Overcoming the Protestor's Dilemma: How Teacher Strikes Demobilize Opponents

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Abstract

The "Protestor's Dilemma" refers to the paradox faced by protestors where their disruptive actions, while necessary to gain public attention and support, could potentially provoke backlash and weaken the very support they seek to gain. How can protestors overcome this dilemma? Teacher strikes point toward a potential path forward. To examine how strikes impact political behavior, we use an original, hand-collected dataset of teacher strikes from 2007-2020, combined with voter turnout information. We use a differences-in-differences approach, finding that teacher strikes demobilize opponents (in this case, Republican voters). Notably, they do so without violence or long-running shutdowns that might countermobilize third parties. Such non-violent, short disruptions may provide a pathway to overcoming the protestor's dilemma.

Introduction

Strikes are inherently political. Strikes are, like all forms of protest, "mode[s] of political action oriented toward objection to one or more policies or conditions, characterized by showmanship or display of an unconventional nature, and undertaken to obtain rewards from political or economic systems while working within the systems" (Lipsky 1968, p.1145). The "showmanship" of strikes and other forms of protest have the capacity to "expand the scope of conflict" by providing a powerful signal that draws in allies *or motivates foes* that might not have otherwise engaged with the issues at the center of the strike or protest action (Schattschneider 1960). The potential for opposition is key—these actions are costly endeavors that disrupt the daily lives of local residents and risk irritating members of the public who are not the targets of the protest but are nevertheless affected (Gourevitch 2018). Protestors must capture public attention and gain public support (Lipsky 1968), but disruptive actions they take to capture attention may provoke backlash. In this way, strikers, like all protestors, experience a dilemma; the same actions that help them gain public attention risk driving away potential supporters. We call this "the Protestor's Dilemma."

A small but growing literature has provided empirical evidence regarding this dilemma, finding that protests inspire political mobilization amongst both allies and opponents, depending on the study. Gillion and Soule (2018) show that protestors' partisan allies benefit in subsequent elections; specifically, protests focusing on more liberal issues increase Democratic vote share and vice versa. Supporting this, Madestam and colleagues (2013) find that Tea Party Movement protests increased support for Tea Party stances and Republican vote share. Yet the protest's disruptiveness, regardless of its topic, may impact whether protestor allies or opponents benefit at the ballot box and whether the public decides to turn out at all. Wasow (2020) shows that more

peaceful civil rights protests helped Democrats while more disruptive protests paid off for Republicans. In contrast, Enos, Kaufman, and Sands (2019) find that the (very disruptive) LA Riots did not have a negative effect, instead increasing turnout and support for policy issues benefitting protestors. Similarly, Boehmke and colleagues (2023) find that individuals living close to BLM protests showed greater support for the Black Lives Matter (BLM) movement (amongst Republicans) and for protestor's demands (amongst Democrats). Contradicting the aforementioned studies, Engist and Schafmeister (2022) provide evidence that the BLM protests had no impact whatsoever on voter registrations, even where it was more disruptive.

Strikes, one disruptive form of protest, have not been addressed in this literature. Public sector strikes are particularly inconvenient to daily life because "third parties"—those who are not the targets of protest but nevertheless affected (Lipsky 1968)—rely on halted services that are funded by taxpayer dollars. Different from some other forms protest, however, contemporary strikes are rarely violent, capturing public attention through service disruptions and picket lines. In theory, such actions may increase political participation by mobilizing voters in support and/or opposition to striking workers (Lipsky, 1968). Yet, strikes could demobilize third parties by providing a sense that voting makes no difference because changes require more dramatic efforts and/or that established special interests get their way regardless of who is in office (Hibbing and Theiss-Morse 2002).

In this paper, we examine how teacher strikes affect political behavior. Teacher strikes are an ideal case to examine the impact of strikes on participation because teachers are important to society at large and to the U.S. labor movement specifically. Teachers comprise 37% of public sector union members in the US and 18% of all union members (Hirsch, Macpherson, and Even 2024), and they are often used as a case to understand public sector unions generally (Finger

2019; 2018; Hartney and Flavin 2011; Finger and Hartney 2019; Flavin and Hartney 2015; Lyon and Kraft 2024; Lyon, Hemphill, and Jacobsen 2022; Moe 2005; 2006; 2009; Anzia and Moe 2016; Paglayan 2019; Hertel-Fernandez, Naidu, and Reich 2021). Teacher strikes are also a "most likely" case for affecting political behavior because they are highly salient. They shut down public schools, directly impacting millions of students and parents. For these reasons, we would have good reason to expect that teacher strikes would impact political participation. Finally, there have been hundreds of teacher strikes over the past 15 years in geographically diverse locations, making for useful variation at a relatively high level of granularity.

We use an original, hand-collected dataset of 716 teacher strikes from 2007-2020. As detailed below, this data collection process relied primarily on the systematic review of roughly 90,000 news articles uncovered through Boolean searches on ProQuest and Google. We combine these data with both county-by-year-level turnout data from the National Neighborhood Data Archive (NaNDA) and individual-level turnout and public opinion data from the Cumulative Cooperative Election Study (CCES). To analyze the causal effects of strikes on political participation, we use a modified differences-in-differences (DiD) approach leveraging the variation in strikes across counties and over time. Our results are robust to a variety of DiD specifications, including those that account for potential biases due to staggered treatment timing and treatment effect heterogeneity (Goodman-Bacon 2021).

On average, teacher strikes lead to decreases in voter turnout, and the effect is concentrated among Republicans. Strikes decrease Republican turnout by roughly 3 percentage points (pp), on average. Effects are even larger for Republican parents, who are 5 pp less likely to vote as a result of strikes. These effects are strongest in midterm elections, when they reduce the turnout of Republican parents by 8 pp. The demobilizing effect of strikes on Republicans

seem to be driven by strike-induced decreases in support for teacher demands and in political efficacy. Strikes only very slightly reduce Democrats' propensity to vote (by less than 1 pp), an effect driven by Democratic parents, and they heighten the frequency with which Democrats engage with government and public affairs.

This study contributes new knowledge on the political effects of teacher strikes and the nuanced ways that protests affect politics. Much of the prior research on recent teacher strikes has highlighted how they lead people to become more sympathetic to teachers (Hertel-Fernandez, Naidu, and Reich 2021; Cheng et al. 2018), capture the attention of political elites, increase educational expenditures (Lyon and Kraft 2024), and spur teachers to run for public office (Lyon, Hemphill, and Jacobsen 2022). Our findings complicate this narrative, emphasizing the importance of partisan affiliation and exposure in understanding how third parties react to strikes in their communities. Strikes lower both political efficacy and voter turnout among those predisposed to oppose labor and those most reliant on the service in question. On the other hand, strikes increase political interest for groups that are traditional allies of striking workers, potentially because they lead to policy outcomes that these groups prefer (Lyon and Kraft 2024).

More broadly, this research provides new insight into how protests shape politics. Protestors face a dilemma in that they need to capture the attention and the support of the public (Lipsky 1968), but in order to capture attention, protests may require violence or harm that loses them some support (Gourevitch 2018). The presence of violence can lead to backlash against protestors, as Wasow (2020) finds. Our findings on the demobilizing effects of teacher strikes for Republicans and parents provide an important contribution to this debate. Teacher strikes are rarely violent but nevertheless able to affect politics, perhaps because they shut down public services. It is noteworthy that these disruptions to public services do *not* effectuate backlash,

perhaps because teacher strikes tend to be short (the median strike is two days long). Teacher strikes provide dramatic spectacles that demobilize opponents without violence or long-running shutdowns that might countermobilize third parties. Such non-violent, short disruptions may provide a pathway to overcoming the protestor's dilemma.

Theory

How do strikes and other forms of political protest impact the political participation of third parties? We theorize that the influence of strikes on the voting behavior of third parties runs primarily through psychological engagement, meaning people's desire to get involved in politics. Brady, Verba, and Schlozman (1995: 271) articulate that without psychological engagement, individuals are less likely to participate politically because they have, "a lack of interest in politics, minimal concern with public issues, [and] a sense that activity makes no difference." We expect that strikes and other forms of protests could either increase *or decrease* third parties' psychological engagement in politics, and prior empirical findings diverge on the expected direction of protest effects.

Strikes Might Increase Participation

Amongst Supporters

Strikes might provide information that encourages third parties to participate politically. Gillion (2020: 29) explains that "protest activities can educate the public on the particular details of an issue and unique ways it affects their community." There is evidence that protests have this effect. The 2006 immigration protests made the plight of the undocumented salient, influencing attitudes in favor of undocumented immigrants (Branton et al. 2015; Carey, Branton, and Martinez-Ebers 2014). The 1992 L.A. Riots led white voters to vote for spending on public goods in local referenda; Enos, Kaufman, and Sands (2019) theorize that it provided

informational cues on the needs of African American communities, leading to support and increased political participation. Similarly, Mazumder (2018) finds that whites in areas with civil rights protests became more likely to identify as Democrats and more in favor of affirmative action.

In the case of strikes, the pertinent issues might be those that the strikers are striking over, like poor working conditions, leading third parties to participate in support of these issues. Hertel-Fernandez, Naidu, and Reich (2021) find that parents that experience teacher strikes express more support for the striking teachers and for unions. We would expect strikes to be more informative to the public where strikes are in the public sector, since the service in contestation is itself a policy area (Lyon and Kraft 2024). Strikes may also affect local political behavior by encouraging workers themselves to participate politically as a result of new information about local workforce issues (Hertel-Fernandez 2019), improved civic skills (Francia and Orr 2014; Macdonald 2019; Schlozman 2012; Sojourner 2013; Terriquez 2011), and greater political efficacy (Lyon, Hemphill, and Jacobsen 2022).[1] Altogether, this research suggests that strikes might illustrate the plight of those engaged in labor action, leading residents to develop favorable attitudes toward the strikers' demands and feel compelled to get involved in politics.

Amongst Opponents

In contrast, strikes could spark political participation through backlash (Patashnik 2023; Gillion 2020). Where third parties would be adversely affected by strikers' policy demands, strikes may make these unwelcome demands salient and lead third parties to become mobilized.

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[1] We considered but could not investigate this empirically. An industry variable is included in the yearly CCES dataset only beginning in 2011. Additionally, the industry is not specific enough to be useful; teachers are one of many occupations in the "Education Services" industry.

For example, teachers often demand increased spending and higher salaries when they strike (Lyon, Kraft, and Steinberg 2024). Teacher strikes might spur residents opposing property tax increases to vote against such expenditure increases. Negative reactions to demanded policy changes would be compounded by the perception that strikers are undeserving. Public sector workers are sometimes viewed as spoiled, lazy workers that don't do enough to earn their generous salaries and benefits, which are funded by hardworking taxpayers (Cramer 2014; 2016), and the unions that represent them are often are seen as privileged special interests (Schneider and Ingram 1993). Accordingly, protests by such public employees lead to "visceral, negative reaction[s]" (Cramer 2016: 193) among people with such views. That said, teachers and women (who are a large share of teachers) are seen positively, so this might outweigh the negative perception of unions (Schneider and Ingram 1993).

Another way that strikes could spur backlash is through disruption, which could color how strikers' demands are portrayed and understood. Wasow (2020) finds that peaceful civil rights protests receive more sympathetic media coverage and higher Democratic vote share, while violent protest coincides with the public seeing "social control" as the most important problem in the U.S. and lowers Democratic vote share. In the same vein, Rojas (2006) finds that more disruptive university protests are less likely to have their demands met. Studies of the BLM protests, however, disagree regarding whether the violence and disruption had a positive or negative effect on public opinion toward protestors and their goals (Mclaren and Walker 2024; Shuman et al. 2022), or on political participation at all (Engist and Schafmeister 2022).

Strikes are a particularly disruptive form of protest; in his argument for the right to strike, Gourevitch (2018: 906) points out that strikes are essentially a violation of basic liberties, such as "the property rights of owners and their managers…they threaten the everyday, background

sense of public order." Because they directly impact public services that everyone enjoys, we might expect public sector strikes to lead to a higher degree of backlash. Striking air traffic controllers, for instance, can halt flight traffic, likely influencing how the public views their policy demands. The infamous Professional Air Traffic Controllers Organization (PATCO) strike led Reagan to fire 11,000 workers, creating a legacy of strike impotence and managerial dominance that unionized workers have struggled to overcome (McCartin 2013; Patashnik 2023; Massenkoff and Wilmers 2024; Rosenfeld 2006). Similarly, teacher strikes shut down public schools, halting public service delivery resulting in lost instructional time, custodial care, breakfast and lunch provision, and other taxpayer funded services. Strikes causing substantial lost instructional time negatively affect student outcomes (Baker 2013; Johnson 2011; Jaume and Willén 2019; Lyon, Kraft, and Steinberg 2024).

Though they are disruptive, unlike other disruptive forms of protest, teacher strikes are rarely violent, probably because they don't need to be. They impose costs by shutting down schools, so they have a guaranteed mechanism for public exposure through communications media. Still, they are highly disruptive and could lead third parties to perceive workers' demands negatively, potentially spurring political participation in opposition to their goals.

Whether through more positive or negative attitudes toward strikers' situation and policy demands, there is reason to believe that witnessing a strike could spur voters to turn out. This leads us to our first hypothesis:

> *H1: People experiencing strikes will be more likely to turn out to vote than those that do not experience strikes.*

Heterogeneous Effects

In both cases—whether through information about the plight of workers or through information about workers' disruptiveness or the adverse consequences of their demands—the impact of strikes should be greatest on the people that rely on the strikers' services. In the case of teacher strikes, this would be parents (Hertel-Fernandez, Naidu, and Reich 2021). Parents are most in touch with teachers and would have to find alternative arrangements for their children when schools shut down.

