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Do Teacher Strikes Make Parents Pro- or Anti-Labor? The Effects of Labor Unrest on Mass Attitudes

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Abstract: Strikes are a central tool of organized labor, yet existing research has focused on the economic consequences of strikes, rather than their political effects. We examine how labor actions by teachers, a well-organized group of public-sector workers, changes mass attitudes about the strikes and the labor movement more generally. Our context involves large-scale teacher strikes and walkouts in six states in 2018. Using an original survey in the affected states, we study the causal effect of strike exposure among parents whose children's ages place them in or out of school. Firsthand strike exposure increased parents' support for the teachers and for the labor movement, as well as parents' interest in labor action (though not necessarily through traditional unions). We next examine the mechanisms for these strike effects, identifying the role of political education of parents by teachers. Our results underscore the importance of strikes as a political strategy for unions.

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What do strikes do? Strikes, a purposive work stoppage intended to achieve some collective end, are a central tool of organized labor and a central right of citizens in a democratic society (Burns 2011; Gourevitch 2018). Through workers' collective withdrawal of labor and the threat this poses to employer revenue, workers can increase their power relative to managers (Emerson 1962, 37). But the success of a strike is not only the result of the costs that workers are able to exact on employers directly, and both labor and management understand that strikes are often won and lost in the court of public opinion. Union leaders frequently hope to persuade constituencies other than the employer of the worthiness of workers' demands and, in particular, to invoke a sense of linked fate between the general public and union members so that members of the public view their interests as aligned with those of the union (Steuben 1950; cf. Dawson 1994; Gay et al. 2016).

The importance of public opinion for strike outcomes is especially pronounced for strikes involving public sector employees like teachers, protective service workers, or state and local agency workers. Given the absence of a profit margin to threaten, public sector strikes generally focus on putting political pressure on government officials to yield to union demands (Johnston 1994, 12-13). Since public sector employees comprise nearly half of all union members in the United States and form some of the most politically active and influential unions (Anzia and Moe 2015, 2016; Flavin and Hartney 2015; Hertel-Fernandez 2019; Moe 2011), we cannot understand the success or failure of strikes in the United States today—or the political strength of contemporary unions—without understanding the political consequences of these labor actions.

Perhaps surprisingly, then, little research speaks to the effect of strikes on public opinion. In this paper we address this question, examining how large-scale strikes by teachers, a highly visible and well-organized group of public sector workers, change mass attitudes about strikes

and about the labor movement more generally. Our context involves the large-scale, state-wide teacher strikes and walkouts that occurred in six states in 2018, which affected thousands of schools and millions of students in Arizona, Colorado, Kentucky, North Carolina, Oklahoma, and West Virginia. We expect these teachers' strikes to be a hard test of the positive impact of strikes on public opinion both because they involved the widespread disruption of children's education, which seems likely to be politically unpopular, and because they took place in generally conservative states.

Using an original survey of nearly 4,500 respondents from those states, we first examine descriptive data on how residents in these states became informed about the strikes. Observational regressions suggest that firsthand exposure to the strikes was correlated with greater support for the strikes and walkouts, greater support for the striking unions and the labor movement in general, and greater personal interest in joining a union and going on strike. We next leverage an oversample of parents in our survey to measure the causal effect of firsthand exposure to the 2018 teachers strikes on attitudes about unions. Our strategy is to compare parents with school-age children (i.e., five or older or 17 or younger) to parents without school-age children (i.e., younger than five or 18 or older)—groups of parents who are otherwise quite similar but whose firsthand exposure to the strikes is very different. Parents with school-age children, we document, were substantially more likely to have direct experience with the strikes from their children's schools than were parents without school-age children. These parents were also more likely to say that they supported greater legal rights for teachers' unions, including the right to strike, that they desired a stronger labor movement more generally, and that they were more interested in going on strike themselves in the upcoming year.

Our results suggest the strikes had large, direct, and positive effects on mass attitudes, even nearly a year after the strikes originally occurred. Not only did the teacher strikes appear to succeed in establishing a greater sense of common fate between parents and the teachers, but the strikes also increased individuals' *own* interest in labor action (though not necessarily through traditional unions), suggesting a potential multiplier effect that could inspire greater labor mobilization, especially strikes. The results are especially pronounced among conservatives, Republicans, and those without personal experience with unions. Further analysis of the mechanisms driving our results suggests that contact with the strike matters not because it provided new information to parents about unions or school quality, but because teachers were able to successfully convince parents of the public goods that unions provided to children and their broader communities.

These findings have important implications for a variety of literatures. Most directly, they document the effectiveness of strikes as a political strategy for unions in some contexts, adding to the existing literature on unions as political organizations that shape the political preferences of their members (Ahlquist and Levi 2013; Kim and Margalit 2017), teach their members civic skills and recruit members to participate in politics (Macdonald 2019; Schlozman et al. 2012), mobilize working class voters in elections (Feigenbaum et al. 2019; Leighley and Nagler 2007; Rosenfeld 2014), make campaign contributions to pro-labor candidates (Stegmueller et al. 2018), and lobby local, state, and national governments (Anzia and Moe 2015; Becher et al. Forthcoming; DiSalvo 2015; Hacker and Pierson 2010; Moe 2011). Strikes, we show, can complement these other tactics by building support for unions in the mass public.

That we identify positive effects of the teacher strikes also speaks to separate literatures on the distinctive nature of public sector employment and the disruptive nature of government

employee labor action. As we describe in more detail in the paper, there are good reasons to doubt that the teacher strikes would boost public support for the labor movement. Given the direct, service-based interaction between teachers and children, labor action seems likely to carry substantial costs to parents and broader communities (for other service-sector contexts, see e.g. Gruber and Kleiner 2012; Naidu and Reich 2018). And more generally, conservative advocates have succeeded in mobilizing resentment against public sector employees in many states (Cramer 2016; Hertel-Fernandez 2019; Kane and Newman 2017; McCartin 2008). Our findings suggest that the walkouts and strikes were able to overcome these obstacles by fostering a greater sense of linked fate between parents and unions, thus contributing to the extension of the concept of linked fate beyond race and ethnicity to class (cf. Dawson 1994; Gay et al. 2016). Lastly, our paper engages with a broader set of studies examining the long-run effects of social movements on public attitudes and orientations (Enos et al. 2018; Madestam et al. 2013; Mazumder 2018). Our results add to this growing literature (Amenta et al. 2010), documenting the persistent political effects of a distinctive form of collective action by labor unions.

Unions and the Political Logic of Public Sector Strikes

Although unions most frequently try to influence workers' compensation, working conditions, and voice in workplace decisions by bargaining collectively with management, unions have also long attempted to improve worker outcomes through government policy. Unions have built their political power both in the electoral process, by making campaign contributions to politicians and mobilizing their members and local communities to vote for favored candidates (e.g. Becher et al. Forthcoming; Feigenbaum et al. 2019; Moe 2011; Rosenfeld 2014; Schlozman et al. 2012; Stegmueller et al. 2018), and in the legislative process, by lobbying elected officials in local, state, and national government (Hacker and Pierson 2010;

Lichtenstein 2002). Since the New Deal, unions have also established an especially close "enduring" or "anchoring" alliance with the Democrats, trading grassroots mobilization and campaign support for influence on party legislative agendas (Dark 1999; Schlozman 2015). Despite declining membership, scholars have documented the persistent influence of unions on local, state, and national politics, especially for public sector unions that continue to maintain stronger membership (Anzia and Moe 2015; Flavin and Hartney 2015). Indeed, Terry Moe has argued that public sector unions, especially teachers unions, remain "among the most powerful interest groups of *any* type in *any* area of public policy" (Moe 2011, 8).

Yet existing work on labor's political influence has neglected how unions can affect politics through another channel: by shaping the public's perceptions of the labor movement and support for union causes.[2] In particular, we focus on how large-scale, collective action through labor strikes can be a strategy for unions to extract demands from management *and* to build public support for union-preferred policy change and for the labor movement in general.

We suspect that the motivation for political strikes may have increased in importance in recent decades for two reasons. First, as unions grow weaker, they have stronger incentives to broaden the scope of their conflicts to the general public to obtain more political support (cf. Dark 1999; Schattschneider 1960; but see Lindvall 2013). And second, the rise of public sector labor unions since the 1970s has meant that an increasing share of unions depends more centrally on political support for its success. As we noted in the introduction, public sector labor union strikes are inherently political both because there is no profit motive for public sector unions to

[2] But see Lindvall 2013 on the causes of political strikes in comparative context and Hamann et al. 2016 on the electoral effects of political strikes in Western Europe.

challenge and because the concessions that public sector unions seek from their managers are ultimately public policy decisions.

At the same time, public sector labor union strikes may have an especially difficult time—as compared to private-sector union strikes or other social movements—generating public support for their efforts, and this challenge might be particularly acute for teachers. Like many other public sector employees, teachers are service workers, which means that what they are producing is, to a large extent, an interaction with customers or clients (students and families, in the case of teachers; Hochschild 1983).

This service model of production matters because, across a wide range of cases and industries, strikes and other labor disputes have been shown to be associated with a decline in productivity and production quality (Gruber and Kleiner 2012; Mas 2006, 2008; Naidu and Reich 2018). But this deterioration has different implications for the relationship between worker protest and public support in the service versus manufacturing sectors. Whereas someone shopping for a tire is unlikely to blame Bridgestone/Firestone workers if the product turns out to be a lemon (Krueger and Mas 2004), when workers withdraw their labor from service contexts, those workers seem likely to receive the lion's share of the blame from the public as they are the ones no longer providing the same level of care or service to clients or customers (Naidu and Reich 2018). Moreover, in the case of a teacher's strike, the recipients of the degraded service—children—command considerable public sympathy.

While the existing literature on the effects of teachers' strikes on student learning is somewhat sparse, recent studies suggest that teachers' strikes are indeed associated with declines in student outcomes (Baker 2013; Belot and Webbink 2010), and Argentinian evidence suggests even long-term effects on earnings (Jaume and Willén 2019). A more developed literature on the

relationship between teacher absences and educational outcomes is even more definitive, clearly demonstrating a causal relationship between absenteeism and declines in educational achievement (Clotfelter et al. 2009; Herrmann and Rockoff 2012; Miller et al. 2008). To the extent that students bear the costs of teacher strikes, it would be unsurprising if parents, and other community members, were opposed to them. Given these motivations, our *backlash hypothesis* predicts that teacher strikes ought to reduce support for the unions and the labor movement in the general public, and especially for the parents of children who are most affected by strikes.

