expired in 2011 were immediately affected by the law during the 2011-12 academic year, while districts that had pre-existing contracts with longer terms were insulated from the provisions in Act 10 until their contracts expired. I exploit these plausibly exogenous differences in the timing of exposure to Act 10 in an event study framework to estimate the impact of limiting union power on student achievement.

The net effect of a weakening of teachers' unions on student achievement is unclear a priori, as both economic theory and previous literature yield ambiguous predictions of the direction of this effect. Teachers' unions influence public education in the U.S. mainly through

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¹ See, for example: Beck M. (2015), *WEAC Turns to Local Focus After Massive Membership Loss*, Wisconsin State Journal. Accessed at: <http://host.madison.com/wsj/> (August 11, 2017).

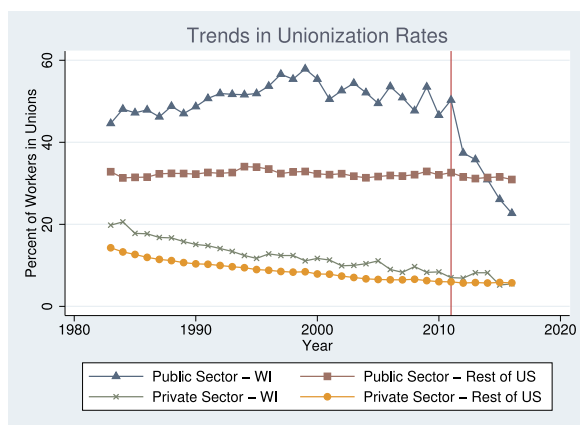


Fig. 1. Effects of Act 10 on Wisconsin's Union Membership. Figure shows the dramatic decline in public sector union membership in Wisconsin following the enactment of Act 10 in 2011. While the national average stayed constant at 30%, Wisconsin's public sector union membership plummeted from 50% in 2011 to 37% in 2012, and continued to decrease in the following years to roughly 22% in 2016 (Hirsch & Macpherson, 2017).

the collective bargaining process.² They seek to maximize the utility of their members by bargaining with local school boards for higher wages and benefits, job security, and more favorable working conditions such as smaller class sizes (Lovenheim, 2009). Additionally, unions often bargain for teacher compensation schemes that are based solely on seniority and educational attainment, rather than on student outcomes, and often protect teachers with longer tenure from layoffs or less desirable school assignments (Strunk et al., 2017; West & Mykerezzi, 2011).

On the one hand, if the incentives created by the union compensation structure reduce the returns to higher effort and limit the capacity of school administrators to attract young, high-quality teachers through higher pay, a weakening of teachers' unions may benefit students (Figlio, 2002). Student achievement may also increase following a decline in union power if teachers' unions reduce teacher effort by protecting the job security of low-productivity teachers (Lovenheim & Willén, 2016). Union influence over school boards may also lead to suboptimal budgets for students (Hoxby, 1996). Given a fixed district budget, unions may force school districts to distribute resources toward teacher pay and away from expenditures that could otherwise increase student achievement more efficiently. Therefore, a weakening of unions may help administrators redesign school budgets in a way that improves students' outcomes.

On the other hand, limiting the influence of teachers' unions may decrease student achievement if unions insulate teachers from school administrators' abuses such as politicized teacher evaluations and layoff procedures (Freeman & Medoff, 1984). Such protections can increase work morale, a necessary condition for teachers to exert high effort under incomplete contracts (Kube et al., 2013). A reduction in teacher compensation, which has been shown to occur following a weakening of teachers' unions, may further exacerbate this decline in morale (Litten, 2016). Lastly, CBAs that reward local seniority may provide incentives for teachers to remain in the same school district throughout their careers. A decline in union power may lead to the removal of these incentives and a subsequent increase in teacher turnover, which has been shown to have disruptive, negative effects on student achievement, at least in the short run (Ronfeldt et al., 2013).

The net effect of deunionization on student achievement depends on which of the above mechanisms dominates. Given the relatively few efforts to limit the influence of public sector unions prior to 2011,

² While teachers' unions can also influence public education through their involvement in the political arena, their main role is that of bargaining agents for public school teachers (Cowen & Strunk, 2015).

however, the existing empirical literature has not yet reached a consensus regarding the direction of this effect. For instance, while Hoxby (1996) concludes that teacher unionization increases high school dropout rates, in a later study Lovenheim (2009) finds no evidence of this effect. More recently, Matsudaira & Patterson (2017) find that the recent wave of charter school unionization in California had a positive impact on student math performance, while Lovenheim & Willén (2016) find that laws during the 1960s and 1970s requiring public school districts to engage in collective bargaining with teachers' unions negatively impacted the long-run labor market outcomes of male students.

Even if there were a consensus in the literature, these previous studies have focused on episodes of teacher unionization. Yet whether the effects of unionization on student outcomes are symmetric to those from deunionization remains an open empirical question. Given that deunionization episodes are not only distinct from historical episodes of unionization, but are also more likely to be considered going forward, studying the effects of these policies on student achievement is crucial for our understanding of the role that teachers' unions play in public education.

In general, I find that average student achievement in Wisconsin high schools decreased as a result of the union reform. Specifically, the reduction in union power associated with Act 10 reduced composite scores on the state's standardized exam, the Wisconsin Knowledge and Concepts Examination (WKCE), by roughly 20% of a standard deviation. This effect was primarily driven by decreases in the mathematics and science portions of the test. Scores in these subjects decreased by approximately 30% of a standard deviation as a result of the law. To understand the economic significance of these effects, one can compare their magnitude with that from the effect of a reduction in class size of eight students, which has been shown to increase student achievement by up to 60% of a standard deviation (Angrist & Lavy, 1999; Finn & Achilles, 1990).

Quantile regression techniques reveal substantial heterogeneity in the effects of Act 10 throughout the test score distribution. Particularly, the results indicate that the average reduction in test scores was largely driven by declines in the lower half of the conditional WKCE distribution. I find that Act 10 reduced both the median of the test score distribution and every decile below it. Declines were largest for the lowest deciles of the distribution. For instance, I find that Act 10 reduced the 10th percentile by roughly 50% of a standard deviation. However, I find no clear evidence that the law had any impact on deciles in the upper half of the distribution.

Given that quantile regression estimates reveal effects of the law on the test score distribution, and not on specific schools, I complement quantile regression techniques with a subgroup analysis. Results from this exercise indicate that the observed reduction in average test scores was largely driven by declines in student achievement at initially low-performing schools.

Finally, I explore plausible mechanisms that may have contributed to the observed decline in student achievement. While many factors including individual characteristics, family environment, and school inputs such as class size have been shown to influence student achievement, teacher quality is believed to be the most important school-related input in the education production function (Angrist & Lavy, 1999; Rivkin et al., 2005; Rockoff, 2004). Given the importance of teachers in the production of student achievement, I begin by examining how Act 10 impacted Wisconsin's teacher workforce.

I first present evidence that the law led to a significant increase in the share of interdistrict teacher transfers. I argue that disruptive effects from this unexpected increase in teacher turnover may be one of the channels through which Act 10 hindered student achievement. Specifically, Atteberry et al. (2017) and Ronfeldt et al. (2013) argue that, through a destruction of organizational knowledge, increased costs allocated to the recruiting, hiring, and training of new teachers, and a reduction in the productivity of staying teachers due to increased

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