> *H1a: The mobilizing effect of strikes on turnout will be greater for those that rely on strikers in comparison to those that do not.*

We might also expect the effect of strikes on turnout to depend on the partisanship of third parties. Gillion (2020: 34) explains that in our era of polarization, protests are viewed through ideological lenses, since polarization helps people "distinguish a general partisan political line and align themselves with the side that more closely mirrors their own ideological orientation." Moreover, political parties may amplify the salience of a protest. In the case of strikes, unions are longtime allies of Democrats (Feigenbaum, Hertel-Fernandez, and Williamson 2018; West 2008), and often their demands coincide with policies supported by Democrats. Thus, the information provided through strikes may further motivate Democrats to participate politically in support of labor. The inverse is true for Republicans, longtime labor foes.

Moreover, coverage of strikes in the media likely looks different in liberal or conservative-leaning outlets, and it is well known that left and rightwing voters get their media from different sources (Allcott and Gentzkow 2017; Gentzkow and Shapiro 2011). The latter media are likely more prone to anti-union rhetoric, which may lead to beliefs that unions are less deserving (Kane and Newman 2019). Regardless of whether one's partisanship leads them to react to strikes by supporting or opposing labor issues, we would expect self-identified

Republicans and Democrats to increase their political participation, relative to those that lack such partisan affiliations.

> *H1b: The mobilizing effect of strikes on turnout will be greater for Democrats than for non-Democrats.*

> *H1c: The mobilizing effect of strikes on turnout will be greater for Republicans than for non-Republicans*

Strikes Might Decrease Participation

In contrast to the above hypotheses, strikes may decrease political participation by providing information about the political process. Third parties may witness strikes and conclude that more can be accomplished outside of traditional channels of political participation. Research on electoral institutions finds that people are less likely to vote where they think their votes would be wasted, like in plurality systems where votes for losing candidates are essentially ignored (Bowler, Lanoue, and Savoie 1994; Karp and Banducci 2008). By vividly illustrating an effective alternative, strikes may exacerbate this sense that efforts are essentially wasted in the voting booth and would better be spent on extra-institutional means of political participation.

Strikes may also provoke disengagement if they are perceived as a private form of policymaking between elites. Institutions that promote political voice, like direct democracy, enhance individuals' sense of political efficacy (Bowler and Donovan 2002; Wolak 2018). Just as direct democracy makes people feel that they have a say in what happens, where people feel that their voice is left out of decision-making—as in the case of strike negotiations they are not involved in—they may feel that the system is rigged, and they may be less inclined to participate politically. More generally, the conflictual, elite nature of politics discourages people from participating politically (Hibbing and Theiss-Morse 2002), and there are few political events as conflictual as strikes.

H2: People experiencing strikes will be less likely to turn out to vote than those that do not experience strikes.

Heterogeneous Effects

As with the mobilizing effect of strikes, the demobilizing effect would be strongest for third parties most directly connected to strikes. People that rely on the services undergoing the strike might feel the most disempowered. For instance, parents who would rather be sending their kids to school but cannot do so due to striking teachers may feel disenfranchised by what they see as a private conflict between elites; they get no say despite the fact that both the service disruption and the matter being negotiated directly affects them.

H2a: The demobilizing effect of strikes on turnout will be greater for those that rely on strikers in comparison to those that do not.

We would expect the demobilizing effect to be greater for Republicans, who would be more likely to view unions as undeserving elites (Cramer 2016). Republicans tend to have more negative views of labor unions (Pew 2024), and right-wing news sources would be more likely to frame strikes as elite negotiations among workers that are already overpaid, likely further emphasizing that the political system doesn't provide voice for regular people (Kane and Newman 2019).

H2b: The demobilizing effect of strikes on turnout will be greater for Republicans than for non-Republicans.

Mechanisms: Policy Attitudes and External Efficacy

We have theorized that strikes would impact third parties' turnout by providing information about striker demands or the political process. In order to disentangle how the information provision of strikes leads third parties to participate politically, we look to attitudes toward strikers' demands. If information about workers' issues encourages pro-labor political participation, we would see respondents supporting strikers' demands. That said, if strikes

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engender opposition to workers and labor amongst third parties, we would see weaker support for strikers' demands among respondents in striking areas. To gauge which of these mechanisms is at work, we test the following sub-hypotheses.

> *H3a: People experiencing strikes will be more likely to support strikers' demands than people not experiencing strikes.*

> *H3b: People experiencing strikes will be less likely to support strikers' demands than people not experiencing strikes.*

We also examine whether the information about the political process provided by strikes shapes third parties' external efficacy, defined as the feeling that one's representatives listen to them and care what they think[2] (Wolak 2018). We do this by looking to third parties' political interest, specifically their desire to follow current affairs, an important element of Brady et al.'s (1995) psychological component of political participation. It is difficult to say how political efficacy would shape interest in public affairs because most studies on the relationship between news consumption and political efficacy examine the latter as an outcome of the former. Nevertheless, Gil De Zúñiga, Weeks, and Ardèvol-Abreu (2017) find that external efficacy is positively related to news consumption. They explain, "The perception that the government is working on everyone's behalf leads people to keep up with information about news and public affairs" (590). Therefore, if strikes educate the public about the political process in a negative way, making them feel as though the system does not represent them, we would see a negative impact on their desire to follow current affairs. However, strikes might do the inverse, communicating that the political process is working and representative of people like them, leading to more interest in current affairs. The latter is most likely where third parties support strikers and their demands.

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[2] In contrast to internal efficacy, which has to do with one's feeling that they are capable of participating politically.

H4a: People experiencing strikes will be more likely to follow current affairs than people not experiencing strikes.

H4b: People experiencing strikes will be less likely to follow current affairs than people not experiencing strikes.

We would most expect strikes to positively influence external efficacy for Democrats. Most strikes end when an agreement is reached between the parties. This usually involves concessions on the part of management, or the government, in the case of public sector strikes. Indeed, teacher strikes between 2007-2018 led to substantial increases in educational expenditures (Lyon and Kraft 2024). Because Democrats are more likely to support teachers' unions, they may feel more satisfied with the political system because of this outcome. They may feel that their public officials are responsive to their preferences. In contrast, we would expect strikes to decrease political efficacy for Republicans, who, as mentioned, would be more likely to see unions and public sector workers as undeserving and the system as rigged against them. Therefore, we test whether the effect of strikes on political interest varies for Republicans and Democrats.

H3a: The positive effect of strikes on interest in following current affairs will be greater for Democrats than for non-Democrats.

H3b: The negative effect of strikes on interest in following current affairs will be greater for Republicans than for non-Republicans.

The Case of Teacher Strikes

Teacher strikes are a valuable case to examine the effects of strikes and other forms of protest on political behavior. Teachers and their strikes are important to society at large. Teacher strikes directly impact the provision of educational services, and education is a local issue that affects society. Teacher strikes shut down schools, halting the provision of public services

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including academic instruction, custodial care of children, health care as administered through school nurses or school-based health clinics, and meal provision.

Teacher strikes are also instructive for conceptual reasons. First, since the 1960s and 70s public sector workers have become increasingly important in the American labor movement, and teachers are particularly significant. Public sector unionization rates are more than five times higher than in the private sector, and across sectors, education, training, and library occupations have the highest unionization rates (Bureau of Labor Statistics 2024). Moreover, teachers' unions are among the most active labor groups in statehouses and national politics, demonstrating their political influence and engagement (Hrebenar and Thomas 1993b; 1987; 1993a; Moe 2011). This means that learning about the effect of teacher strikes helps inform our understanding of labor movement strategies more broadly.

Second, teacher strikes are a "most likely case" for affecting political behavior. Public school teachers are public sector workers on whom millions of Americans rely on daily for custodial care and instruction of their children. Unlike some private sector strikes, local communities are probably keenly aware of public sector strikes. Public sector strikes receive significant media coverage, partly to inform residents about the lack of public services. This is probably all the more true for teacher strikes, since they shut down schools and affect parents who have to take off work to care for their children. Teacher strikes also focus on demands— such as increasing education spending—that are potentially more likely to resonate with a broad local audience, especially parents, school employees, and other voters with a stake in education administration. If any strikes were to impact political participation among third parties, we would see such effects from teacher strikes.

Finally, teacher strikes are an instructive case empirically. Teachers are present in every local community in the United States. There are over 14,000 school districts in the United States, and there have been hundreds of teacher strikes over the past 15 years. The substantial variation in teacher strikes across geographies and over time allows us to estimate effects that are generalizable across the United States.

<div align="center">**Data**</div>

Teacher Strikes

We use an original database of teacher strikes in the United States from July 2007 through 2020. In total, we have documented 716 teacher strikes over this period. We define a teacher strike as a teacher-driven work stoppage resulting in the closure of at least one school in a school district, including both legal and illegal strikes. To create this dataset, a team of researchers comprised of two of the authors and six additional research assistants reviewed roughly 90,000 news articles over more than three years. These efforts involved three primary approaches: (1) 186 Boolean searches on Google producing over 42,500 news articles that our team reviewed, (2) 50 Boolean ProQuest searches of news documents producing roughly 43,500 news articles that our team reviewed, and (3) reviews of all NEA and AFT state affiliate websites once per year in 2021, 2022, and 2023. Additionally, we were able to obtain administrative data from Pennsylvania (2007-8 through 2016-17; retrieved through Freedom of Information Requests) and Illinois (2010-2020; retrieved from the Illinois Educational Labor Relations Board Annual Reports), two states where strikes are relatively common. We also obtained data on teacher strikes provided directly by the Office of the Secretary Treasurer at AFT. Finally, we reviewed the National Bureau of Labor Statistics for additional documentation of teacher strikes,

though their efforts focus exclusively on strikes involving over 1,000 workers, and 97% of school districts employ fewer than 1,000 teachers.

National Neighborhood Data Archive (NaNDA)

To examine the effects of strikes on political mobilization, we first use population data from the NaNDA project out of the University of Michigan Institute for Social Research, which provides turnout and registration rates in all U.S. counties from 2008 to 2018 (Chenoweth et al. 2022). The underlying data are sourced from the Election Administration and Voting Survey (EAVS) and U.S. Census records. The primary outcome is voter turnout, measured as the number of ballots cast as a proportion of the citizen voting age population. We also analyze Republican vote share in presidential elections to better understand whether changes in turnout are concentrated in one political party. We merge these data with our teacher strike dataset at the at the county-by-election-cycle level. This means that individuals were coded as experiencing a strike if it was within their county or a school district overlapping with their county, even if not their actual school district. Striking counties are coded as having experienced a strike in the election cycle of the strike and any subsequent election cycles.

Additionally, we include covariates at the county-by-year level to increase precision. We use a partisanship index created by Chenoweth et al. (2022), which is the average of Democratic vote share in presidential and Senate races over the last six years (mean centered; higher numbers indicate a higher Democratic vote share), since we might expect the area's partisan lean to be related to both the existence of strikes as well as turnout numbers. We also include county-level covariates from the American Communities Survey, including the size of the population (logged), the share of the population that have a school-aged child (%), the share that are Hispanic (%), the share that are African American (%), and median income. Partisanship and

population were missing from .06% of observations, and so we dropped those observations. We show results both with and without controls.

One drawback of the NaNDA data is that the data are only available until 2018, the first year of the #RedforEd teacher strikes. Our primary specification retains these strikes, though we show results dropping them; results are *larger* in magnitude when we do so. A second drawback is that the NaNDA data lack individual-level information on voter turnout and background characteristics, limiting our ability to examine whether strikes differentially affect citizens depending on their partisan identity and degree of exposure to striking workers. We therefore also use individual level data described below.

Cumulative Cooperative Election Study (CCES) Data

We use CCES data spanning elections from 2008-2020 as an additional, individual-level data source. The CCES is a national stratified sample survey that is conducted annually and administered by YouGov (Dagonel 2023; Kuriwaki 2022). We merge the CCES[3] data with our original teacher strike dataset at the county-by-election-cycle level (see Appendix B for details on the merge process). Results are very similar if we instead merge at the zipcode-by-election-cycle level (see Robustness section). We identify an individual as experiencing a strike if there was a teacher strike for a school district that has boundaries that include their county of residence. Individuals in striking counties are coded as having experienced a strike in the election cycle of the strike and any subsequent election cycles.

Our primary dependent variable is validated voter turnout in a general election. To probe mechanisms between strikes and turnout, we also examine spending preferences for education

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[3] We combine CCES Policy Preferences data with the partner Cumulative Common Content of the Cooperative (Congressional) Election study at the individual-election-year level. We limit the CCES sample to U.S. citizens but also show that our results are not sensitive to this decision in the Robustness section.

and interest in politics. To address preferences for education spending, we use an indicator of whether respondents answered at least "slightly increase" to the following question, "State legislatures must make choices when making spending decisions on important state programs. Would you like your legislature to increase or decrease spending on education?" (Dagonel 2023). To operationalize interest in politics, we use an indicator measuring whether individuals responded at least "some of the time" to the following question, "Some people seem to follow what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested. Would you say you follow what's going on in government and public affairs most of the time, some of the time, only now and then, or hardly at all." We treat "don't know" as missing.