On the other hand, it may be the case that while the short-term consequences of striking are negative for students, the long-term effects of teachers' strike demands are positive. While there remains some debate in the literature, existing evidence suggests that teacher unionization in the United States has a positive effect on student performance (Eberts 2007; Eberts and Stone 1987; Register and Grimes 1991; Steelman et al. 2000; but see Hoxby 1996). If, in the context of a strike, the short-term interests of teachers and students diverge but their longer-term interests converge, the question becomes whether teachers' unions are able to lengthen parents' time horizon and expand the scope of parents' "communities of fate" (Ahlquist and Levi 2013).

The question we examine is whether teachers' unions can provide information and interpretation that convince parents and members of the broader community of the merits of their cause in a context that otherwise is a hard test for such linked fate. Such a finding would be consistent with recent work documenting how social movements in other areas, like civil rights protests, have boosted public support for those movements, even in cases of violent protests (Enos et al. 2018; Madestam et al. 2013; Mazumder 2018). This forms our *public support* hypothesis, which predicts that the public should become *more* supportive of teachers' unions

after educator strikes, and this increase should be especially large for members of the public who were most exposed to the strikes, including parents.

We are also interested in whether the strikes can change parent and community members' attitudes towards the labor movement more generally. It may be the case that individuals witnessing the strike relate to it not only as parents and community members but also as workers themselves. This learning or informational effect is consistent with a large literature in sociology that has explored the diffusion of social protests. Threshold models suggest that protest behaviors spread because people's (and groups') decisions about participation in contentious action depend on the decisions of others (Granovetter 1973; Oliver et al. 1985). Imitation models, on the other hand, suggest that protests diffuse not because of the interdependence of preferences but because protest provides new information to potential activists about opportunities for action (Conell and Cohn 1995), or new information about the tactics themselves (McAdam 1982; Soule 1997; Wang and Soule 2012). Accordingly, the long-term impact of these strikes may extend well beyond the schoolhouse, building greater interest in unionization and labor action in other sectors of the economy as well. This forms our third hypothesis, *public inspiration or imitation*, which predicts that members of the public, including parents, most exposed to teacher strikes will have greater interest in joining unions and participating in labor action themselves as workers. We now turn to describing the empirical context we study in this paper: the 2018 teacher strike wave.

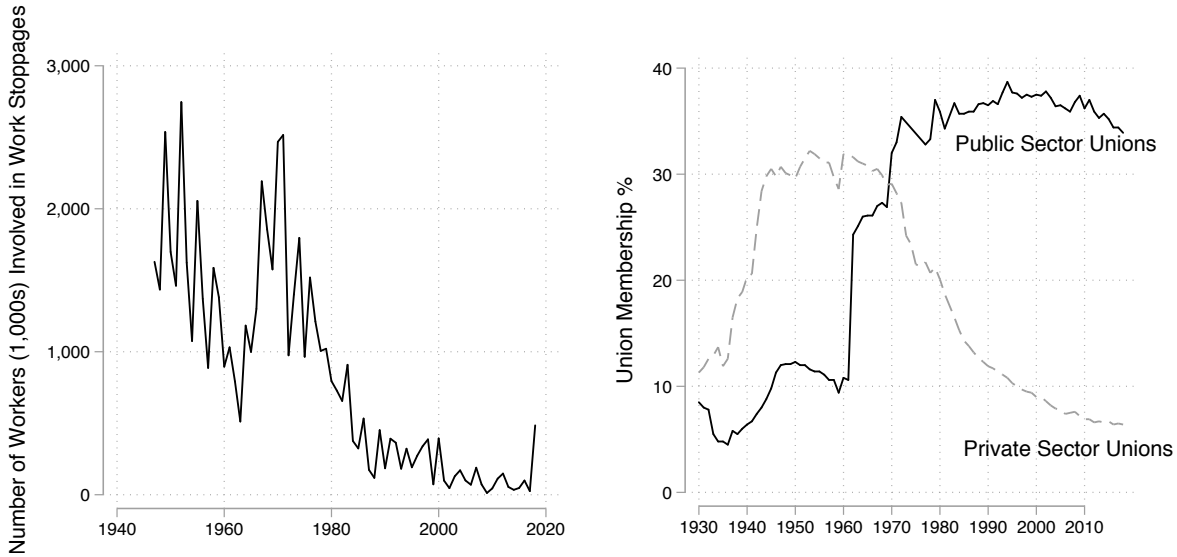
Situating the 2018 Teacher Strikes in Historical Perspective

A long generation of scholars of labor relations have recognized the strike as "by far the most important source of union power" (Burns 2011, 1 quoting Albert Rees). Yet despite their potential power, strikes have become substantially less common in the United States (Burns 2011; Rosenfeld 2014). Figure 1 shows that the number of workers involved in major work

stoppages (involving 1,000 or more workers) has declined sharply from a peak of over two million in the 1950s to under 100,000 since 2000. The year 2018, however, stands out for a recent uptick in strike activity, precisely because of the mass teacher strikes that we will describe below.

The sharp drop in strike activity since the 1950s corresponds to a more general decline in labor union membership in the United States, especially in the private sector, where membership has fallen from around a third of all private-sector employees to just six percent by 2018. Public union membership, on the other hand, has taken a very different trajectory, a reflection of the bifurcated political and legal structure of the labor movement (Freeman and Ichniowski 1988; Johnston 1994; Walker 2014). Private-sector workers gained the federal legal right to organize and bargain collectively under the New Deal-era National Labor Relations Act. Public sector employees would need to wait until the 1950s and 1960s for efforts to expand legal recognition of government employee unions, primarily at the state and local levels.

Figure 1: Mass Strike Activity and Labor Union Membership



Notes: Work stoppage data from the Bureau of Labor Statistics; union density before 1972 from the Troy-Sheflin series reported in Eidlin 2018; Bureau of Labor Statistics thereafter.

The most significant component of the newly-enlarged public union movement consisted of teachers, who by 2017 represented more than half of all state and local union members. Indeed, the largest single union in the United States today is the National Education Association, counting over three million educators and teaching professionals as members. Given their clout and federated structure, teachers unions are often very politically powerful in local, state, and national politics (Anzia 2013; Anzia and Moe 2015, 2016; DiSalvo 2015; Flavin and Hartney 2015; Moe 2011).

That power is waning, however, in the face of a continued conservative backlash against unions, especially public sector unions. Spurred on by right-leaning advocacy groups, an increasing number of states have passed laws restricting the ability of public sector unions to collect dues and fees (through right-to-work laws), to collectively bargain, and to participate in politics (Hertel-Fernandez 2019). In addition, conservative advocacy groups have recently succeeded in applying right-to-work laws to all public sector employees in the Supreme Court's 2018 *Janus vs. AFSCME* decision.

Against this backdrop of diminishing strength, large and sustained teacher strikes in 2018 took many by surprise—especially since the walkouts occurred in generally conservative states with Republican-controlled state governments and weak labor unions (see Table 1).[3] In all, there were six states with widespread teacher walkouts: West Virginia (beginning in February and

[3] Although not all of these labor actions were formal strikes, we refer to them alternatively as strikes and walkouts given that they involved substantial and ongoing public disruptions and collective action. We also hypothesize (and test empirically) that the political outreach efforts by teachers were similar across strike and walkout states.

ending roughly in March); Oklahoma (throughout April); Kentucky (throughout April); Colorado (April to May); Arizona (April to May); and North Carolina (in May; see summary in Table 1). Each of these mass collective actions unfolded in different ways. Some, like West Virginia and Oklahoma, involved formal strikes stretching over multiple days, while North Carolina involved job actions building up to a one-day walkout. Moreover, in West Virginia the strike went wildcat at one point, while the strikes were authorized by unions in other states.

Table 1: Key Characteristics of 2018 Teacher Walkout States

State	% Conservatives - Liberals (2017)	2016 Clinton Vote Share	State Partisan Control (2018)	Public Union Membership % (2017)	Beginning Date of Strike	Number of Affected Workers
AZ	14 pp	44.6	Republican	17	4/26/18	81,000
CO	9 pp	48.2	Divided	22	4/16/18	63,000
KY	22 pp	32.7	Republican	19	4/13/18	26,000
NC	20 pp	46.2	Divided	9	5/16/18	123,000
OK	30 pp	28.9	Republican	15	4/12/18	45,000
WV	19 pp	26.2	Divided	25	2/16/18	35,000
National	11 pp	48.2		34		

Notes: Conservative and liberal identifiers: Gallup (2017 tracking poll data). 2016 Clinton vote share: U.S. Election Atlas; state partisan control: National Conference of State Legislatures; beginning date of strike and number of affected workers: Bureau of Labor Statistics Work Stoppages series.

Nevertheless, there were several common themes running through all of these labor actions. First, all of the walkouts involved a significant proportion of the teacher workforce and affected a substantial number of students and schools. In West Virginia, roughly 250,000 students were left out of school as a result of the strike (Hauser 2018); in North Carolina the estimate was some 700,000 students (Carson 2018); in Colorado the estimate was at least 600,000 (McKay 2018); and in Arizona it was perhaps as many as 850,000 (McKay 2018). This

represents some 93% of all students in West Virginia, 75% in Arizona, 72% in Oklahoma, 66% in Colorado, and 45% in North Carolina.

Second, the walkouts all involved substantial public engagement, including extensive outreach to community groups, churches, and other organizations, as well as coordinated protests at state capitals that incorporated teachers alongside other school employees, administrators, and community members (Blanc 2019). Third, while the demands articulated by the teachers in each state were different, they generally related to increased teacher compensation (wages and benefits), as well as increased spending on education overall to provide greater resources to students. And lastly, while the popular coverage of the strikes emphasized the fact that much of the initial energy and mobilization was accomplished outside of the unions by teachers acting on their own, labor leaders were often heavily involved in the later organizing efforts, providing key resources like staffing and financial support.

Perhaps even more surprising than the emergence of the walkouts was the fact that they managed to secure a number of concessions from partially or fully-Republican controlled legislatures and governors. The West Virginia strike succeeded in securing a 5% pay raise; the Oklahoma strike succeeded in obtaining pay raises for both teachers and support staff, as well as new revenue for public schools; the Colorado strike achieved salary increases and a boost in education spending; and the Arizona walkouts achieved a substantial increase in teacher pay. Moreover, the 2018 strikes spurred similar actions throughout 2019 as well, with additional strikes in Los Angeles, Oakland, and a number of other cities directly inspired by the original walkout states (e.g. Caputo-Pearl 2019).

The question we pose in this paper, however, is broader than legislative gains: did the striking teachers succeed in changing the ways that individuals in their states thought about

public schools, teachers and their unions, and the labor movement more generally? We believe that the 2018 walkouts represent an especially unlikely case to observe positive effects of strikes on public opinion, given that the strikes involved disruption of public schools and because they occurred in mostly conservative states with weak labor movements. Accordingly, if we can observe effects in this case, we believe it is reasonable to expect strike effects on public opinion in other cases with more favorable circumstances. (We examine the question of the scope conditions and generalizability of our findings in more detail in our conclusion.)