We use the individual background information in the CCES to examine heterogeneity by individual identity markers (i.e., partisan identity and parental status). We use three dichotomous variables for partisan identity: Democrats, Republicans, and Independent (also includes "not sure"). We use a standard variable for parental status, coded 1 if a respondent was the parent or guardian of any children under the age of 18. A small portion of cases were missing on partisanship and parental status (0.45% and 0.18% respectively), and we drop these observations from our analyses.

We also include a set of covariates to increase precision and account for individual factors potentially related to exposure to strikes and political behavior. We include individual age, gender, race, education level, family income, home ownership, and employment status that we include as covariates. We impute missing values on these covariates using the modal value from the county where the missing observation resides.

Descriptive Statistics

Between 2007 and 2020, we find 716 teacher strikes across 577 unique school districts and 355 counties in 22 states. The longest strike was 34.5 days long, though most strikes are short. The median strike is two days long, and the mean strike duration is 4.5 days long. The modal strike is just one day. Strikes occur consistently throughout this time period, with large spurts in 2018 and 2019, when hundreds of thousands of teachers participated in "#Red4Ed" strikes, which were typically coordinated across districts within states (Appendix Figure A1).

In Figure 1, we show the graphical distribution of teacher strike events, which we identify at the county-by-election-cycle level.[4] Strikes occur throughout the US, with particularly large concentrations of strikes in West Virginia, Oregon, North Carolina, Arizona, Washington, and Pennsylvania. The majority of striking counties (63%) experience just one strike event during our time period. Roughly a third of striking counties (35%) experience two to three strikes, and seven counties in Illinois and Pennsylvania experience four to five strikes during the time period.

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[4] If a county experiences multiple strikes within the same election cycle, we count that as a single strike event. We show it this way because it is how we measure strike events in our analytic approach.

Figure 1. The Geographic Distribution of Teacher Strikes, 2007-2020

Number of Strikes

- 4-5 Strikes
- 2-3 Strikes
- 1 Strike
- No Strikes
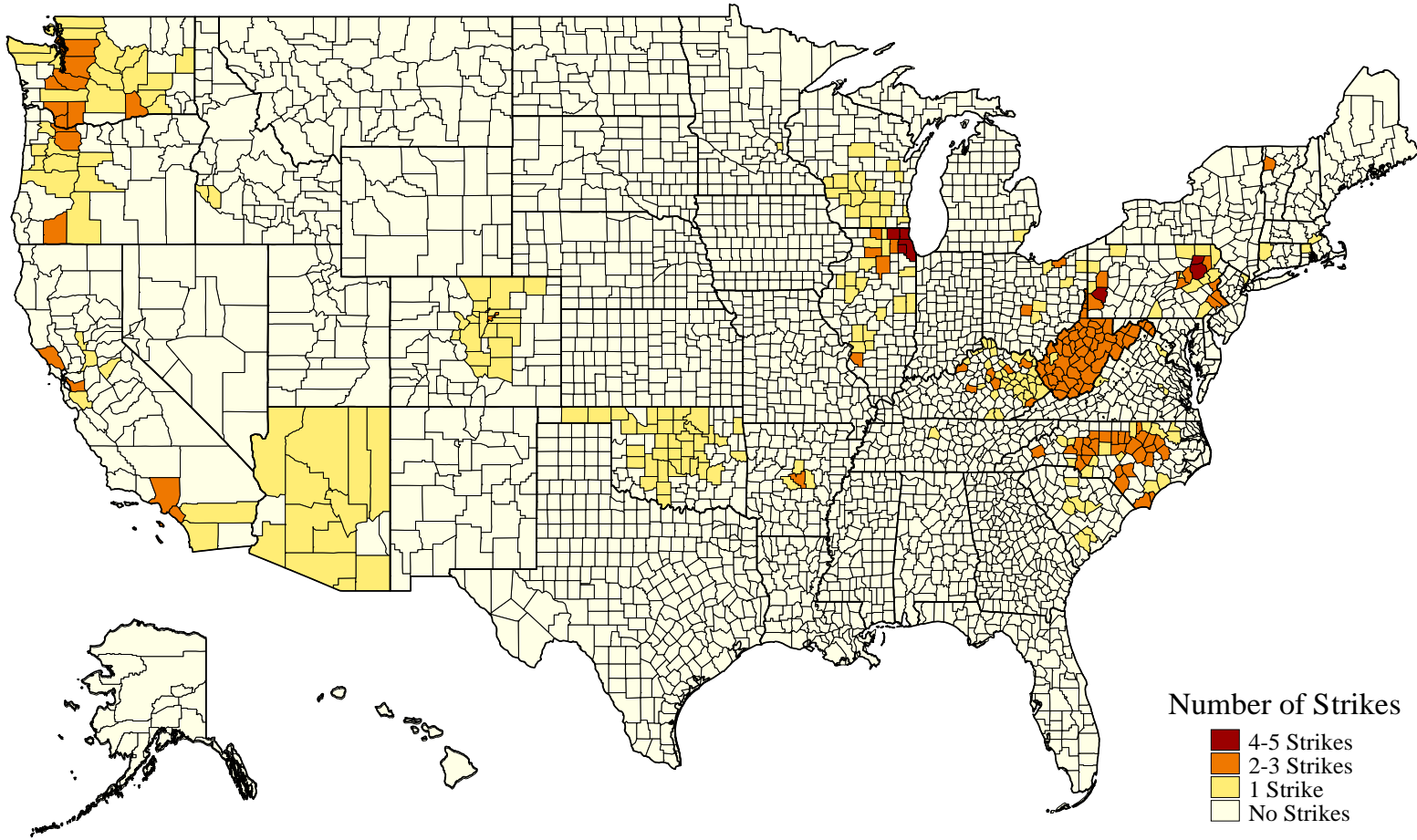
Notes: Strikes are identified at the county-by-election year level.

In Table 1, we provide descriptive information on striking and non-striking counties. In Panel A, we show that, on average, voter turnout in striking and non-striking counties is 49% and 51%, respectively (across the three presidential and three midterm elections between 2008-2018) in the NaNDA dataset. Republican vote share during our panel is 4 pp higher in counties that do not experience teacher strikes, on average. Striking counties have similar population sizes and portions of both parents and Hispanic residents. Striking counties have about 3 pp fewer African American residents; have slightly higher median household incomes; and are roughly 5 pp more Democratically leaning in past elections relative to non-striking counties.

In Panel B, we show descriptive statistics for the CCES respondents across seven elections between 2008-2020 (four presidential and three midterm). We find that 58% and 56% of citizens vote in striking and non-striking counties respectively. Eight out of ten individuals express interest in following the news about government and public affairs in both striking and non-striking districts, and roughly two thirds support increasing education spending. Shares of parents, ages, genders, levels of education, income, employment, and home ownership are similar in striking and non-striking counties. Respondents in non-striking counties are roughly 2 pp more likely to be White or Black than those in striking counties. The share of respondents in striking counties that identify as Democrats is 5 pp higher than in non-striking counties, consistent with the findings from the NaNDA data.

Table 1. Descriptive Statistics

	Striking Counties			Not Striking Counties		
	Obs.	Mean	SD	Obs.	Mean	SD
		Panel A: NaNDA (2008-2018)				
Voter Turnout (%)	1,920	49.04	(15.42)	16,668	50.93	(16.40)
Republican Vote Share (%)	960	57.96	(15.34)	8,377	62.15	(15.53)
Population (Log)	1,920	11.17	(1.46)	16,759	10.18	(1.43)
Parent of School Age Child (%)	1,920	20.08	(2.91)	16,760	20.29	(3.34)
Hispanic (%)	1,920	8.16	(11.04)	16,760	8.45	(13.56)
African American (%)	1,920	6.05	(9.23)	16,760	9.40	(15.09)
Median Income	1,920	26640.18	(5770.97)	16,760	25941.71	(5751.85)
Democratic Partisanship Index (%, Centered)	1,920	4.57	(13.11)	16,748	-0.52	(14.33)
		Panel B: CCES (2008-2020)				
Voter Turnout (%)	109,345	58.12	(49.34)	267,211	56.27	(49.61)
Interest in Government and Public Affairs (%)	106,542	80.48	(39.64)	259,800	79.47	(40.39)
Support for Education Spending (%)	58,145	64.57	(47.83)	142,401	63.68	(48.09)
Parents (%)	109,160	25.86	(43.79)	266,757	27.51	(44.66)
Age	109,345	46.55	(17.31)	267,211	47.22	(17.29)
Female (%)	109,345	50.59	(50.00)	267,211	52.2	(49.95)
Race/Ethnicity						
White (%)	109,345	71.98	(44.91)	267,211	73.96	(43.89)
Black (%)	109,345	11.12	(31.43)	267,211	12.74	(33.34)
Hispanic (%)	109,345	8.55	(27.96)	267,211	7.18	(25.81)
Other (%)	109,345	8.35	(27.67)	267,211	6.13	(23.98)
Education: Some College or More (%)	109,345	62.6	(48.39)	267,211	57.96	(49.36)
Family Income						
Less than 50,000 (%)	109,345	42.52	(49.44)	267,211	45.93	(49.83)
50,000-100,000 (%)	109,345	30.57	(46.07)	267,211	29.54	(45.62)
Over 100,000 (%)	109,345	16.56	(37.17)	267,211	14.41	(35.11)
Other (%)	109,345	10.35	(48.82)	267,211	10.13	(30.17)
Employed Full Time (%)	109,345	39.19	(48.15)	267,164	38.16	(48.58)
Home Ownership						
Own (%)	109,345	36.53	(48.15)	267,211	33	(47.02)
Rent (%)	109,345	63.47	(0.00)	267,211	66.99	(47.03)
Party Identification						
Democrat (%)	108,895	49	(49.99)	266,007	43.69	(49.60)
Republicans (%)	108,895	34.62	(47.58)	266,007	38.65	(48.69)
Independent (%)	108,895	16.38	(37.01)	266,007	17.66	(38.13)

Notes: Cumulative weights for multi-year analysis are applied to construct averages using CCES data.

Analytic Approach

We examine the impact of strikes by leveraging variation in the timing of strike exposure across counties using a differences-in-differences (DiD) design. Specifically, we analyze changes in voter turnout in counties affected by strikes and compare them to simultaneous changes in counties that remained unaffected by or had not yet experienced teacher strikes. Importantly, our empirical approach does not require us to assume that strikes occur randomly (Angrist and Pischke 2009). We recognize that striking counties might be different from non-striking counties on both observable and unobservable characteristics. Our strategy uses the trends in non-striking districts to develop a proxy for what we expect would have occurred in striking districts in the absence of strikes. We estimate the causal effect as the difference between that expected outcome and the actual outcome. This enables us to estimate the causal effect of strikes on the assumption that trends in outcomes in unaffected counties serve as a valid counterfactual for the trends that we would have observed in strike-affected counties had they not encountered strikes (often referred to as "parallel trends"). A similar analytic strategy has been used for other studies of teacher strikes in political science and economics literatures (Jaume and Willén 2019; Lyon and Kraft 2024; Hertel-Fernandez, Naidu, and Reich 2021).

We estimate both the direct and indirect effects of strikes on downstream political behavior. Immediate protest effects are likely a direct effect of the protest itself, whereas longer-term effects are likely more indicative of responses to the achievements or failures of the protest demands. While we cannot determine for certain that strikes themselves, and not their effects, are the direct cause of changes to political behavior, it may not matter, given that indirect effects of strikes are still themselves outcomes that would not have existed in the absence of the strikes. It could be, for example, that because teacher strikes tend to increase education spending (Lyon

and Kraft 2024), this is what impacts third parties' attitudes toward education spending and/or their sense of external efficacy, ultimately shaping their inclination to vote.[5]

Baseline Specifications

Our model builds upon a generalized DiD estimator with the two differences arising from variation across counties and over time. We provide intuition for our preferred modeling approach by starting with a simple DiD specification:

(1) $$Y_{ct} = \beta Strike_{ct} + \lambda X_{ct} + \pi_c + \delta_t + \varepsilon_{ct},$$

where Y_{ct} is an indicator of turnout or Republican vote share in county c in election year t. $Strike_{ct}$ is a dummy variable coded as 1 if a county has experienced a strike. The terms π_c and δ_t represent county and election year fixed effects, respectively. By including these two-way fixed effects (TWFEs), we address fixed differences over time between counties and any election-specific events, effectively controlling for omitted variables that remain constant across counties and time. We also include a vector of county-level control variables, X_{ct}, to increase precision by accounting for partisanship, population size, median income, share of parents, and race/ethnicity. Our results are not sensitive to the addition of these controls; we show results with and without them. This approach tests whether strikes impact turnout and Republican vote share. (*Hypotheses H1 and H2*).

To examine the effect of strikes, potential mechanisms, and how these vary across individuals using the CCES data, we modify equation (1) with the following specification,

(2) $$Y_{ict} = \beta Strike_{ct} + \lambda X_{ict} + \pi_c + \delta_t + \varepsilon_{ict},$$

---

[5] For instance, voters may see strike-induced education spending increases as sufficient and therefore believe that no future political action is needed to increase them further, Or, voters may feel that spending increases were undeserved, leading to a desire to participate against strikers' candidates and issues or even the sense that politics is rigged and it's not worth following public affairs or voting. These are both mechanisms that we explore.

in which we replace Y_{ct} with an individual-level, binary measure of turnout, Y_{ict}. We also

modify the vector of controls, now X_{ict}, to account for individual age, gender, race, education

level, family income, home ownership, employment status, parental status, and political

affiliation. We use the cumulative weights for multi-year analysis provided in the CCES data. To

examine mechanisms, we replace Y_{ict} with whether the respondent believes that education

spending should be increased (*H3a and H3b)* and how frequently the respondent reports that they

follow what's going on in government and public affairs (*H4a and H4b).*

      To examine how the effects of strikes vary across individuals, we conduct a heterogeneity

analysis focusing on two relevant traits: whether respondent i is a parent (*H1a and H2a)* and

their party identification (*H1b, H1c, and H2b)*. The intuition for these analyses with trait T is as

follows:

(3) $$Y_{ict} = \beta_1 Strike_{ct} + \beta_2 Strike_{ct} * T_{ict} + \beta_3 T_{ict} + \lambda X_{ict} + \pi_c + \delta_t + \varepsilon_{ict}.$$

We calculate the linear combination of β_1 and β_2 to estimate the strike effect for the group with

the trait.

Multiple Strikes

      Multiple strikes within counties are relatively common with 131 of the 355 counties with

strikes experiencing strikes in multiple election cycles during our time period. Existing literature

offers a few strategies for handling multiple events. Some opt for simplicity, examining only the

effect of the first event (Lyon and Kraft 2024), or the biggest event (e.g., Lafortune, Rothstein,

and Schanzenbach 2018). Others have examined all events by allowing a single individual-

period cell to contribute to multiple relative time periods (Sandler and Sandler 2014). Other work

also estimates the effects of all events by including all treatment events as separate units

(Bartanen, Grissom, and Rogers 2019; Lafortune, Rothstein, and Schanzenbach 2018; Miller 2013; Lyon and Kraft 2024).

Following this latter approach, we estimate the effect of all events in our preferred specification. We show in the Robustness section that our results are not sensitive to this decision. We do this by creating copies of the data for each county experiencing multiple events (i.e., strikes in multiple election cycles) and estimate the effect of each strike separately in each set using a specification that replaces the county fixed effects with county-by-event-set fixed effects. We weight models to correct for the overrepresentation of counties with multiple strikes. We estimate specifications that take the form:

(4) $$Y_{ct} = \beta Strike_{cet} + \lambda X_{ct} + \pi_{ce} + \delta_t + \varepsilon_{cet},$$

(5) $$Y_{ict} = \beta Strike_{cet} + \lambda X_{ict} + \pi_{ce} + \delta_t + \varepsilon_{icet}, \text{ and}$$

(6) $$Y_{ict} = \beta_1 Strike_{cet} + \beta_2 Strike_{cet} * T_{ict} + \beta_3 T_{ict} + \lambda X_{ict} + \pi_{ce} + \delta_t + \varepsilon_{icet},$$

where π_{ce} represents county-by-strike-event fixed effects. This allows us to estimate the effects of *all* strikes in a given county rather than just the first strike that we observe. Appendix Table A1 shows the identifying variation in our preferred specification compared to the identifying variation using Equations 1 and 2. In total, our preferred specification estimates the effect of 371 (NaNDA) or 511 (CCES) strike events.[6]

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[6] The number of events in the NaNDA data is smaller than the CCES data because the NaNDA data do not include the 2020 elections, whereas the CCES data do. Note that both figures are smaller than the 716 strikes noted above because if a county experiences multiple strikes within the same election cycle, they comprise a single strike event.

Findings

In Table 2, we show that teacher strikes lead to meaningful decreases in voter turnout and Republican vote share. Table 2 shows the results of Equation 4 with population data on turnout and Republican vote share from the NaNDA at the county-election-year level. In Columns 1 and 2, we show that strikes lead to a turnout decrease of about 3.1-3.3 pp. In Column 3, we show that strikes lead to a 1.5 pp decrease in the percent of votes for the Republican presidential candidate when controls are not included; however, the effect diminishes when controls are included in Column 4. We expect that this is at least in part because of heterogeneous effects of strikes on Republican vote share, depending on the partisan nature of the surrounding area. The demobilizing effect of strikes on Republicans would be more likely to occur in more Democratic areas. Indeed, we show that Republican vote share decreases by 2 pp in Democratic dominant areas, a result that is also evident in the CCES data (see Appendix Table A2).

Table 2. Effect of Teacher Strikes on Voter Turnout and Republican Vote Share (NaNDA)

	(1)	(2)	(3)	(4)
	Voter Turnout		Republican Vote Share	
Strike Effect	-0.031***	-0.033***	-0.014**	-0.005
	(0.006)	(0.005)	(0.005)	(0.004)
Partisanship Index		0.168***		-0.451***
		(0.030)		(0.016)
Population (log)		0.075**		-0.130**
		(0.027)		(0.040)
Parent of School Age Child (%)		-0.324*		0.032
		(0.126)		(0.031)
Hispanic (%)		0.062		-0.178***
		(0.097)		(0.040)
African American (%)		0.022		0.075+
		(0.092)		(0.043)
Median Income		-0.000***		0.000***
		(0.000)		(0.000)
Observations	18,877	18,877	9,404	9,404
Adjusted R-squared	0.468	0.470	0.943	0.959
Election Year Fixed Effects	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X
Controls		X		X

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Columns 1 and 2 show results with voter turnout as the outcome (Equation 4). All presidential and midterm election years between 2008 and 2018 are included. Columns 3 and 4 show results with the percentage of votes for Republican Presidential candidate as the outcome. Presidential Election years (2008, 2012, and 2016) are included. The Partisanship Index is a county-year measure of the proportion of votes cast for Democratic presidential and senate candidates (averaged together) in the six years prior to a given election year.

Table 3 shows that results are very similar when we use the individual-level CCES data.[7] In Column 1, we show that strikes lead to a roughly 2 pp decrease in voter turnout. In Column 2, we show that the effect of teacher strikes varies meaningfully depending on the partisan affiliation of the respondent. We show the individual estimates in Table 3 and the linear combinations in Figure 2. Results suggest that teacher strikes depress voter turnout among Democrats by 1 pp, among Republicans by 3 pp (-0.009 + -0.023= -0.032), and among Independents by 2 pp. In Column 3, we also find that strikes have a larger effect for parents (-3.5 pp) than non-parents (-1.5 pp). In Column 4 and Panel B of Figure 2, we allow the effect to vary depending on both parental status *and* partisan affiliation. Overall, we find that estimated effects are largest for Republican parents, though the effect for Republican parents is not statistically distinguishable from Republican non-parents. Similarly, the effect for Democratic parents is larger but not statistically different from Democratic non-parents. Taken together, results suggest that teacher strikes reduce voter turnout for all groups but particularly amongst Republicans, especially Republican parents.

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[7] Due to space limitations, we do not show the regression coefficients for control variables. We display those estimates in Appendix Table A3.

Table 3. Effect of Teacher Strikes on Voter Turnout (CCES)

	(1)	(2)	(3)	(4)
		Voter Turnout		
Strike Effect	-0.019***	-0.009+	-0.015**	-0.006
	(0.005)	(0.005)	(0.005)	(0.006)
Strike Effect X Republican		-0.023***		-0.022***
		(0.005)		(0.005)
Strike Effect X Independent		-0.015**		-0.015*
		(0.005)		(0.006)
Strike Effect X Parent			-0.020*	-0.018
			(0.009)	(0.011)
Strike Effect X Republican X Parent				-0.001
				(0.013)
Strike Effect X Independent X Parent				0.005
				(0.014)
Strike Effect X Partisan Index				
Strike Effect X Republican X Partisan Index				
Strike Effect X Independent X Partisan Index				
Observations	468,292	468,292	468,292	468,292
Adjusted R-squared	0.171	0.171	0.171	0.171
Election Year Fixed Effects	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X
All Strikes	X	X	X	X
Controls	X	X	X	X

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. All columns include the following controls: age, gender, race, education level, family income, home ownership, employment status, child, and political affiliation. Estimated relationships between the outcome and control variables are displayed in Appendix Table A3. Election years between 2008 and 2020 are included. Columns 1 shows the overall results for all strikes (Equation 5). Columns 2-6 allow this effect to vary (Equation 6). Main effects must be interpreted alongside interaction terms, see Figure 2.

Figure 2. Effect of Strikes by Subgroup

Panel A. Voter Turnout by Partisanship

Panel B. Voter Turnout by Partisanship and Parental Status
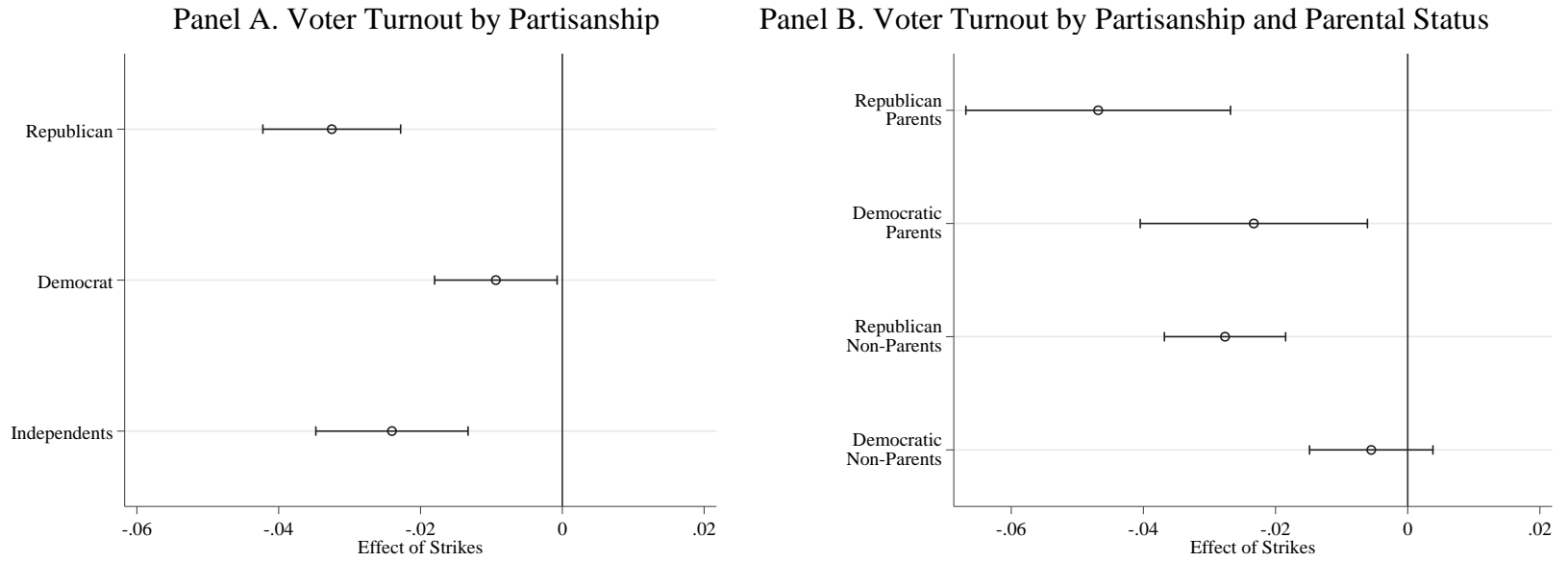
Notes: See full estimation details and notes in Table 3. Confidence intervals are calculated at the 90% level.

Dynamic Effects over Time

We also examine whether the effect of strikes is heterogenous over time. We use an approach that uses non-parametric event study estimators as follows:

(7) $$Y_{icet} = \sum_{r=-5}^{5} \beta_r I(t - t_{ce}^{strike} = r) + \lambda X_{ict} + \pi_{ce} + \delta_t + \varepsilon_{icet},$$

where t_{ce}^{strike} indicates the election year of the strike for county-event ce, and β_r represents the effect of the strike r election cycles later (or before if $r < 0$) relative to the election cycle before the strike, which is excluded. We trim our sample to drop counties that are more than five election cycles (10 years) before or after a strike. The β_0 to β_5 coefficients dynamically estimate the effects of strikes over the five election cycles (10 years) after the strike. A benefit of this approach is that the coefficients β_{-5} to β_{-2} dynamically test for differences in trends prior to strikes between treated and control counties, thus embedding a falsification test for the key assumption noted above. We also show results that allow for these effects to very depending on individual partisan identity by estimating separate sets of β_r for respondents identifying as Republicans versus Democrats.

In Figure 3, we show these dynamic estimations of the effects of strikes overall and by partisan affiliation. Similar to above analyses, we find that, on average, strikes lead to a sustained negative effect on voter turnout of between 1 and 2 pp. When we allow the effect to vary by partisan identity, we find strikes have no effect on Democratic individuals but a larger and sustained negative effect on Republican respondents. Taken together, this analysis suggests that strikes are a powerful, sustained depressant of turnout for Republican voters.