The 2019 Teacher Walkout Survey

To answer this question, we commissioned an original survey sample from Qualtrics, which provided us with 4,468 respondents from their opt-in survey pool that matched the 2017-2018 monthly Current Population Survey distribution of adults living in the six walkout states (AZ, CO, KY, TN, OK, and WV) on gender, age (in five bins[4]), race (in five bins[5]), Hispanic ethnicity[6], education (in four bins[7]), and whether they had a child in the household.[8] We gave Qualtrics the demographic targets for these characteristics within each of the six states. We deliberately over-sampled parents, including 2,968 parents and 1,500 non-parents in the final sample. The survey was open to responses from January 7 to February 7, 2019.

[4] Bins: 18-29, 30-41, 42-53, 54-65, 65+.

[5] Bins: White, Black, American Indian, Asian American, Other.

[6] We did not administer the survey in Spanish.

[7] Bins: High School or Less, Some College, College, Graduate or Professional.

[8] We obtained Institutional Review Board approval for the survey.

We estimated raked survey weights using the anesrake R package to match the overall distribution of these characteristics across all six walkout states but the results do not change much with or without these weights applied. Appendix 1 summarizes the distribution of demographic targets and survey respondents, with and without raked survey weights applied. The sample is slightly more female, less Hispanic, younger, more white, and less educated than the CPS targets but the differences are not large. Moreover, comparing our results to the 2016 CCES, we find that our sample is very closely matched to the distribution of partisans across the six states, as well as to average levels of political engagement and activity (see Appendix 1).

The survey instrument, which we reproduce in full in Appendix 2, covered a variety of topics, including respondents' recollection of the walkouts or strikes; how they learned about the strikes, their perceptions of the strikes, including personal support and what effects they thought the strikes had; more general perceptions about the labor movement in the United States; and detailed demographic characteristics.

In all, around eighty percent of respondents recalled hearing or experiencing the walkouts, though this ranged from 93% in Oklahoma to 70% in North Carolina.[9] That is consistent with an open-response item we fielded at the very start of the survey that asked respondents, "In just a few words, what do you remember a union doing recently?" Respondents

[9] These and all following descriptive statistics apply the weights. Question text: "As you might remember, in 2018 teachers across several states walked out of work in large protests and rallies. This was also called "Red 4 Ed", or the teacher strikes. We'd like to ask you a few questions about those teacher protests. Do you remember hearing or reading about the 2018 teacher walkouts and protests?"

could then provide a short answer in a text box. Although the most common bi-grams involved variants on "don't know," a significant proportion of respondents indicated that they were thinking about the teacher strikes, as shown in Appendix 3. We interpret these responses as indicating that for a large number of respondents in the walkout states, the strikes remained highly salient and top of mind as they were thinking about unions and the labor movement.

About half (48%) of all respondents said that there were walkouts or strikes in their local community schools.[10] Among parents, about 39% of them said that they recalled walkouts at their children's schools.[11] This was highest in West Virginia and Oklahoma and lowest in Colorado and North Carolina. We summarize these differences in Table 2.

Table 2: Were There Walkouts in Local Community Schools or Child's Schools?

State	Walkout in Local Community Schools?	Walkout in Child's Schools? (Among Parents)
WV	79%	76%
OK	79%	64%
AZ	65%	58%
KY	40%	31%
CO	33%	23%
NC	28%	23%
Overall	48%	39%

Notes: N=4,468 (among all respondents); N=1,798 (among parents). Survey weights applied.

[10] Question text: "As best as you can recall, did any teachers in your community walk out or protest last year?"

[11] Question text: "As best as you can recall, did any of your children's teachers walk out or protest last year?"

A final item asked respondents if they personally opposed or supported the walkouts.[12] By far, most respondents indicated that they either strongly or somewhat supported the walkouts. 39% of respondents said that they strongly supported the walkouts, and another 27% said that they somewhat supported the walkouts. Only 15% of respondents said that they somewhat or strongly opposed the walkouts. Table 3 summarizes how support for the walkouts varied across the six walkout states. Support tended to be strongest in Oklahoma and lowest in Colorado. Next, we asked respondents if they personally participated in the teacher walkouts.[13] Six percent of respondents said that they did.

Table 3: Overall Support for Walkouts

Support Walkouts?	WV	OK	NC	KY	CO	AZ	Overall
Strongly support	41%	47%	40%	43%	32%	37%	39%
Somewhat support	23%	21%	26%	24%	34%	28%	27%
Neither support nor oppose	19%	14%	16%	15%	17%	13%	15%
Somewhat oppose	7%	10%	8%	7%	9%	8%	8%
Strongly oppose	6%	8%	7%	7%	7%	11%	8%
Not sure	4%	1%	3%	3%	2%	2%	2%
Support	64%	67%	66%	68%	66%	66%	66%

Notes: N=3,632 (among respondents who recalled walkouts). Survey weights applied.

Aside from the questions directly related to the walkouts, we also asked respondents about their support for teachers' unions, as well as their personal interest in labor action and joining a union, which form the main outcomes we examine in the analysis. We first asked about

[12] Question text: "How much do you personally support or oppose the 2018 teacher walkouts and their demands?"

[13] Question text: "Did you personally participate in any of the events surrounding the teacher walkouts or protests last year?"

respondents' *support for rights for teachers unions*, including collective bargaining, agency fees (fees charged to non-members to cover the costs of collective bargaining and grievance procedures), and striking.[14] Respondents could choose from strongly oppose to strongly support on five-point scale, and across all three items, respondents typically selected a 3.7 out of 5 (where five is the highest possible support for union rights).

We next asked about respondents' *support for future teachers strikes* concerning pay, benefits, and overall student spending, also each measured on five-point scale ranging from strongly oppose to strongly support.[15] On average, respondents selected a 3.8 out of 5 (where five is the highest possible support for future strikes). We also probed respondents' behavioral support for teachers unions by asking if respondents would *donate money to a Los Angeles teachers strike fund* (as opposed to the United Way, the National Right to Work Foundation, or

[14] Question text: "Do you support or oppose public school teachers having the right to strike?", "Do you support or oppose public school teachers having the right to collectively bargain with state and local governments over wages, health and retirement benefits, and working conditions?", "Do you support or oppose the idea that all teachers should have to pay at least some dues to unions if they benefit from union collective bargaining agreements or job protections?"

[15] Question text: ("If teachers went on strike for [higher pay in your community/better health and retirement benefits/more spending on students] next year, would you support or oppose them?"

no option at all. During the survey implementation the Los Angeles teachers were preparing to go on strike.)[16]

Moving to consider respondent support for the labor movement in general, we asked whether respondents *would like to see the labor movement have more influence in the future*. On a five-point scale from strongly oppose to strongly support, respondents typically fell at a three out of five.[17] To reduce measurement error, we averaged standardized versions of these preceding variables—support for the walkouts, participation in the walkouts, support for teachers union rights, support for future strikes, donations to the LA teachers strike fund, and support for the labor movement in general—into a single scale, centered on zero (Ansolabehere et al. 2008).

Lastly, to gauge personal interest in unionization and labor action we asked whether non-unionized, employed respondents would be *interested in joining a labor union* at their job if a union election were held immediately. 32% of respondents said that they would be willing to vote for the union, 28% said that they would vote against it, and 41% were undecided.[18] We also asked respondents how likely they would be to participate in a strike or walkout at their job next

[16] Question text: "We will be contributing $100 to a charity chosen by respondents to this survey…Which charity would you like to receive the contribution?"

[17] Question text: "Thinking about labor unions in general, would you personally like to see labor unions in the United States have more influence, the same amount as today, or less influence than they have today?"

[18] Question text: If an election were held *today* to decide whether employees like you should be represented by a union at your job, would you vote for the union or against the union?"

year on a five-point scale from not at all likely to very likely.[19] The average respondent fell at about a two out of five. Table 4 summarizes the descriptive statistics for our main outcomes.

Table 4: Descriptive Statistics for Study Outcomes

Variable	Max N	Mean	SD	Min	Max	Population
Support 2018 Walkouts	3,540	3.83	1.28	1	5	Respondents recalling walkouts
Participate in Walkouts	4,468	0.05	0.23	0	1	Full sample
Support for Teachers Union Rights (Average)	4,468	3.73	0.89	1	5	Full sample
Support for Future Teachers Strike (Average)	4,467	3.82	1.06	1	5	Full sample
Donate to LA Teachers Strike Fund	4,468	0.13	0.33	0	1	Full sample
Support Greater Union Influence	4,468	3.15	1.17	1	5	Full sample
Vote for Union	2,171	0.32	0.47	0	1	Employed, non-union respondents
Strike Next Year	2,328	2.10	1.26	1	5	Employed respondents

Exposure to the Strikes, Support for Teachers and their Unions, and Interest in Unionization

We first examine whether greater firsthand experience or exposure to the teacher strikes was related to the outcome measures we describe above in the full survey sample of respondents who recalled the strikes. We consider two different measures of firsthand experience with the strikes: reporting strikes in one's community schools (or child's schools if a parent) and learning about the strikes from teachers or unions, as opposed to other sources (like the news media, online blogs, or other social networks). In Table 5, we present a series of OLS regressions examining the correlation between a respondent having firsthand experience with the walkouts in the top panel and reporting that they learned about the strikes from teachers or unions in the

[19] Question text: "How likely or unlikely are you personally to participate in a strike or a walkout at your place of work in the next year?"

bottom panel.[20] We estimate specifications of the following form, where *i* indexes individuals and *s* indexes states:

$$y_i = \beta StrikeExperience_i + X_i\gamma + \delta_s + \epsilon_i$$

All models include survey weights and state fixed effects. For each outcome, we further estimate models with and without individual controls, which include political ideology (on a seven-point scale), an index of economic liberalism (averaging support for a fifteen dollar an hour minimum wage, belief that income differences are too large, and support for government redistribution)[21], a dummy for having children, gender, age, age squared, race and ethnicity (with indicators for White and Hispanic), logged family income, education (in six categories), union membership, reporting a friend or family member as a union member, and religious attendance (on a six-point scale).[22] Across both panels in Table 5, we can see that having firsthand strike experience or hearing about the strikes directly from teachers or unions are both strongly related to a range of variables indicating support for the teacher walkouts and also for the labor movement more generally (in the case of having firsthand strike experience).

[20] Question text: "What were the ways that you learned about the 2018 teacher walkouts and protests? Please check all the options that apply."