Figure 3. Event Study Analysis of the Effect of Strikes Over Time

Panel A. Voter Turnout, Overall Effect

Panel B. Voter Turnout, Effect by Partisanship
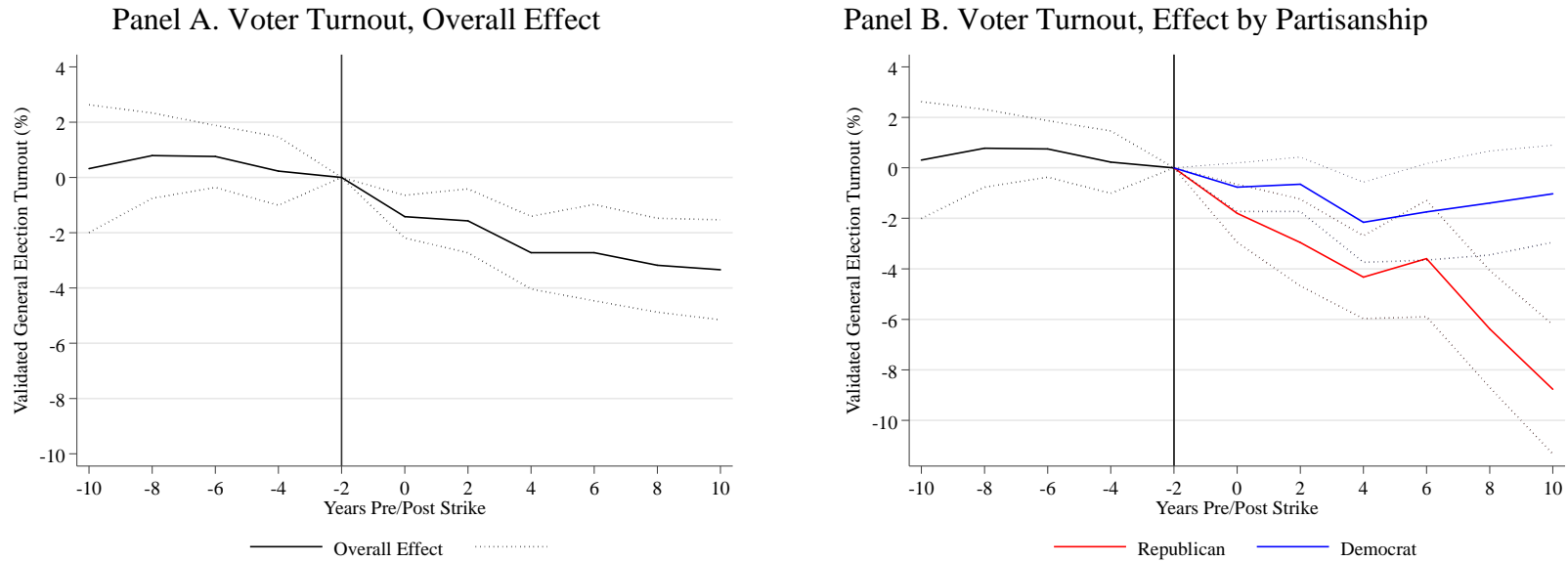
Notes: Solid line indicates the estimate from an event study specification (Equation 7). Dotted line indicates the 90% confidence interval. The baseline mean overall is 56.3%, and for Republicans and Democrats, it is 64.1% and 58%, respectively. Observations in striking counties are censored for periods greater than 10 years before and after the strike, leading to a sample size of 462,079.

Extensions

Distance to Strikes

The effects of strikes may not be fully captured in the estimates above, as neighboring counties may be affected by strikes. Striking teachers may live in neighboring counties, and individuals may be more aware of and affected by strikes that are closer to them (via friends and family that are affected). To examine this empirically, we allow the effect of strikes to vary depending on the distance to a strike.

We generate an estimate of the distance to the closest strike for each county in the U.S. between 2007-2020. We allow for the strike effect to vary by creating three separate and mutually exclusive terms for counties in which the closest strike is (1) close: within 50 miles or less, (2) proximate: between 51 and 100 miles away, or (3) distant: between 101 and 200 miles away. We then replace our main treatment term, $Strike_{ct}$, in Equations 1 and 2 with these three terms, which are coded 1 for county c if time t is after a strike. We also modify Equation 3 to allow the effect of a close strike to vary depending on partisanship and parental status and show the linear combinations of effects in Figure 4 using CCES data. For simplicity, we do this only with close strikes, though we also show results with strikes that are less than 100 miles away in the Robustness Section, and results are nearly identical. We show the full set of results in Appendix Table A4 and visualize the linear combinations in Figure 4.

First, using NaNDA data on county turnout, we find that the occurrence of a strike decreases voter turnout by 3 pp, on average, within 50 miles of the strike, yet we find no evidence that strikes affect voter turnout beyond a 50 mile radius (Appendix Table A4 Columns 1- 2). We find similar results using CCES data (Appendix Table A4, Columns 3-4). In Figure 4 and Appendix Table A4, we examine heterogeneity based on partisanship and parental status.

We find that close teacher strikes cause a 2.3 pp decrease in Republican voter turnout (-0.002 + -0.021= -0.023), with no evidence of an effect among Democrats and Independents. We also see that effects are larger, on average, for parents (-2.4 pp), particularly Republican parents (-3.8 pp). We find no evidence that close teacher strikes affect Democratic voter turnout, regardless of parental status. Overall, we results demonstrate that closer teacher strikes tend to exert a larger deterrent effect on voting, particularly among Republicans (see Figure 4).

Figure 4. The Effect of Close Strikes on Voter Turnout

Panel A. Voter Turnout by Partisanship

Panel B. Voter Turnout by Partisanship and Parental Status
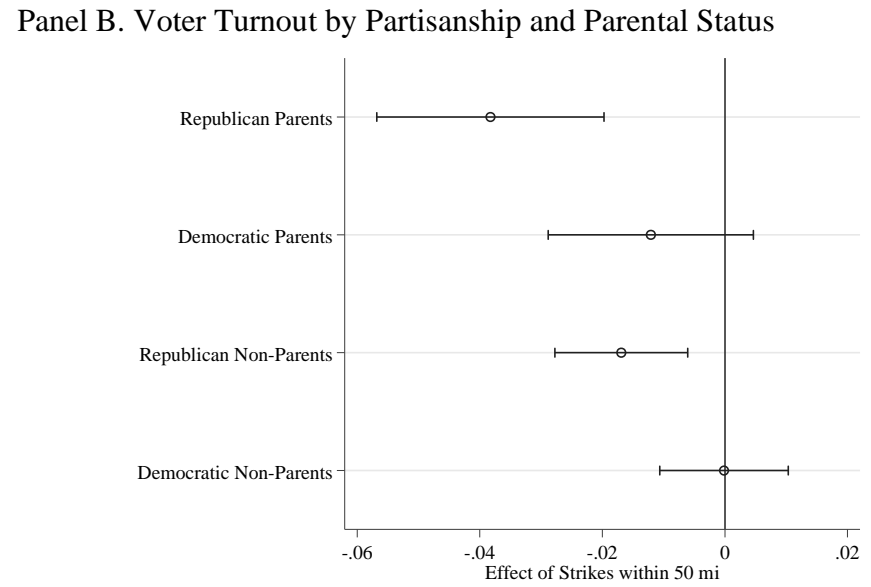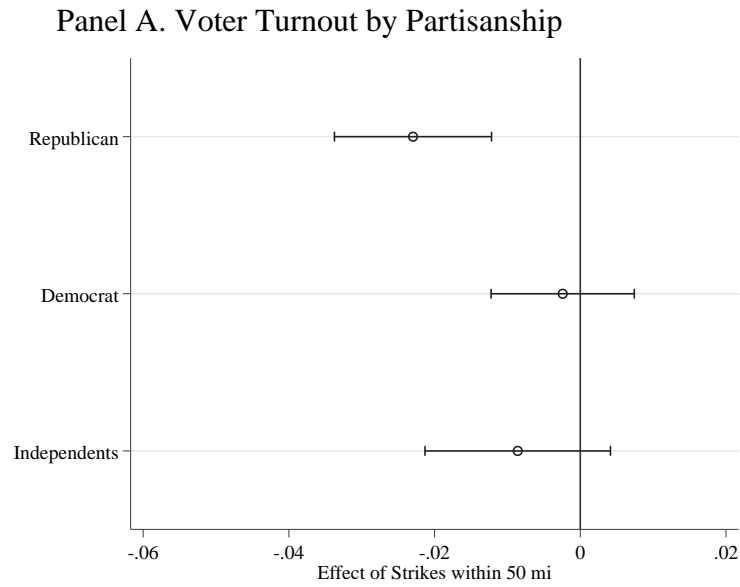
Notes: See full estimation details and notes in Appendix Table A4, CCES. Confidence intervals are calculated at the 90% level.

Duration

We examine whether the effect of teacher strikes on political mobilization varies depending on strike length. Previous economics research on strikes has extensively examined the relationship between strike duration and employment outcomes (Card 1990). Research on teacher strikes finds that strikes less than 5 days are the most effective signals to political elites (Lyon and Kraft 2024), but strikes over 10 days decrease student outcomes (Lyon, Kraft, and Steinberg 2024; Jaume and Willén 2019; Belot and Webbink 2010; Baker 2013; Johnson 2011). Both short and long teacher strikes can successfully spur increases to educational expenditures (Lyon and Kraft 2024).

To explore whether the impact of teacher strikes on voter (de)mobilization varies by duration, we re-estimate Equations 1 and 2 with a continuous variable for the length of the first strike in a given county using the NaNDA and CCES datasets.[8] Our results, presented in Columns 1 and 4 of Appendix Table A5, show that each additional day of a strike leads to a roughly one tenth of a pp decrease in turnout. We also examine this non-linearly in the same manner as the distance analysis. We find no effect of short strikes on voter turnout—our estimates are close to zero, and we can rule out negative effects as small as -0.7 pp in the NaNDA data. However, we see that strikes lasting 6-10 days lead to a larger decline in voting, an effect of -1.8 to -2.5 pp in the NaNDA and CCES data respectively (see Columns 2 and 5). We find some suggestive evidence of a similar effect for strikes lasting more than 10 days, though estimates are less consistent and precise. In columns 3 and 6, we examine strikes lasting more than 5 days as a single group and split up strikes lasting less than 5 days to see whether a single

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[8] If there were non-consecutive strikes in a given school district and election cycle, we add up the total days. If there were multiple striking districts in a county and election cycle, we use the longest strike amongst those districts, so as not to inappropriately inflate the length of strikes in counties with multiple overlapping districts.

day strike may have a different effect than a somewhat longer strike. We find that no evidence

that 1 day or 2-5 day strikes affect voter turnout, and see a similar effect for 6+ day strikes as in

the previous specification. In short, we find that the negative effects of teacher strikes on voter

turnout are driven by strikes lasting 6-10 days.

Presidential v. Midterm Elections

We investigate whether the effect of teacher strikes on voter turnout varies across

presidential and midterm elections. In presidential elections, national issues like the economy

typically dominate the media and political discourse, and teacher strikes might not be as

prominent. However, in midterms, which often focus more on local and state-level concerns,

teacher strikes may be more salient, and local issues such as education and labor disputes may

receive more attention, leading to increased voter engagement. To examine this empirically, we

split our sample into two distinct samples: one for presidential elections (2008, 2012, 2016, and

2020) and one for midterm elections (2010, 2014, and 2018 for the NaNDA and 2010, 2014,

2018, and 2020 for the CCES).

We present results in Appendix Table A6. Using the NaNDA data, we find that the

degree to which teacher strikes reduce voter turnout does not differ for midterm and presidential

elections. However, using the CCES data, we find that teacher strikes decrease average midterm

voter turnout by about 4.5 pp, while presidential elections have no effect at all. For midterms, the

estimate is largest for Republicans (-6 pp). Again, we find that teacher strikes have a larger effect

on parents (-7 pp) relative to nonparents (-4 pp) and the largest effect on Republican parents (-8

pp). While the contrasting results between the two data sources may seem odd, they use different

years for presidential elections; NaNDA includes only 2008, 2012, and 2016, while CCES also

includes 2020 (both have 2010, 2014, and 2018 for midterms). The larger timespan gives us

more confidence in the CCES result. Therefore, we take this as suggestive evidence that teacher strikes are more demobilizing in midterm elections.

Mechanisms

To examine why strikes affect voter turnout, we analyze how teacher strikes affect public support for education spending and the attention that potential voters pay to government and public affairs. As noted above, strikes may provide new information about the need to increase education spending, leading to greater support for education spending. Alternately, strikes may reduce support for increasing education spending if residents believe that spending has increased enough or that strikes lead to overspending on education. Strikes could also impact political efficacy if they lead to perceptions that public officials are (not) responsive to the interests of individual voters. Appendix Table A7 presents the point estimates from the results of Equation 5 and 6, where Y_{ict} is replaced with support for increased education spending and interest in public affairs.[9] We show the linear combinations of the interaction terms from Equation 6 in Figure 5. Amongst Republicans, we find that teacher strikes reduce support for education spending by 4.5 pp and depress interest in government and public affairs by 1 pp. We also find that teacher strikes increase interest in public affairs for Democrats by 1.5 pp.

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[9] CCES collects information on the degree to which respondents follow government and public affairs in years without elections as well. In Appendix Tables A8 and A9, we show results including all years instead of just election years. Results are nearly identical.

Figure 5. Effect of Strikes on Public Opinion and Political Efficacy

Panel A. Support for Increasing Education Spending

Panel B. Interest in Following Government and Public Affairs
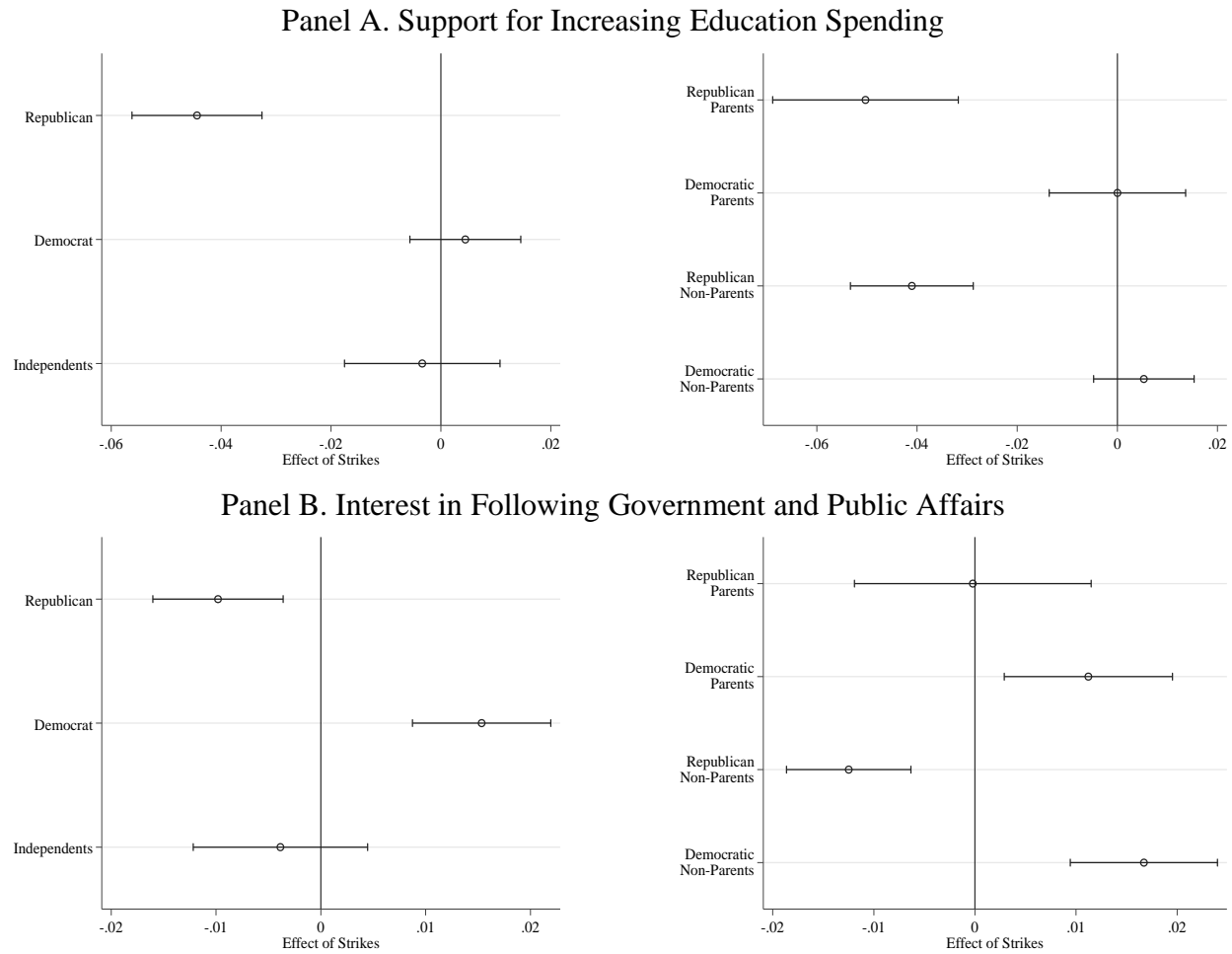
Notes: See full estimation details and notes in Appendix Table A7. Confidence intervals are calculated at the 90% level. Data for Panel A range from 2014-2020. Data for Panel B range from 2008-2020.

Robustness

NaNDA Robustness

We conduct a series of robustness checks to demonstrate that our results are not driven by potential sources of bias and are not sensitive to specific empirical choices. In Appendix Table A10, Columns 1 and 2 show the results of our preferred specification using the NaNDA data for reference. In Columns 3 and 4, we address the fact that the last year of the NaNDA data coincides with the beginning of the #RedforEd teacher strikes by showing the results with strikes in 2018 dropped. Estimated effects increase in magnitude, suggesting that strikes lead to a roughly 5 pp drop in voter turnout. In Columns 5 and 6, we examine the effect of the first strike in a given county (Equation 1), rather than all strikes in a county. Effects using this specification are nearly identical but slightly larger in magnitude relative to our preferred specification. In Columns 7 and 8, we replicate the distance analysis with a dichotomous indicator for $Close\ Strike_{ct}$ (less than 100 miles away). We find that experiencing a strike in a neighboring county leads to a bit smaller, 1.7 pp decline in voter turnout.

Recent methodological research has also shown that TWFE estimators have the potential to be biased when there is staggered timing of treatments and heterogenous treatment effects (Goodman-Bacon 2021). To address this, we show results using the "stacked" approach utilized by Cengiz et al. (2019). We create and stack distinct samples where each stack includes a distinct cohort of treated counties for which the strike occurred in the same election year. As control units, we only include counties that never experienced a strike during our panel. We then interact all model terms with a series of cohort fixed effects and pool treatment estimates for each stack to calculate the overall treatment effect. This circumvents the possible bias introduced by heterogeneous treatment effects by estimating cohort specific DiD analyses in which the control

counties never experience strikes. In Column 9 and 10, we show that estimated effects are similar to the main specification; strikes cause a 2.5 to 2.8 pp decrease in voter turnout. Overall, these results consistently support the finding that strikes depress voter turnout.

CCES Robustness

We also conduct a series of additional tests to probe the robustness of our findings using the CCES data. In Appendix Table A11, Columns 1 and 2 show our preferred specifications. We show the overall strike effect (from Equation 5) in Column 1 and the main effect and interaction term for Republicans (from Equation 6) in Column 2. To ensure that our results are not driven by the set of control variables selected, Columns 3 and 4 show the results with control variables removed. Similarly, to ensure that results are not conditional on self-identification of citizen status, Columns 5 and 6 show the results removing the sample restriction that dropped individuals that did not self-identify themselves as citizens. Columns 7 and 8 show main effects using the "stacked" approach described above (Cengiz et al. 2019). Results range from -2.5 pp to -1.9 pp and from -3.4 pp to -3.2 pp for Republicans.

Additionally, we demonstrate that CCES findings are consistent when we estimate the effect of only a single strike (the first strike) in a county using Equations 2 and 3 respectively Columns 9 and 10 show that the estimated effects are essentially the same as in our preferred specification. Columns 11 and 12 replicate the distance analysis using a dichotomous treatment indicator from Table 3, replacing the treatment indicator for a strike 50 or less miles away with an indicator of a strike 100 miles or less away. With this greater distance, we continue to find a negative average effect, though it has decreased in magnitude and does not reach standard levels of statistical significance. The effect for Republicans remains significant and negative, though it has very slightly decreased in magnitude to -2 pp. In Appendix Table A12, we show that results

are the same if we merge our district-level strike data to the CCES data at the zip-code-by-election-year level rather than the county-by-election year level. Indeed, the magnitude of the effect for Republicans is even larger (-3.8 pp) than the main specification.

Limitations

One important question is the extent to which these findings generalize to other sectors and occupations. We expect the demobilizing effect of strikes to hold for other strikes that are similarly disruptive, non-violent, and visible. This likely includes many public sector employee strikes, though our results may not generalize to public service areas that are less visible or considered less essential than teaching. For example, strikes of parks and recreation workers may not experience the same effects because they are less likely to halt services relied upon by large swaths of the public. Our findings also may generalize to private sector strikes that are similarly short and non-violent but disruptive, like construction workers shutting down access to a widely used bridge or road. However, in many private sector strikes, the subject of the strike may be more removed from policymaking, so the perception that the strike is related to political processes would be muted. Such strikes may be less likely to impact third parties' political participation.

Additionally, our findings may not generalize to earlier time periods because our panel of strikes begins in 2007. Some researchers have found that strikes in the period between 1982 and 2000 were less effective at increasing wages (Massenkoff and Wilmers 2024; Rosenfeld 2006). During this period, politics were less polarized, and media was less fragmented (Prior 2005). We might wonder, then, whether the impact of strikes on political behavior varies in different media environments and where polarization is tempered. Further work examining strike effects on

political behavior in differently fragmented media environments and amidst varying polarization could inform how strikes might impact political behavior in the future as these trends worsen.

As we describe in our theory section, we might imagine that the effect of strikes on political participation would be different for workers in the striking unit. In our case, the workers would be public school teachers. There is evidence that teacher strikes lead teachers to organize others to vote and to run for office themselves (Hertel-Fernandez 2019, Lyon, Hemphill, and Jacobsen 2022). It would be logical that teacher strikes might also increase teacher turnout in elections. Unfortunately, we are unable to test whether the effect of teacher strikes on political participation varies by whether someone is a teacher, since the CCES industry categories are not detailed enough to identify this. Nevertheless, this is a fruitful area for future research. It also would be ideal if we were able to examine the impact of strikes on elections that are more directly relevant—in our case, school board or bond elections—just as Enos, Kaufman, and Sands (2019) look at local ballot initiatives following the L.A. Riots. We plan to look at school board elections in future research.

Conclusion

The "Protestor's Dilemma" refers to the paradox faced by protestors where their disruptive actions, while necessary to gain public attention and support, could potentially provoke backlash and weaken the very support they seek to gain. How can protestors overcome this dilemma? Or, in our case, how can striking workers achieve their goals without inspiring opposition from potential allies? Teacher strikes point toward a potential path forward for resolving the protestor's dilemma. This is because they tend to be disruptive, non-violent, and short, which allows them to attract needed public attention to achieve policy gains without

provoking mobilization from opponents. Rather, we find that teacher strikes *demobilize* those that would oppose them; they decrease Republican voter turnout.

Of course, we might wonder why, based on our findings, teachers don't strike more frequently if they demobilize opponents and get their demands. Some have found that teacher strikes become less credible signals if they occur frequently (Lyon and Kraft 2024). Additionally, it may be that teachers are not fully aware of the effects of strikes. It is also quite possible that demobilizing opponents is simply not the goal of teacher strikes. Teachers' unions have concrete aims to achieve in contract negotiations, and these are the immediate motivations for striking. The degree to which union leaders are cognizant of the long-term effects of strikes on third parties' political behavior is a worthy subject for future study.

Our results suggest that the main mechanism driving Republicans to sit out elections is information about the political process which shapes Republicans' sense of external efficacy; we theorize that strikes make labor opponents feel that government is not responsive to traditional means of participating in politics. As a result, they decrease their political interest and turnout. The fact that we find suggestive evidence of a stronger effect for midterm elections is consistent with a political efficacy explanation; if strikes make third parties believe that representatives do not care what they think, it follows that this would be more apparent in midterms, where those that vote tend to have higher levels of political interest and be more informed.

Our theorized mechanism of external efficacy could inform our understanding of disruptive protests in recent years, like college campus protests to stop the war in Gaza, the BLM protests, and Occupy Wall Street. The involvement of different kinds of participants—young people or people of color, for example—might shape how protest informs third parties about the political process and the extent to which it represents them. Examinations of variations in the

nature of protest, its participants, and how it impacts third parties' political participation constitute an important area for future scholarship.

Our results differ from recent similar research. Hertel-Fernandez, Naidu, and Reich (2021) also focus on strike effects on mass politics, finding that exposure to mass teacher strikes increases parent support for strikers and even leads parents to express interest in participating in strikes. In contrast, we find that parents tend to be demobilized by teacher strikes. These differences are perhaps driven by the contextual differences between the large-scale, 2018 #RedforEd walkouts, which are the subject of Hertel-Fernandez and coauthors, and the strikes in our dataset, which includes both individual district and mass teacher strikes over a longer timespan and a broader geographic scope. It may be that parental opinion on the #RedforEd strikes was atypically favorable, since the strikes were very short statewide strikes in conservative-leaning states with particularly low teacher salaries. Indeed, more recently, Hertel-Fernandez (2024) also finds that exposure to grocery store strikes increased support for strikes, but this was not concentrated amongst those with first-hand contact, citing the importance of contextual differences in shaping the nature of strike outcomes amongst mass publics. Further disentangling when and why strikes engender support or spur opposition is a promising line of future research.

Our research contributes to literature on the political effects of strikes. Lyon and Kraft (2024) demonstrate that very short teacher strikes (lasting 5 days or less) influence political elites, prompting congressional candidates to prioritize education issues, yet Lyon, Kraft, and Steinberg (2024) find that the effect of teacher strikes on teacher compensation is similar in short and long strikes. In this study, we find that the negative effects on voting behavior are most pronounced during longer strikes. Our findings suggest a pathway by which longer strikes can

increase compensation without affecting elite behavior: they influence mass politics by reducing voter turnout among those predisposed to oppose labor. Said differently, very short strikes achieve political gains by signaling to political elites, while longer strikes secure victories by demobilizing opponents.

Our results also contribute to a growing consensus that protests indeed shape politics (Hertel-Fernandez, Naidu, and Reich 2021; Wasow 2020; Shuman et al. 2022; Branton et al. 2015; Mclaren and Walker 2024; Carey, Branton, and Martinez-Ebers 2014; Gillion 2020; Boehmke et al. 2023; Hertel-Fernandez 2024). Though some prior studies of protest emphasize countermobilization and backlash, we find that teacher strikes demobilize third parties rather than spurring them to vote in opposition to protestors. The main distinction between teacher strikes and protests that have provoked countermobilization may be that teacher strikes do not need to be violent or long-lived to capture public attention. Teacher strikes affect public service delivery utilized by millions of Americans across racial and class lines, making them highly salient. Notably, however, they are not shutting down service delivery for very long. The median strike is two days, and we find that strike effects on voter turnout are concentrated in strikes lasting just 6-10 days. It may be that non-violent and relatively brief disruptions to highly salient services are a pathway to overcoming the protestor's dilemma.