[21] We recognize that this may well be post-treatment to the strikes, so present results with and without the controls.

[22] Full variable specifications in Appendix 4.

Table 5: Exposure to Teacher Walkouts and Support for Teachers and Unions

	Panel A: Firsthand Walkout Experience											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Support Walkout (1-5)	**Support Walkout (1-5)**	**Participate Walkout (0/1)**	**Participate Walkout (0/1)**	**Pro Teacher Union Rights (1-5)**	**Pro Teacher Union Rights (1-5)**	**Pro Future Teacher Strikes (1-5)**	**Pro Future Teacher Strikes (1-5)**	**Support Stronger Unions (1-5)**	**Support Stronger Unions (1-5)**	**Donate to LA Teachers (0/1)**	**Donate to LA Teachers (0/1)**
Firsthand Walkout Experience	0.331*	0.231*	0.0968*	0.0703*	0.262*	0.155*	0.290*	0.143*	0.259*	0.130*	0.0907*	0.0594*
	(5.56)	(4.63)	(10.76)	(8.34)	(7.20)	(5.04)	(6.78)	(3.94)	(5.45)	(3.26)	(6.54)	(4.33)
State FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
N	3540	3509	4468	4380	4468	4380	4467	4379	4468	4380	4468	4380
	Panel B: Heard About Strikes from Union or Teacher											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Heard from Union/Teachers	0.398*	0.341*	0.0867*	0.0716*	0.175*	0.138*	0.294*	0.221*	0.0934	0.0198	0.0410	0.0261
	(6.75)	(6.28)	(5.46)	(4.43)	(4.41)	(3.91)	(6.06)	(5.14)	(1.56)	(0.39)	(1.96)	(1.22)
State FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
N	3540	3509	3632	3589	3632	3589	3631	3588	3632	3589	3632	3589

Notes: OLS regressions. *t* statistics in parentheses; * $p<0.05$. Survey weights applied.

In all, the results in Table 5 provide suggestive evidence that having closer contact and experience with the strikes—whether through exposure in one's community schools or learning about the strikes from teachers or their unions—relates to stronger support for the unions, consistent with our *public support* hypothesis, rather than the *backlash* hypothesis. But it may well be the case that individuals more predisposed to the strikes and unions were more likely to seek out information and contact with the strikes, confounding our efforts at interpreting the results in Table 5 in a causal manner. Moreover, the striking teachers may have targeted their mobilization to populations more likely to support their efforts in the first place. To gauge the causal effects of the teacher strikes, we turn to an approach based on the ages of parents' children.

Evidence from Parents and School-Age Eligibility Thresholds

Our logic is as follows: parents with school-age children should be substantially more likely than other respondents to have firsthand experience with the strikes through their children's schools. That intuition is borne out in the survey data: 56% of parents with children in school reported firsthand experience with strikes, compared to 46% of respondents without children enrolled in school (difference significant at $p<0.01$). But parents with children enrolled in school are likely to be different from other respondents on a variety of other social, economic, and political characteristics that could confound our efforts at estimating the effect of exposure to strikes. And indeed, we find that these two groups are very different from one another on

observable characteristics.[23] As a result, we focus on a comparison between two groups of parents who are likely to be more similar to one another: parents with at least one child whose age puts them just over or just under the typical cut-off for school, with parents with non-school age children forming the control group. Our assumption—which we test below—is that these two groups of parents are likely to be relatively similar to one another *except* for their child's enrollment in school and therefore their exposure to the 2018 teacher strikes.[24]

Specifically, we estimate the following regression equation at the individual level, where *i* indexes individuals and *s* indexes states:

$$y_i = \beta SchoolAgeChild_i + \delta_s + \epsilon_i$$

We restrict attention to narrow windows around school age eligibility, and do not use polynomials as the age variable is discrete and has limited support away from the discontinuity (e.g. only 4 ages before 5). We include state fixed effects, apply survey weights, and use robust standard errors in all specifications.

To validate the design, we first assess the balance between these two groups of parents on a variety of important observables, including political ideology, economic liberalism, age, gender, race and ethnicity, family income, education, connection to unions, and religiosity. We

[23] Parents with children enrolled in school are younger, more likely to be female, less likely to be white, more likely to be Hispanic, have higher incomes, more likely to be a union member, and are more religious than other respondents.

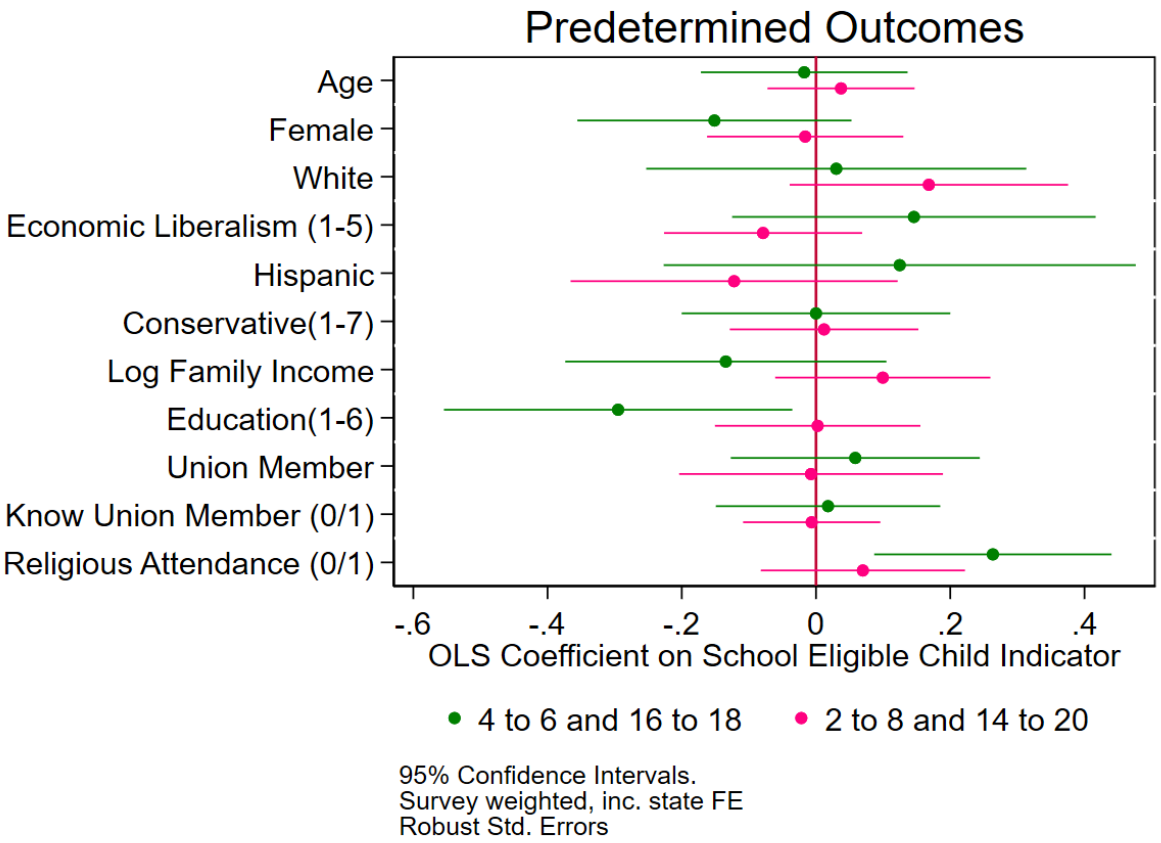
[24] We asked about the ages of respondents' three youngest children. Within the states we study, 46% of parents had one child, 34% had two children, and 14% had three children; only six percent had four or more children according to the 2017-2018 Current Population Survey.

use two different sets of child age cutoffs, ranging from the tightest to the widest: 4-6 and 16-18; and 2-8 and 14-20. Our maximum sample sizes for each group are 1,022 and 1,788, respectively. In each case, the "treatment" group includes parents with children 5 and up or 17 and younger. So for the first age window, the treatment group includes parents with at least one child aged 5-6 or 16-17 and the control groups are parents with all children aged 4-5 or 17-18. Within each age window, the proportion of "treated" parents is 87% and 78%, respectively. Going forward, we call the treatment group parents with just-school-aged children for shorthand.

Figure 2 assesses balance for both age window sets, with a series of OLS estimates of equation (2) where the outcome is a particular demographic characteristic and the plotted coefficients represent the treatment indicator for parents of just-school-aged children, along with 95% confidence intervals. Each outcome is standardized to have a mean of zero and a standard deviation of one to ease comparison across different scales.

Across all three sets of age windows, we see relatively good balance between parents with children on either side of the age cutoffs. In the narrowest range of ages we see that parents with just-school-aged children are slightly more religious than parents on the other side of the cutoff (consistent with Margolis 2018). Parents with just-school-aged children are also slightly less educated than their counterparts without school-aged children. There are no significant differences in the two groups of parents in the second window. In all, the picture in Figure 2 helps validate the use of our child age design, and we also include all these variables as covariates in subsequent regressions.

Figure 2: Validating Balance with the Child-Age Cutoff Design Across both Age Windows