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Appendix A. Tables and Figures

Table A1. Sample of Striking Districts by Points in Relative Time

Years Relative to Strike	NaNDA		CCES	
	All Strikes	First Strike	All Strikes	First Strike
-10	224	210	333	218
-8	264	237	385	253
-6	294	258	415	276
-4	330	287	451	304
-2	351	301	479	326
0	370	320	494	341
2	146	110	353	303
4	106	83	146	110
6	76	62	105	82
8	40	33	75	61
10	19	19	40	33
Total Number of Strike Events	371	320	511	354

Notes: Table compares the identifying variation in our preferred DiD specification, which retains multiple strike events ("All Strikes") to a specification that focuses on only a single strike, the first strike, in a given county. We show the number of strike events that contribute to point estimates in each of the years relative to a strike. The total number of strike events represents the number of strikes analyzed across years. The total number of strikes is larger for CCES than for NaNDA because it includes the election year 2020.

Table A2. Effect of Teacher Strikes on Voting by County Partisanship

	NaNDA		CCES	
	Turnout	Rep. Vote Share	Turnout	Turnout
Strike Effect in Republican Counties	-0.024**	-0.011	-0.044***	-0.051***
	(0.007)	(0.008)	(0.007)	(0.009)
Strike Effect in Republican Counties* Repub.				0.016
				(0.011)
Strike Effect in Competitive Counties	-0.024	-0.008	-0.025+	-0.023
	(0.021)	(0.011)	(0.015)	(0.017)
Strike Effect in Competitive Counties* Repub.				-0.008
				(0.011)
Strike Effect in Democratic Counties	-0.025**	-0.018**	-0.024***	-0.019**
	(0.009)	(0.006)	(0.005)	(0.006)
Strike Effect in Democratic Counties* Repub.				-0.017*
				(0.007)
Republican Counties	-0.039***	0.049***	-0.004	-0.004
	(0.008)	(0.003)	(0.008)	(0.008)
Competitive Counties	-0.026***	0.019***	0.007	0.007
	(0.007)	(0.003)	(0.007)	(0.007)
Population (Log)	0.080**	-0.147**		
	(0.027)	(0.045)		
Parent (%)	-0.340**	0.069*		
	(0.126)	(0.035)		
Hispanic (%)	0.069	-0.221***		
	(0.097)	(0.047)		
African American (%)	0.029	0.061		
	(0.091)	(0.051)		
Median Income	-0.000***	0.000***		
	(0.000)	(0.000)		
Some College +			0.122***	0.122***
			(0.002)	(0.002)
50-100K			0.038***	0.038***
			(0.002)	(0.002)
Over 100K			0.058***	0.058***
			(0.003)	(0.003)
Prefer not to say or missing			0.008**	0.008**
			(0.003)	(0.003)
Black			-0.064***	-0.064***
			(0.004)	(0.004)
Hispanic			-0.091***	-0.091***
			(0.005)	(0.005)
Others			-0.058***	-0.058***
			(0.004)	(0.004)
Female			-0.014***	-0.014***
			(0.002)	(0.002)
Employed Full-Time			0.004+	0.004+
			(0.002)	(0.002)
Parent			-0.036***	-0.036***
			(0.003)	(0.003)
Own home			0.046***	0.047***
			(0.004)	(0.004)
Age			0.007***	0.007***
			(0.000)	(0.000)
Republican			0.003	0.004+

			(0.002)	(0.002)
Independent			-0.162***	-0.162***
			(0.003)	(0.003)
Observations	18,877	9,404	392,863	392,863
Adjusted R-squared	0.476	0.952	0.168	0.168
Election Year Fixed Effects	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X
All Strikes	X	X	X	X

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Columns 1 and 2 show results for the NaNDA (election year 2008-2018). Columns 1 shows the results for the all strikes in a given county where the outcome variable is voter turnout and Column 2 shows where the outcome variable is percentage of votes for Republican Presidential candidate. Column 3 and 4 show results for the CCES (election year 2008-2020). Republican Counties = Republican-dominant counties. Democratic Counties = Democratic-dominant counties. We defined Republican-dominant counties as those with more than 52 percent of the vote cast for the Republican Party in the past six years, Democratic-dominant counties as those with more than 52 percent of the vote cast for the Democratic Party, and competitive counties as those with a vote share between 48 and 52 percent for either party.

Table A3. Effect of Teachers Strikes on Voter Turnout (CCES) with All Controls Presented

	(1)	(2)	(3)	(4)
	Voter Turnout			
Strike Effect	-0.019***	-0.009+	-0.015**	-0.006
	(0.005)	(0.005)	(0.005)	(0.006)
Strike Effect X Republican		-0.023***		-0.022***
		(0.005)		(0.005)
Strike Effect X Independent		-0.015**		-0.015*
		(0.005)		(0.006)
Strike Effect X Parent			-0.020*	-0.018
			(0.009)	(0.011)
Strike Effect X Republican X Parent				-0.001
				(0.013)
Strike Effect X Independent X Parent				0.005
				(0.014)
Some College+	0.131***	0.131***	0.131***	0.131***
	(0.002)	(0.002)	(0.002)	(0.002)
50-100K	0.041***	0.041***	0.041***	0.040***
	(0.002)	(0.002)	(0.002)	(0.002)
Over 100K	0.062***	0.062***	0.062***	0.062***
	(0.003)	(0.003)	(0.003)	(0.003)
Prefer not to say or missing	0.013***	0.013***	0.013***	0.013***
	(0.003)	(0.003)	(0.003)	(0.003)
Black	-0.073***	-0.072***	-0.073***	-0.071***
	(0.004)	(0.004)	(0.004)	(0.004)
Hispanic	-0.088***	-0.088***	-0.088***	-0.087***
	(0.005)	(0.005)	(0.005)	(0.005)
Others	-0.059***	-0.059***	-0.059***	-0.059***
	(0.003)	(0.003)	(0.003)	(0.003)
Female	-0.011***	-0.011***	-0.011***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)
Employed Full-Time	0.007***	0.007***	0.007***	0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
Parent	-0.037***	-0.037***	-0.034***	-0.055***
	(0.003)	(0.003)	(0.003)	(0.005)
Own home	0.043***	0.044***	0.044***	0.044***
	(0.004)	(0.004)	(0.004)	(0.004)
Age	0.007***	0.007***	0.007***	0.007***
	(0.000)	(0.000)	(0.000)	(0.000)
Republican	-0.008***	-0.005*	-0.008***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.003)
Independent	-0.169***	-0.167***	-0.169***	-0.173***
	(0.002)	(0.003)	(0.002)	(0.003)
Republican # Parent				0.044***
				(0.005)
Independent # Parent				0.027***
				(0.007)
Observations	468,292	468,292	468,292	468,292
Adjusted R-squared	0.171	0.171	0.171	0.171
Election Year Fixed Effects	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X
All Strikes	X	X	X	X

Notes: + p<.10,   * p<0.05,   ** p<0.01,   *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Election years between 2008 and 2020 are included.

Table A4. Effect of Strikes on Turnout by Distance

	NaNDA		CCES				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Voter Turnout		Voter Turnout				
Close Strike Effect	-0.030***	-0.031***	-0.016*	-0.011*	-0.002	-0.007	-0.000
	(0.004)	(0.003)	(0.007)	(0.005)	(0.006)	(0.006)	(0.006)
Proximate Strike Effect	-0.001		-0.008				
	(0.005)		(0.009)				
Distant Strike Effect	0.004		-0.004				
	(0.004)		(0.007)				
Close Strike Effect X Republican					-0.021***		-0.017*
					(0.006)		(0.007)
Close Strike Effect X Independent					-0.006		-0.007
					(0.007)		(0.009)
Close Strike Effect X Parent						-0.017*	-0.012
						(0.007)	(0.011)
Close Strike Effect X Republican X Parent							-0.009
							(0.012)
Close Strike Effect X Independent X Parent							0.007
							(0.019)
Democratic Partisanship Index (%)	0.169***	0.169***					
	(0.030)	(0.030)					
Population (Log)	0.074**	0.074**					
	(0.027)	(0.027)					
Parent (%)	-0.344**	-0.343**					
	(0.125)	(0.125)					
Hispanic (%)	0.051	0.054					
	(0.097)	(0.097)					
African American (%)	0.017	0.020					
	(0.092)	(0.092)					
Median Income	-0.000***	-0.000***					
	(0.000)	(0.000)					
Some College+			0.128***	0.128***	0.128***	0.128***	0.128***
			(0.003)	(0.003)	(0.003)	(0.003)	(0.003)

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50-100K			0.047***	0.047***	0.046***	0.047***	0.046***
			(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Over 100K			0.069***	0.069***	0.069***	0.070***	0.069***
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Prefer not to say or missing			0.019***	0.019***	0.019***	0.019***	0.019***
			(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Black			-0.054***	-0.054***	-0.053***	-0.054***	-0.052***
			(0.005)	(0.006)	(0.005)	(0.006)	(0.006)
Hispanic			-0.075***	-0.075***	-0.075***	-0.075***	-0.074***
			(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Others			-0.060***	-0.060***	-0.060***	-0.060***	-0.060***
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Female			-0.004	-0.004	-0.004	-0.004	-0.004
			(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Employed Full-Time			0.012***	0.012***	0.012***	0.012***	0.012***
			(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Parent			-0.028***	-0.028***	-0.028***	-0.022***	-0.043***
			(0.003)	(0.003)	(0.003)	(0.004)	(0.006)
Own home			0.053***	0.053***	0.053***	0.053***	0.053***
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Age			0.007***	0.007***	0.007***	0.007***	0.007***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Republican			0.006*	0.006*	0.013***	0.006*	0.001
			(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
Independent			-0.181***	-0.181***	-0.179***	-0.181***	-0.185***
			(0.003)	(0.003)	(0.005)	(0.003)	(0.006)
Republican # Parent							0.044***
							(0.007)
Independent # Parent							0.021*
							(0.009)
Observations	18,571	18,571	374,111	374,111	374,111	374,111	374,111
Adjusted R-squared	0.471	0.471	0.177	0.177	0.177	0.177	0.177
Election Year Fixed Effects	X	X	X	X	X	X	X
County Fixed Effects	X	X	X	X	X	X	X
All Strikes							

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Columns 1 and 2 show results for the NaNDA (election year 2008-2018). Column (3) through (7) show results for the CCES (election year 2008-2020). Close strikes are 50 miles or less away. Proximate strikes are between 51 and 100 miles away. Distant strikes are between 101 and 200 miles away. Counties that are more than 200 miles away from the closest strike comprise the uncoded comparison group. Election years between 2008 and 2020 are included. Interaction terms must be interpreted alongside main effects, see Figure 4 for a visualization of the linear combinations.

Table A5. Effect of Strike Length on Voter Turnout

	NaNDA			CCES		
	(1)	(2)	(3)	(4)	(5)	(6)
	Voter Turnout			Voter Turnout		
Length (Continuous)	-0.001+			-0.001*		
	(0.001)			(0.001)		
5 Days or Less		0.011			-0.001	
		(0.009)			(0.010)	
6-10 Days		-0.018*			-0.025***	
		(0.007)			(0.006)	
11+ Days		-0.018			-0.005	
		(0.032)			(0.017)	
1 Day			0.013			-0.005
			(0.011)			(0.013)
2-5 Days			0.007			0.005
			(0.017)			(0.013)
6+ Days			-0.018*			-0.019**
			(0.009)			(0.006)
Democratic Partisanship Index (%)	0.167***	0.166***	0.166***			
	(0.030)	(0.030)	(0.030)			
Population (Log)	0.070**	0.069*	0.068*			
	(0.027)	(0.027)	(0.027)			
Parent (%)	-0.312*	-0.309*	-0.309*			
	(0.126)	(0.126)	(0.126)			
Hispanic (%)	0.070	0.071	0.072			
	(0.097)	(0.097)	(0.097)			
African American (%)	0.020	0.022	0.022			
	(0.092)	(0.092)	(0.092)			
Median Income	-0.000***	-0.000***	-0.000***			
	(0.000)	(0.000)	(0.000)			
Some College+				0.128***	0.128***	0.128***
				(0.003)	(0.003)	(0.003)
50-100K				0.047***	0.047***	0.047***
				(0.003)	(0.003)	(0.003)
Over 100K				0.069***	0.069***	0.069***

	(1)	(2)	(3)	(4)	(5)	(6)
				(0.004)	(0.004)	(0.004)
Prefer not to say or missing				0.019***	0.019***	0.019***
				(0.004)	(0.004)	(0.004)
Black				-0.054***	-0.054***	-0.054***
				(0.005)	(0.006)	(0.006)
Hispanic				-0.075***	-0.075***	-0.075***
				(0.006)	(0.006)	(0.006)
Others				-0.060***	-0.060***	-0.060***
				(0.005)	(0.005)	(0.005)
Female				-0.004	-0.004	-0.004
				(0.002)	(0.002)	(0.002)
Employed Full-Time				0.012***	0.012***	0.012***
				(0.003)	(0.003)	(0.003)
Parent				-0.028***	-0.028***	-0.028***
				(0.003)	(0.003)	(0.003)
Own home				0.053***	0.053***	0.053***
				(0.005)	(0.005)	(0.005)
Age				0.007***	0.007***	0.007***
				(0.000)	(0.000)	(0.000)
Republican				0.006*	0.006*	0.006*
				(0.003)	(0.003)	(0.003)
Independent				-0.181***	-0.181***	-0.181***
				(0.003)	(0.003)	(0.003)
Observations	18,577	18,577	18,577	374,111	374,111	374,111
Adjusted R-squared	0.47	0.47	0.47	0.177	0.177	0.177
Election Year Fixed Effects	X	X	X	X	X	X
County Fixed Effects	X	X	X	X	X	X
All Strikes						

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Posthoc tests find that coefficients for 5 Days or Less and 6-10 Days are significantly different (p<.01) in Columns 2 and 5, and coefficients for 5+ Days and 1 Day are significantly different in Column 3 (p<.05). Estimated effects are derived from the first strike event in a given county. If there were non-consecutive strikes in a given school district and election cycle, we add up the total days. If there were multiple striking districts in a county and election cycle, we use the longest strike amongst those districts, so as not to inappropriately inflate the length of strikes in counties with multiple overlapping districts.