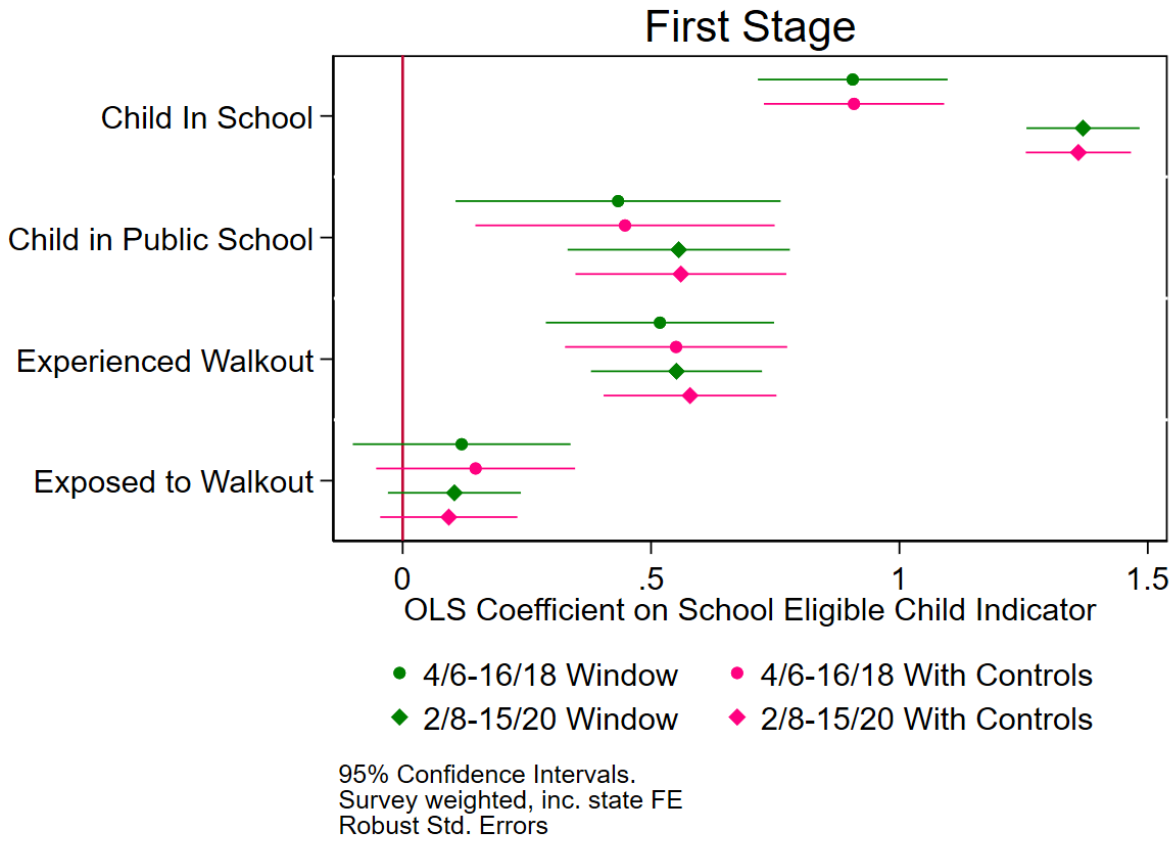


Notes: Each estimate represents a separate OLS regression that also includes state fixed effects and applies survey weights. 95% confidence intervals shown. Outcomes standardized to have a mean of zero and standard deviation of one to ease comparisons. *N*=1,006-1,022 for 4-6/16-18 window; 1,755-1,788 for 2-8/14-20 window.

Parents with just-school-aged children are relatively similar to their counterparts without similarly school-aged children. But are they more likely to have children actually enrolled in school who were exposed to the 2018 teacher strikes—that is, can we validate the first stage of our design? We assess these first stage effects in Figure 3, which reports the correlation between having a child just over or under the age cutoffs and whether parents have children enrolled in school, have children enrolled in traditional public schools (as opposed to charter or religious schools, where there were not mass actions), and whether parents had firsthand experience with the teachers strikes—either through their own children or through their community schools. For

each of these first stage outcomes, we show results using the two age windows, including state fixed effects, with and without controls, and applying survey weights. Figure 3 provides strong evidence in support of our child age cutoff design, revealing that parents with just-school-aged children were substantially more likely to have children enrolled in school, to have children enrolled in traditional public schools, and to have been exposed to walkouts in their children's schools. Parents with just-school-aged children were also more likely to report any firsthand walkout experience (not necessarily through their children's schools), but the differences missed traditional statistical significance. These results are relatively stable across both age windows.

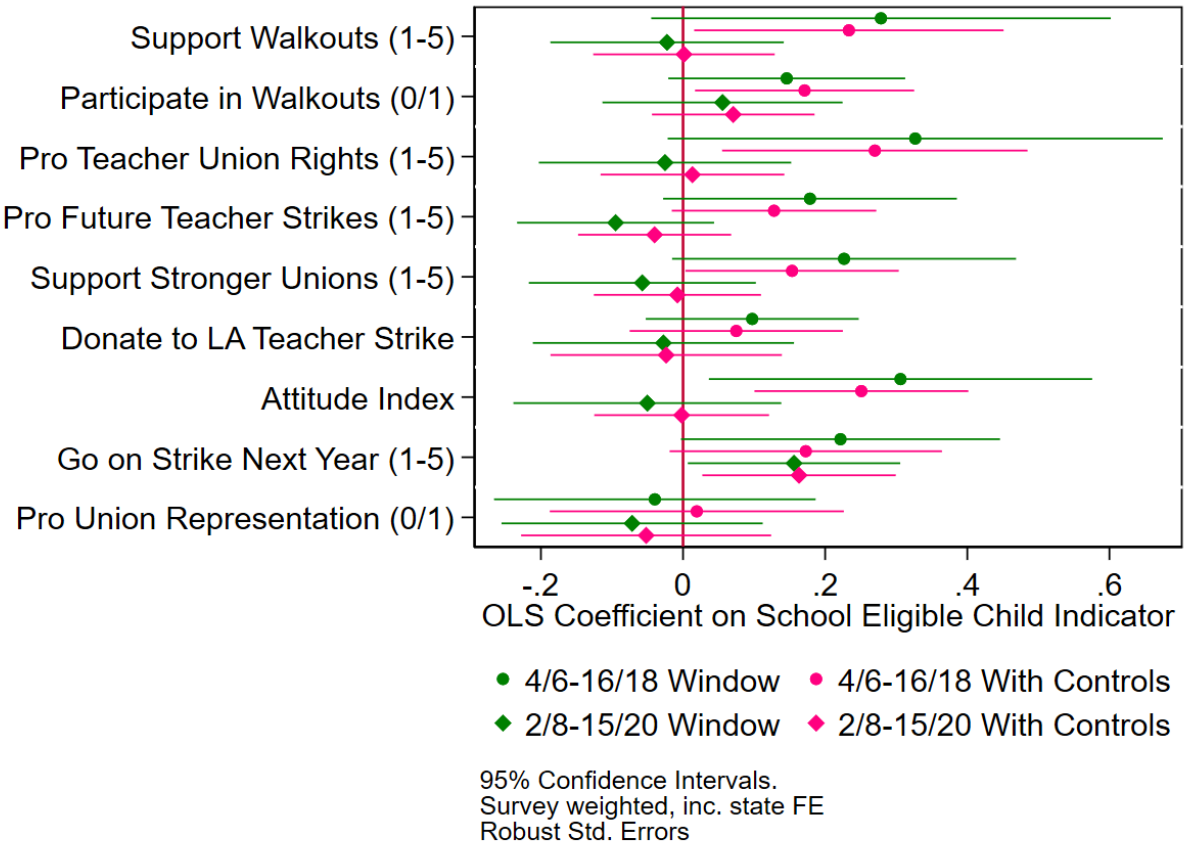
Figure 3: First-Stage Effect of School-Aged Children on Walkout Experience



Notes: Each estimate represents a separate OLS regression that also includes state fixed effects and applies survey weights. 95% confidence intervals shown. Outcomes standardized to have a mean of zero and standard deviation of one to ease comparisons. Explanatory variable is indicator for having a just-school aged child. *N*=920-1,022 for 4-6/16-18 window; 1,467-1,788 for 2-8/14-20 window.

Having established the validity of the child age cutoff design, we analyze the effect of having a just-school-aged child on support for the teacher strikes and teachers' unions and personal interest in unions and labor action. Figure 4 summarizes the results of a series of OLS regressions with teacher and union support and labor interest variables as the outcomes and the just-school-aged child indicator as the explanatory variable, with and without controls. (Each estimate comes from a separate regression.) We also include state fixed effects and apply survey weights. To ease comparisons across outcomes with different scales, we standardize these variables to have a mean of zero and a standard deviation of one.

Figure 4: Reduced Form Effect of School-Aged Children and Support for Teachers and Unions



Notes: Each estimate represents a separate OLS regression that also includes state fixed effects and applies survey weights. 95% confidence intervals shown. Outcomes standardized to have a mean of zero and standard deviation of one to ease comparisons. Explanatory variable is

indicator for having a just-school aged child. *N*=822-1,022 for 4-6/16-18 window and 1,449-1,788 for 2-8/14-20 window for attitudinal and walkout outcomes; 667 for 4-6/16-18 window and 1,150 for 2-8/14-20 window for strike and union representation outcomes (reflecting restriction to employed respondents).

Looking first at the narrowest age window (parents with children aged 4-6 and 16-18) we find that parents of just-school-aged children were more likely to support the walkouts, more likely to support legal rights for teachers unions, more supportive of future teachers strikes, more supportive of a stronger labor movement in general, and more interested in going on strike at one's own job (if employed). We do not see much of an effect of having a just-school-aged child on interest in supporting the Los Angeles teachers or in voting for union representation at one's job.

Without control variables, the effects for the narrowest age window are generally significant at the 90% level, and with the addition of controls are identified with greater precision. Averaging the attitudinal and walkout support outcomes together into a single index, we find a substantively and statistically significant effect of having a just-school-aged child on support for teachers unions and the labor movement more generally: parents with a just-school-aged child scored 0.31 points higher on the union support index in the model without controls and 0.25 points in the model with controls. For context, those effects represent about 24-30% of the observed differences in union support between union members and non-members, and are about the same size as the observed differences in union support between individuals in our sample who had friends or family members in unions and those who did not.

Moving to the wider age window (parents with children aged 2-8 and 15-20), we generally do not see any differences in the labor attitudes or preferences of parents with and without just-school-aged children. The one exception is for interest in going on strike among employed respondents: across both age windows and models with and without controls, we

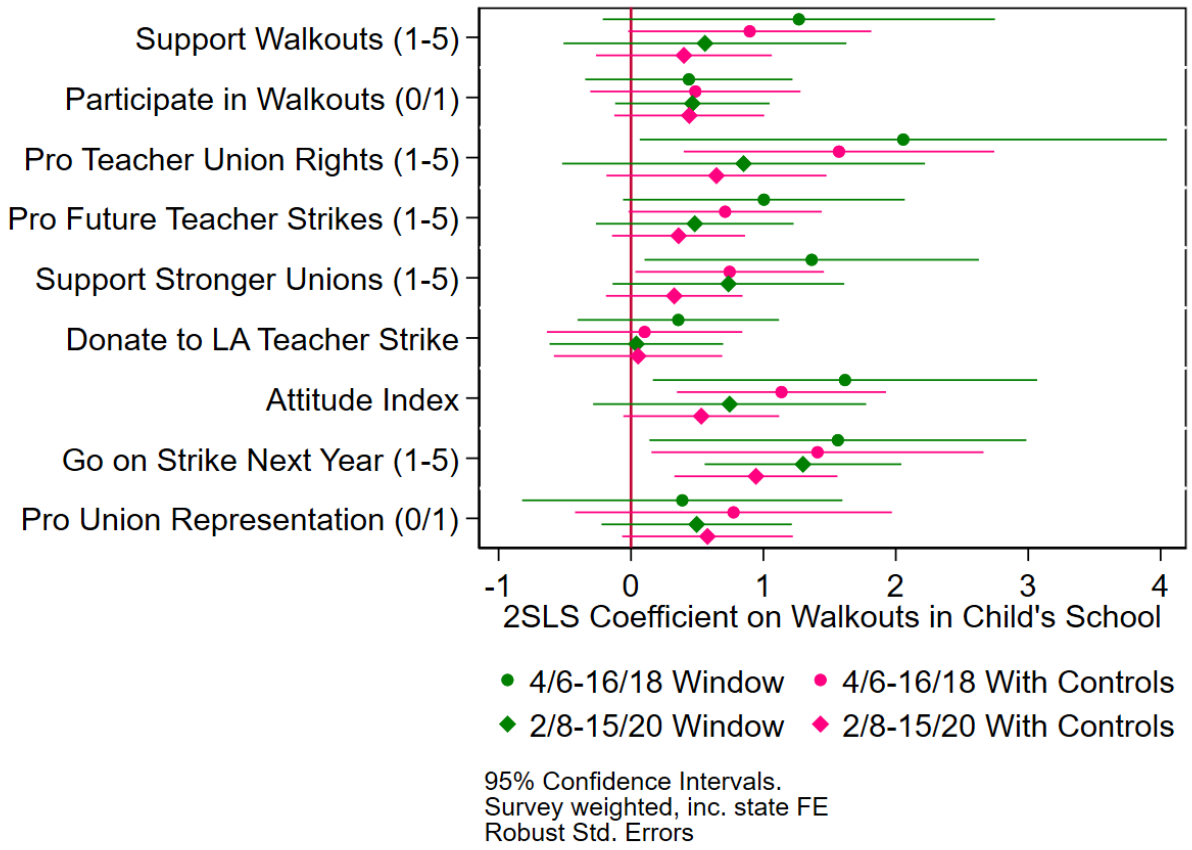
identify relatively similar effects of having a just-school-aged child. These parents of just-school-aged-children were about 0.16 to 0.22 points more interested in going on strike. For context, that represents about 16-22% of the observed difference in strike interest between current union members and non-members, and about 23-31% of the observed difference in strike interest between individuals who report that they have ever participated in a strike in the past and those who have not.

The contrast between strike interest and interest in voting for union representation among employed respondents is notable, suggesting that strike-exposed individuals are supportive of labor unions and collective action, including at their own job, but not necessarily traditional unions for themselves. (We discuss possible explanations in the conclusion.) In all, Figure 4 suggests support for the *public support* hypothesis over the *backlash* hypothesis, and very strong support for the *imitation* hypothesis indicating that strike-exposed parents learned about possibilities for labor action and how they could apply those lessons to their own workplaces.

The results we have presented in Figure 4 are reduced form estimates, showing the causal effect of having a just-school-aged child on union support and interest as it might run through firsthand exposure to the teacher strikes—but also through other potential mechanisms as well. An alternative approach is to estimate the effect of having a just-school-aged child as it runs through exposure to the teachers strikes with two-stage least squares (i.e., an instrumental variables approach, using a just-school-aged child as an instrument for exposure to the teacher strikes in a child's schools). Doing so (as reported in Figure 5), we find noisy but positively-signed and substantively significant relationships between exposure to the teacher strikes and support for unions, especially support for union rights, future teacher strikes, and a stronger labor movement, again especially pronounced for the tightest child age window (4-6 and 16-18).

Looking at the labor attitudes and support index, we find across models a consistent effect of strike exposure on positive views towards teachers unions and the labor movement as a whole. We also continue to find a strong relationship between exposure to the strikes and interest in going on strike at one's own job—but not necessarily voting for a traditional union. Indeed, as in the reduced form estimates, the strike interest estimates continue to be the strongest and most consistently substantively and statistically significant across all specifications.

Figure 5: IV Estimates of Effect of Walkout Experience on Support for Teachers and Unions



Notes: Each estimate represents a separate 2SLS regression that also includes state fixed effects and applies survey weights. 95% confidence intervals shown. Outcomes standardized to have a mean of zero and standard deviation of one to ease comparisons. Instrumental variable is indicator for having a just-school aged child, and endogenous variable is experienced a teacher walkout. *N*=746-920 for 4-6/16-18 window and 1,204-1,467 for 2-8/14-20 window for attitudinal and walkout outcomes; 612 for 4-6/16-18 window and 967 for 2-8/14-20 window for strike and union representation outcomes (reflecting restriction to employed respondents). First stage *F* statistics 22-23 for 4-6/16-18 window and 44-46 for 2-8/14-20 window for attitudinal outcomes;

10 for 4-6/16-18 window and 36-37 for 2-8/14-20 window for strike and union representation outcomes.

To interpret the instrumental variable estimates as the causal effect of strikes on individual union attitudes and preferences, we need to satisfy four assumptions: relevance, monotonicity, independence and the exclusion restriction. We already tested the relevance of our instrument—the child age cutoff—in Figure 3, which shows that having a just-school-aged child is very strongly correlated with child enrollment in public schools and exposure to strikes in children's schools. Indeed, the *F* statistics on the first stage regressions for the 4-6 and 16-18 window are generally well above the usual recommended threshold of 10. The assumption of monotonicity cannot be tested directly, but it seems unlikely that parents with just-school-aged children would ever become *less* likely to have firsthand exposure to the strikes by virtue of having a just-school-aged child or *more* likely to have firsthand exposure because they lack a just-school-aged child. The independence assumption—that there are no common causes of having a just-school-aged child and attitudes towards unions—similarly cannot be tested directly, but we present a variety of checks in Figure 2 to show that parents of children within the age windows we study are very similar to one another on the demographic characteristics that might otherwise confound our analysis.

Lastly, the exclusion restriction dictates that the only way that having a just-school-aged child could affect union attitudes is through exposure to the strikes and walkouts. This assumption is potentially more problematic, especially for the outcomes most directly related to the teachers and their unions. Parents of just-school-aged children may have other reasons for supporting teachers and their unions independent of the strikes by virtue of parents' relationships to schools or because of their knowledge about the school system. We can indirectly test this concern by subsetting our analysis to only those parents who have at least child who has likely

graduated high school (older than 18), as this group of parents presumably has developed knowledge and investment in schools already and therefore the only difference is between their additional likelihood of exposure to the strikes from having a child in school. Doing so for our measure of strike interest, we find that exposure to strikes continues to be correlated with more interest in striking.[25] While not a definitive test, it does suggest that having additional exposure to the strikes above and beyond having previously had a child in school leads to different views on teachers and their unions. Our examination of mechanisms below further suggests that having a just-school-aged child did not change how parents were thinking about schools or their knowledge about schools but rather how parents thought about how teachers were fighting for improvements to their broader community.

A final question is *who* changes their minds about unions as a result of the mass teacher strikes.[26] Focusing on interest in going on strike at one's job, we find that our results are driven by individuals who were least likely to support unions before the strikes: conservatives, Republicans, those who were never union members, and those who did not have family or friends in the labor movement. Table 6 provides illustrative results, looking at the difference in the effect of having a just-school-aged child on strike interest by political ideology, partisanship, and knowing a union member personally (using the narrowest child age window of 4-6 and 16-18). These results lend support to a theory of persuasion: it was individuals who might not have otherwise supported or been interested in unions who gained the most from the strikes as they thought about their own jobs and what unions could do for them. (In results we do not report, we also find that our results tended to be stronger for other demographic groups correlated with

[25] Coefficient on just-school-aged child indicator: 0.36, standard error: 0.23; observations=106.

[26] We do not have the statistical power to distinguish between strike effects by state.

these characteristics, especially white, rather than non-white respondents, and older respondents, especially 58 and older.) The results from this subgroup analysis may also reflect ceiling effects, since liberals, Democrats, and individuals with personal relationships to the labor movement were already strongly supportive of unions and the walkouts.

Table 6: Effect of Just-School-Aged Child on Strike Interest, By Subgroup

	Go on Strike (1-5)							
	Partisanship			**Ideology**			**Know Union Member**	
	Rep.	Ind.	Dem.	Lib.	Mod.	Cons.	No	Yes
Just-School-Aged Child	0.633* (3.04)	0.0119 (0.04)	0.0724 (0.27)	0.152 (0.49)	0.114 (0.47)	0.523* (2.92)	0.527* (3.15)	-0.0136 (-0.06)
N	265	180	222	213	201	253	325	342

Notes: OLS regressions. *t* statistics in parentheses; * $p<0.05$. Survey weights applied. Only 4-16; 16-18 age cut-off window used. Only employed respondents included.

Mechanisms for Persuasion

Why did the parents most exposed to the strikes become more favorable toward teachers and their unions and more interested in labor action at their own workplaces? We see the strikes as offering new information to parents, and spell out four distinct but related types of information that teachers and unions might have provided.

The first mechanism is *information about the strikes and unions*: parents with just-school-aged-children may simply have been more likely to recognize that the strikes were happening and that they involved teachers and their unions. The second mechanism is *information about school quality*: the strikes may have raised awareness about the poor quality of public schools among parents. The third mechanism is *information about individual teachers' experiences* with poor educational resources and compensation, communicated firsthand by teachers themselves. And the fourth mechanism is *information about what teachers and their*

unions were doing to fight for public goods that would improve public schools and their broader communities. To preview our results, we find minimal evidence for the first three mechanisms and much stronger evidence for the last channel.

To assess the first mechanism, we turn to the free response item that we asked respondents to complete before the start of the survey. The item asked respondents what they recalled a union doing recently (importantly, before being cued to think about the teacher strikes). We first coded any response that included the words "don't know" or "not sure," indicating that individuals could not recall off of the top of their heads something about unions. About 70% of respondents used these words. We also separately coded whether respondents mentioned concepts related to strikes or walkouts (13% of respondents used these words) or teachers or schools (7% of respondents used these words).[27] If the strikes were changing opinion by simply providing more information to parents about the strikes and walkouts themselves, then we should see parents of just-school-aged-children being less likely to say that they could not remember anything about unions and more likely to remember the teacher strikes specifically. As we indicate in Appendix 5, this is not what we find. Parents of just-school-aged-children were no more likely to recall unions or strikes in their text, nor were they more likely to mention teachers or schools in their responses. The changes in opinion we document thus cannot be attributed simply to the fact that parents with just-school-aged-children were more likely to remember the strikes or unions or teachers in general.

[27] Strike-related words included strike, walk, shutdown, picket, organiz, march, rally, protest. Teacher and school related words included: teach, school, class, student, red 4, educa, denver, angeles, arizona, colorado, virginia, kentucky, oklahoma, carolina.

To test whether the strikes were conveying information about school quality to parents and whether this information changed parents' opinions about teachers and their unions, we turn to a survey item in which we asked parents to rate public schools in their community from A to F (with a not sure option).[28] If the strikes were conveying new information about the poor quality of schools in the affected states, we should see parents of just-school-aged-children being more likely to assign a lower grade to public schools, and to be less likely to indicate that they did not hold an opinion on this issue. In Appendix 6, we show that parents of just-school-aged-children did not have statistically distinguishable opinions about public school quality from parents of younger or older children. Parents of just-school-aged-children were also no more likely to hold any opinion about the quality of their public schools than parents with younger or older children. It does not appear to be the case that the striking teachers were moving parents' opinions by conveying new information about the quality (or lack thereof) of public schools. (This test also somewhat addresses concerns about the exclusion restriction in our IV results, indicating that parents with just-school-aged children did not have systematically different opinions, or were more knowledgeable, about their schools.)

For the third mechanism, involving information about teachers' individual experiences, we looked to see whether parents of just-school-aged-children were more likely to indicate that they heard about the strikes from a teacher or a union, using the "heard from" item we described

[28] Question text: "Students are often given the grades A, B, C, D, and Fail to denote the quality of their work. Suppose the public schools themselves were graded in the same way. What grade would you give the public schools in your community?" The modal response was a C, and 89% of respondents expressed an opinion.

above. Although this is only an indirect measure of information about teachers' personal experiences, we believe that it captures the channel through which such experiences would be shared with parents. In Appendix 7, we show that parents of just-school-aged-children were no more likely to indicate that they had heard about the strikes directly from teachers than were parents with older or younger children. Accordingly, it seems unlikely to be the case that conversations with individual teachers were driving changes in parents' attitudes towards those teachers and their unions.

Lastly, we probed whether parents were learning about the public goods that teachers and unions were providing to schools, parents, children, and their communities. We did this by looking for words in the free response text item related to unions' efforts to raise working standards, education spending, classroom resources, and school conditions.[29] In all, only 6% of respondents mentioned these concepts, but as we indicate in Appendix 5, these concepts were disproportionately mentioned by the parents of just-school-aged-children. These parents were especially likely to invoke phrases like "getting more funding for schools" or "bringing the community together" alongside "fighting for better teacher pay" and "fighting for education budget increases." In all, parents of just-school-aged-children were about three to five percentage points more likely to mention such phrases than were parents of younger or older children. We thus hypothesize that what made the teachers strikes so effective at moving public opinion was not necessarily the fact that the workers were on strike or that teachers were talking individually to parents. Rather, what seems to have mattered was *what* teachers were conveying to parents,

[29] Public goods related words include: student, class, fund, spend, condit, increas, better, higher, rais, protect, comm, fight, great.

and more specifically, how unions were fighting for better conditions for themselves *and* for parents, children, and their broader communities. These messages, we posit, were especially likely to have been persuasive to parents who only had negative stereotypes about unions before the strikes and who might have thought about unions as narrow, self-interested organizations. That hypothesis is consistent with the fact that we find our largest effects among Republicans, conservatives, and individuals without personal connections to the labor movement.

Indeed, a qualitative review of the striking teachers' activities underscores how leaders prioritized political education among parents. As Eric Blanc writes in *Red State Revolt* (2019, 78), teachers were aware that the success of their strikes depended on the support of local parents and students, and were concerned that they would be seen as having "walked out on students." In West Virginia and Arizona, teachers thus "took every opportunity for discussion with parents, explaining that educator working conditions were students' learning conditions" (Blanc 2019, 78).

The important point for our analysis is that teachers seemed particularly concerned about communicating the public benefits of the strike to parents and students attending their schools, who might have been adversely impacted by the inconvenience of school closures. This was apparently the strategic thinking behind actions such as the massive "walk-in" that Arizona teachers organized on April 11, 2018, when more than 100,000 teachers, parents, students, and others marched together into their local schools in support of teachers' demands (Blanc 2019, 176; Russakoff 2018). Teachers' strategic decision to focus political education on the parents of children in their schools may thus explain why parents with just school-aged children were more likely to discuss the public benefits of the strikes.

We have examined the political consequences of large-scale teacher strikes, studying how firsthand exposure to these mobilizations changed the attitudes and preferences of the mass public. Across a range of specifications and approaches, we find evidence that closer firsthand exposure to the strikes—as measured by respondents' own reports or by the relatively exogenous variation provided through children's enrollment in school—led to greater support for the walkouts themselves, more support for legal rights for teachers and their unions, and especially greater personal interest in strikes in people's own jobs, though not necessarily through traditional unions.

Returning to the theoretical expectations we outlined above, our results indicate that the teacher strikes appear to have changed the sense of linked fate between teachers and the communities in which they live and work, successfully framing their demands as benefiting a broader set of interests beyond teachers' narrow occupation. The results regarding workers' interest in undertaking labor action in their own jobs also suggests strong evidence in favor of the public inspiration and imitation hypothesis, reaffirming the role that social movements and mobilizations can play in teaching non-involved members about the movement and tactics. Still, an important caveat to these findings is that strike-exposed parents were not more likely to say that they would vote for a traditional union at their jobs, possibly reflecting the fact that the strikes emphasized individual teachers and not necessarily teachers unions as organizations. It may also reflect the fact that respondents still do not have a good idea of what unions *at their own jobs* might provide for them, as opposed to what teachers unions can offer to their members or to their communities.

Before we discuss the broader implications of our findings for the understanding of the labor movement, we briefly review and address several caveats to the interpretation of our results. One concern is whether the results we identify from a single survey can speak to enduring changes in public opinion about the strikes and unions. Given the timing of the teacher strikes in the first half of 2018, our respondents were reflecting on events that happened seven to twelve months in the past. We therefore think that our results represent more durable changes in opinion as a result of the strikes, in line with other studies of historical mobilizations and long-term changes in attitudes (e.g. Mazumder 2018). Nevertheless, follow-up studies should examine how opinion towards, and interest in, unions evolves in the mass teacher strike states, and it would be especially interesting to understand if unions began capitalizing on the interest in the labor movement that the strikes have generated.

Another question is how to generalize from our results to other strikes and labor actions. Although it is beyond the scope of this paper to develop and test a more general theory of strike action, we tend to think of the teacher strikes we study in this paper as forming an especially hard test for generating linked fate and mass public support. The affected states had relatively weak public sector labor movements, meaning that few individuals had personal connections to unions, and were also generally conservative and Republican-leaning, further cutting against the receptivity of the public to the teachers' demands. And lastly, the type of work we study—teaching—involves close interaction with a very sympathetic constituency: children and their parents. This should make strike disruptions more controversial and increase the likelihood of political backlash. Since we find public support in this context, we feel comfortable arguing that strikes can be successful in even more favorable contexts (i.e. stronger union states), especially if the involved employees can successfully leverage close connections to the clients and customers

they serve and connect their grievances to the interests of the broader community. The flip side of our argument is that strikes are less likely to be successful—and may produce backlash—when the mass public views striking workers' demands as illegitimate or opposed to their own interests. We suspect our results would be most applicable to public sector employees similar to teachers (like social workers) and private sector employees that have close relationships to their customer base (especially service-sector occupations; Hochschild 1983).

More specifically, our results suggest that future strikes on their own are unlikely to change public opinion if all they do is to provide information about workers' grievances or disrupt work routines. Our analysis of the mechanisms driving our results suggests that it was not information about poor school quality or the strikes themselves that changed parents' minds. Rather, it was the information about how unions were providing broader public goods to their communities that was most persuasive. This intuition is further underscored by the fact that we found effects in states where there were *both* full-blown strikes as well as states with rolling walkouts and non-strike actions. We anticipate that strikes or walkouts that adopt a similar strategy—similar to the notion of "bargaining for the common good"—would be most likely to register effects like ours in the future (McCartin 2016). Notably, that is exactly the strategy deployed by teachers in Los Angeles, who spent several years building ties to community members and explaining the broader benefits a stronger union could offer to their community in the run-up to a strike in early 2019 (Caputo-Pearl and McAlevey 2019).

In all, our results complement a long line of work arguing for the primacy of the strike as a tactic for labor influence (e.g. Burns 2011; Rosenfeld 2006; Rubin 1986). While this literature generally has focused on the economic consequences of strikes, we have shown that strikes can also have significant effects on public opinion. Although private sector strikes have long sought

to amass public support, political strikes are even more important for public sector labor unions, given their structure of production and the fact that their "managers" are ultimately elected officials. But how should we view strikes relative to the other strategies that public sector unions might deploy in politics, like campaign contributions, inside lobbying, or mobilization of their members (cf. DiSalvo 2015; Moe 2011)? Given the large cost of mass strikes in terms of time and grassroots organizing, we expect that public sector unions will be most likely to turn to political strikes (like the 2018 teacher walkouts) when these other lower-cost inside strategies are unsuccessful *and* when their demands are popular in the mass public. Under these circumstances, government unions have every reason to broaden the scope of conflict to include the mass public (cf. Schattschneider 1960). But when unions can deploy less costly activities (like simply having a lobbyist meet with lawmakers) or when they are pursuing demands that are more controversial with the public, we suspect that unions will opt for less public-facing strategies (on the logic of inside versus outside lobbying more generally, see e.g. Kollman 1998). Indeed, our results complement work by Terry Moe and Sarah Anzia describing how teachers' unions work through low salience and low visibility strategies, like capturing school boards, pension boards, or education bureaucracies, when they are pushing policies that tend not to be supported by the public (Anzia 2013; Anzia and Moe 2015; Moe 2011).

Our results have a final implication for thinking about the historical development of the labor movement: they suggest that the decline of strikes we tracked in Figure 1 may form a vicious cycle for the long-term political power of labor. As we have documented, strikes seem to be an important way that people form opinions about unions and develop interest in labor action. As strikes *and* union membership have declined precipitously over the past decades, few members of the public have had opportunities to gain firsthand knowledge and interest in unions.

Moreover, strikes appear to foster greater interest in further strikes, feeding on one another. If unions are to regain any economic or political clout in the coming years, our paper suggests that the strike must be a central strategy of the labor movement.

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Do Teacher Strikes Make Parents Pro- or Anti-Labor?
The Effects of Labor Unrest on Mass Attitudes

Appendices for online publication only

Appendix 1: Comparison of Survey Sample with Demographic Targets in Current Population Survey (2017-2018 data) and CCES (2016)

Characteristic	Survey %	Weighted Survey %	CPS %
Female	58%	52%	52%
Hispanic	12%	14%	14%
18-29	19%	21%	21%
30-41	27%	20%	20%
42-53	22%	20%	20%
54-64	18%	19%	19%
65+	13%	21%	21%
White	82%	82%	82%
Black	11%	10%	10%
Am. Indian	3%	3%	3%
Asian	4%	3%	3%
HS or Less	37%	40%	40%
Some College	31%	29%	29%
College	20%	20%	20%
More than BA	11%	10%	10%
AZ	21%	21%	21%
CO	17%	18%	17%
KY	13%	13%	13%
NC	31%	30%	31%
OK	12%	12%	12%
WV	6%	6%	6%

Characteristic	Survey %	Weighted Survey %	2016 CCES %
Strong Republican	18%	19%	19%
Not strong Republican	11%	10%	13%
Independent, lean Republican	10%	10%	11%
Independent	25%	24%	18%
Independent, lean Democrat	11%	11%	9%
Not strong Democrat	9%	10%	11%
Strong Democrat	16%	17%	19%
Republican	39%	39%	43%
Independent	25%	24%	18%
Democrat	36%	37%	39%
Attended political meeting	9%	9%	10%
Put up a political sign	14%	13%	18%
Worked for a candidate or campaign	4%	4%	5%

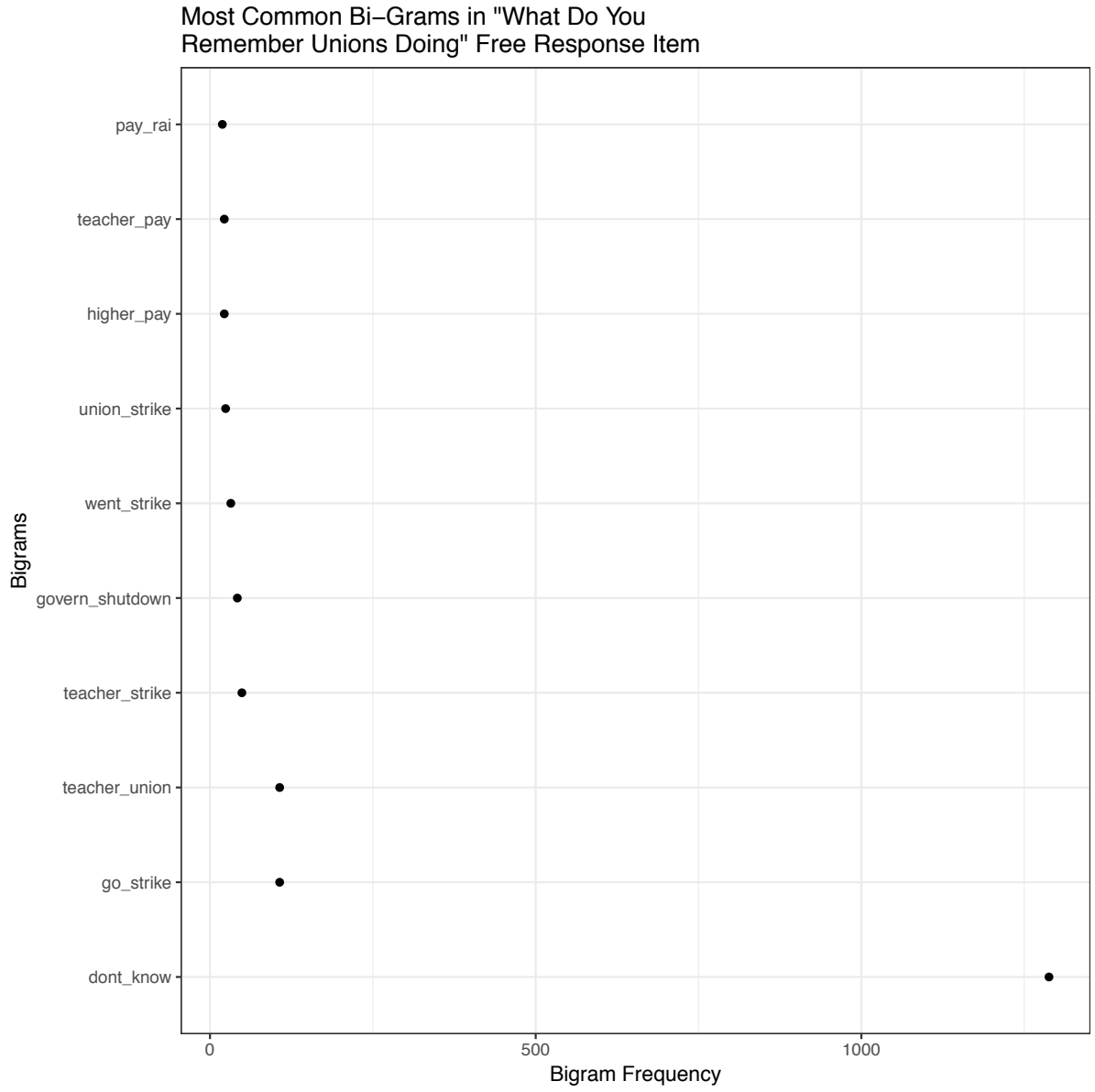
Appendix 2: Complete Survey Instrument

The complete survey instrument is available at this link:

https://www.dropbox.com/s/wmga7ymit63kr7r/2018_Teacher_Walkout_Survey.docx

Appendix 3: Free Response Items

Were the Walkouts Top of Mind for Respondents When Thinking About Unions? Before we gave items about the walkouts, we asked respondents "In just a few words, what do you remember a union doing recently?" Respondents could then provide a short answer in a text box. Although the most common bi-grams involved variants on "don't know", a significant proportion of respondents indicated that they were thinking about the teacher strikes in LA or in their state in the previous year as shown below. Some respondents also pointed to the government shutdown and labor actions by federal employees, including TSA security officers and air traffic controllers. We interpret these responses as indicating that for a large number of respondents in the walkout states, the strikes remained highly salient and top of mind as they were thinking about unions and the labor movement. 96% of respondents provided answers of at least seven characters.



Appendix 4: Control Variable Specification

- Political ideology (on a seven-point scale)
  - *Below is a seven-point scale on which the political views that people might hold are arranged from very liberal to very conservative. Where would you place yourself on this scale?*
- Index of economic liberalism (average on a one through five scale)
  - Average of following three items:
    - *Would you support or oppose raising the national minimum wage to $15 an hour?* (1-5 response)
    - *How strongly do you agree or disagree with the following statement: The government should reduce income differences in the United States?* (1-5 response)
    - *How strongly do you agree or disagree with the following statement: Differences in income in America are too large?* (1-5 response)
- Children
  - Binary indicator for having children
- Gender
  - Binary indicator for female (as opposed to male or other)
- Age
  - In years
- Race and ethnicity
  - Binary indicators for white and Hispanic
- Logged family income
  - Item provided 12 options, ranging from $10,000 or less to $200,000 or more
- Education
  - Up to some high school
  - High school or equivalent (GED)
  - Some college
  - Associates degree
  - College
  - Graduate or professional school
- Current union member
  - Binary indicator for member
- Reporting friend or family member as union member
  - Binary indicator
  - *Do you have a friend or family member who has ever been a member of a union or a teachers association?*
- Religious attendance (six-point scale)
  - *Aside from weddings and funerals, how often do you attend religious services?*

Appendix 5: Free Response Analysis – "What do you remember a union doing recently?"

	Text: Don't Know	Text: Don't Know	Text: Strike or Walkout	Text: Strike or Walkout	Text: Schools or Teachers	Text: Schools or Teachers	Text: Unions	Text: Unions	Text: Public Goods	Text: Public Goods
Panel A: Firsthand Walkout Experience										
Firsthand Walkout Experience	-0.121*	-0.0945*	0.0626*	0.0510*	0.0361*	0.0280*	0.0633*	0.0486*	0.0415*	0.0331*
	(-6.63)	(-5.14)	(4.55)	(3.60)	(3.58)	(2.65)	(4.76)	(3.53)	(4.83)	(3.68)
State FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	N	Y	N	Y	N	Y	N	Y	N	Y
N	4468	4380	4468	4380	4468	4380	4468	4380	4468	4380
Panel B: Heard about Walkouts from Unions/Teachers										
Heard from Union/Teachers	-0.114*	-0.106*	0.05318*	0.0532*	0.0585*	0.0579*	0.0585*	0.0506*	0.0356*	0.0253*
	(-4.87)	(-4.67)	(2.93)	(2.91)	(3.97)	(3.91)	(3.27)	(2.86)	(2.86)	(1.98)
State FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	N	Y	N	Y	N	Y	N	Y	N	Y
N	3632	3589	3632	3589	3632	3589	3632	3589	3632	3589
Panel C: Reduced Form Estimates - 4-6, 16-18 child window										
Just School Aged Child	-0.0168	-0.0319	0.0205	0.0289	-0.00746	0.00280	-0.0227	0.00540	0.0339*	0.0460*
	(-0.40)	(-0.73)	(0.68)	(0.89)	(-0.30)	(0.11)	(-0.44)	(0.13)	(2.11)	(2.57)
State FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	N	Y	N	Y	N	Y	N	Y	N	Y
N	1022	1006	1022	1006	1022	1006	1022	1006	1022	1006

Notes: OLS regressions. *t* statistics in parentheses; * $p<0.05$. Survey weights applied.

Appendix 6: Perceptions of School Quality

	Panel A: Firsthand Walkout Experience			
	(1)	(2)	(3)	(4)
	School Grade (1-5)	School Grade (1-5)	Has Opinion on School (0/1)	Has Opinion on School (0/1)
Firsthand Walkout Experience	-0.0236	-0.0765	0.139*	0.110*
	(-0.55)	(-1.76)	(10.64)	(8.68)
State FE	Y	Y	Y	Y
Controls	N	Y	N	Y
N	4063	4003	4468	4380
	Panel B: Heard about Walkouts from Unions/Teachers			
Heard from Union/Teachers	0.0606	-0.0101	0.0665*	0.0463*
	(1.21)	(-0.20)	(5.86)	(4.16)
State FE	Y	Y	Y	Y
Controls	N	Y	N	Y
N	3376	3342	3632	3589
	Panel C: Reduced Form Estimates - 4-6, 16-18 child window			
Just School Aged Child	0.0637	0.0562	0.00549	0.0176
	(0.69)	(0.61)	(0.24)	(0.79)
State FE	Y	Y	Y	Y
Controls	N	Y	N	Y
N	971	956	1022	1006

Notes: OLS regressions. *t* statistics in parentheses; * $p<0.05$. Survey weights applied.

Appendix 7: Hearing from Teachers/Unions Firsthand

	Reduced Form Estimates - 4-6, 16-18 child window	
	(1)	(2)
	Heard from Teacher/Union (0/1)	Heard from Teacher/Union (0/1)
Just School Aged Child	0.0262	0.0346
	(0.50)	(0.67)
State FE	Y	Y
Controls	N	Y
N	852	843

Notes: OLS regressions. *t* statistics in parentheses; * $p<0.05$. Survey weights applied.