Table A6. Effect of Teacher Strikes on Presidential and Midterm Election Voter Turnout

	NaNDA	CCES				NaNDA	CCES			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Midterm Elections Voter Turnout					Presidential Elections Voter Turnout				
Strike Effect	-0.029***	-0.045***	-0.032***	-0.038***	-0.024*	-0.030+	-0.001	0.006	0.004	0.010
	(0.004)	(0.008)	(0.009)	(0.008)	(0.010)	(0.015)	(0.006)	(0.007)	(0.007)	(0.007)
Strike Effect X Republican			-0.028***		-0.028**			-0.020**		-0.019**
			(0.008)		(0.009)			(0.006)		(0.007)
Strike Effect X Independent			-0.021**		-0.027**			-0.010		-0.006
			(0.008)		(0.009)			(0.007)		(0.008)
Strike Effect X Parent				-0.030*	-0.033+				-0.023*	-0.018
				(0.012)	(0.018)				(0.010)	(0.012)
Strike Effect X Repub. X Parent					0.002					0.000
					(0.022)					(0.014)
Strike Effect X Indep. X Parent					0.033					-0.012
					(0.021)					(0.018)
Dem. Partisanship Index (%)	0.219***					0.161**				
	(0.032)					(0.054)				
Population (Log)	0.221***					0.044				
	(0.033)					(0.037)				
Parent (%)	-0.389***					-0.320+				
	(0.108)					(0.173)				
Hispanic (%)	-0.194+					0.122				
	(0.117)					(0.138)				
African American (%)	-0.144					0.013				
	(0.147)					(0.150)				
Median Income	-0.000					-0.0***				
	(0.000)					(0.000)				
Some College +		0.141***	0.141***	0.141***	0.141***		0.125***	0.125***	0.125***	0.124***
		(0.003)	(0.003)	(0.003)	(0.003)		(0.003)	(0.003)	(0.003)	(0.003)
50-100K		0.041***	0.041***	0.041***	0.041***		0.040***	0.040***	0.040***	0.040***
		(0.003)	(0.003)	(0.003)	(0.003)		(0.003)	(0.003)	(0.003)	(0.003)
Over 100K		0.063***	0.063***	0.063***	0.063***		0.061***	0.061***	0.061***	0.060***
		(0.004)	(0.004)	(0.004)	(0.004)		(0.003)	(0.003)	(0.003)	(0.003)
Prefer not to say or missing		0.017***	0.017***	0.017***	0.018***		0.007+	0.007+	0.007+	0.007+

		(0.004)	(0.004)	(0.004)	(0.004)		(0.004)	(0.004)	(0.004)	(0.004)
Black		-0.093***	-0.093***	-0.093***	-0.091***		-0.056***	-0.056***	-0.056***	-0.055***
		(0.004)	(0.004)	(0.004)	(0.004)		(0.005)	(0.005)	(0.005)	(0.005)
Hispanic		-0.109***	-0.109***	-0.109***	-0.107***		-0.071***	-0.071***	-0.071***	-0.070***
		(0.006)	(0.006)	(0.006)	(0.006)		(0.006)	(0.006)	(0.006)	(0.006)
Others		-0.055***	-0.055***	-0.055***	-0.055***		-0.061***	-0.061***	-0.061***	-0.061***
		(0.005)	(0.005)	(0.005)	(0.005)		(0.005)	(0.005)	(0.005)	(0.005)
Female		-0.034***	-0.034***	-0.034***	-0.034***		0.010***	0.010***	0.010***	0.010***
		(0.003)	(0.003)	(0.003)	(0.003)		(0.002)	(0.002)	(0.002)	(0.002)
Employed Full-Time		0.011***	0.011***	0.011***	0.011***		0.005*	0.005*	0.005*	0.005*
		(0.003)	(0.003)	(0.003)	(0.003)		(0.002)	(0.002)	(0.002)	(0.002)
Parent		-0.034***	-0.034***	-0.030***	-0.054***		-0.037***	-0.037***	-0.034***	-0.052***
		(0.004)	(0.004)	(0.004)	(0.005)		(0.004)	(0.004)	(0.004)	(0.007)
Own Home		0.059***	0.059***	0.059***	0.059***		0.028***	0.029***	0.029***	0.029***
		(0.004)	(0.004)	(0.004)	(0.004)		(0.005)	(0.005)	(0.005)	(0.005)
Age		0.008***	0.008***	0.008***	0.008***		0.006***	0.006***	0.006***	0.006***
		(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
Republican		0.001	0.006+	0.001	-0.006		-0.016***	-0.013***	-0.016***	-0.024***
		(0.003)	(0.003)	(0.003)	(0.004)		(0.003)	(0.003)	(0.003)	(0.003)
Independent		-0.155***	-0.151***	-0.155***	-0.160***		-0.179***	-0.177***	-0.179***	-0.182***
		(0.003)	(0.004)	(0.003)	(0.004)		(0.003)	(0.003)	(0.003)	(0.004)
Republican # Parent					0.048***					0.041***
					(0.006)					(0.007)
Independent # Parent					0.034***					0.020*
					(0.008)					(0.009)
Observations	9,407	182,351	182,351	182,351	182,351	9,319	239,043	239,043	239,043	239,043
Adjusted R-squared	0.495	0.200	0.200	0.200	0.201	0.261	0.141	0.141	0.141	0.141
Election Year Fixed Effects	X	X	X	X	X	X	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X	X	X	X	X	X	X
All Strikes	X	X	X	X	X	X	X	X	X	X

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Midterm Elections include 2010, 2014, 2018, and Presidential Elections include 2008, 2012, 2016 and 2020 (CCES).

Table A7. Effect of Strikes on Public Opinion and Political Efficacy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Support for Education Spending				Interest in Government and Public Affairs			
Strike Effect	-0.013*	0.004	-0.010	0.005	0.004	0.015***	0.004	0.017***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.003)	(0.004)	(0.003)	(0.004)
Strike Effect X Republican		-0.049***		-0.046***		-0.025***		-0.029***
		(0.007)		(0.008)		(0.006)		(0.006)
Strike Effect X Independent		-0.008		-0.002		-0.019***		-0.022***
		(0.008)		(0.009)		(0.005)		(0.006)
Strike Effect X Parent			-0.016**	-0.005			0.001	-0.005
			(0.005)	(0.006)			(0.004)	(0.005)
Strike Effect X Republican X Parent				-0.004				0.018*
				(0.012)				(0.008)
Strike Effect X Independent X Parent				-0.019				0.008
				(0.016)				(0.013)
Some College +	0.026***	0.026***	0.026***	0.025***	0.130***	0.130***	0.130***	0.130***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
50-100K	0.017***	0.017***	0.017***	0.017***	0.042***	0.042***	0.042***	0.042***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Over 100K	0.022***	0.022***	0.022***	0.022***	0.064***	0.063***	0.064***	0.063***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)
Prefer not to say or missing	-0.021***	-0.021***	-0.021***	-0.020***	0.039***	0.039***	0.039***	0.039***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)
Black	0.005	0.005	0.004	0.008+	-0.055***	-0.055***	-0.055***	-0.055***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Hispanic	-0.004	-0.004	-0.004	-0.002	-0.065***	-0.065***	-0.065***	-0.065***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
Others	-0.041***	-0.041***	-0.041***	-0.040***	-0.009*	-0.009*	-0.009*	-0.009*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Female	0.057***	0.057***	0.057***	0.057***	-0.085***	-0.085***	-0.085***	-0.085***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Employed Full-Time	-0.012***	-0.012***	-0.012***	-0.011***	0.015***	0.015***	0.015***	0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Parent	0.063***	0.063***	0.066***	0.010**	0.004*	0.004*	0.003+	0.008**
	(0.003)	(0.003)	(0.003)	(0.004)	(0.002)	(0.002)	(0.002)	(0.003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Own Home	-0.053***	-0.053***	-0.053***	-0.052***	0.027***	0.028***	0.027***	0.027***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Age	-0.001***	-0.001***	-0.001***	-0.001***	0.005***	0.005***	0.005***	0.005***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Republican	-0.348***	-0.339***	-0.348***	-0.366***	-0.009***	-0.006***	-0.009***	-0.006***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)
Independent	-0.238***	-0.236***	-0.238***	-0.255***	-0.157***	-0.155***	-0.157***	-0.146***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.003)	(0.002)	(0.003)
Republican # Parent				0.115***				0.001
				(0.006)				(0.003)
Independent # Parent				0.079***				-0.030***
				(0.007)				(0.006)
Observations	250,295	250,295	250,295	250,295	455,719	455,719	455,719	455,719
Adjusted R-squared	0.160	0.160	0.160	0.162	0.168	0.168	0.168	0.168
Election Year Fixed Effects	X	X	X	X	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X	X	X	X	X
All Strikes	X	X	X	X	X	X	X	X

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Election years between 2014 and 2020 are included for Column (1) through (4), and election years between 2008 and 2020 are included for Column (5) through (8). Interaction terms must be interpreted alongside main effects, see Figure 5 for a visualization of the linear combinations.

Table A8. Interest in Government and Public Affairs (Continuous Years, All Strikes)

	(1)	(2)	(3)	(4)
		Voter Turnout		
Strike Effect	0.002	0.009*	0.001	0.009*
	(0.003)	(0.004)	(0.003)	(0.004)
Strike Effect X Republican		-0.015**		-0.018***
		(0.005)		(0.005)
Strike Effect X Independent		-0.011*		-0.014**
		(0.005)		(0.005)
Strike Effect X Parent			0.006	0.001
			(0.004)	(0.004)
Strike Effect X Republican X Parent				0.011+
				(0.006)
Strike Effect X Independent X Parent				0.005
				(0.010)
Some College +	0.123***	0.123***	0.123***	0.123***
	(0.002)	(0.002)	(0.002)	(0.002)
50-100K	0.043***	0.043***	0.043***	0.043***
	(0.002)	(0.002)	(0.002)	(0.002)
Over 100K	0.065***	0.065***	0.065***	0.065***
	(0.002)	(0.002)	(0.002)	(0.002)
Prefer not to say or missing	0.041***	0.041***	0.041***	0.041***
	(0.002)	(0.002)	(0.002)	(0.002)
Black	-0.056***	-0.056***	-0.056***	-0.057***
	(0.002)	(0.002)	(0.002)	(0.002)
Hispanic	-0.063***	-0.063***	-0.064***	-0.064***
	(0.003)	(0.003)	(0.003)	(0.003)
Others	-0.007	-0.007+	-0.007	-0.007+
	(0.004)	(0.004)	(0.004)	(0.004)
Female	-0.088***	-0.088***	-0.088***	-0.087***
	(0.001)	(0.001)	(0.001)	(0.001)
Employed Full-Time	0.017***	0.017***	0.017***	0.016***
	(0.001)	(0.001)	(0.001)	(0.001)
Parent	0.001	0.001	-0.000	0.005*
	(0.002)	(0.002)	(0.002)	(0.002)
Own Home	0.027***	0.027***	0.027***	0.027***
	(0.002)	(0.002)	(0.002)	(0.002)
Age	0.005***	0.005***	0.005***	0.005***
	(0.000)	(0.000)	(0.000)	(0.000)
Republican	-0.008***	-0.006***	-0.008***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)
Independent	-0.155***	-0.153***	-0.155***	-0.143***
	(0.002)	(0.003)	(0.002)	(0.003)
Republican # Parent				0.002
				(0.003)
Independent # Parent				-0.035***
				(0.005)
Observations	601,560	601,560	601,560	601,560
Adjusted R-squared	0.165	0.166	0.165	0.166
Election Year Fixed Effects	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X
All Strikes	X	X	X	X

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Continuous years between 2008 and 2021 are included.

Table A9. Interest in Government and Public Affairs (Continuous Years, First Strike Only)

	(1)	(2)	(3)	(4)
		Voter Turnout		
Strike Effect	0.009+	0.015*	0.007	0.013*
	(0.005)	(0.006)	(0.006)	(0.007)
Strike Effect X Republican		-0.008		-0.006
		(0.007)		(0.008)
Strike Effect X Independent		-0.021*		-0.023*
		(0.010)		(0.011)
Strike Effect X Parent			0.007	0.009
			(0.007)	(0.007)
Strike Effect X Republican X Parent				-0.007
				(0.011)
Strike Effect X Independent X Parent				0.000
				(0.024)
Some College +	0.111***	0.111***	0.111***	0.111***
	(0.003)	(0.003)	(0.003)	(0.003)
50-100K	0.050***	0.050***	0.050***	0.050***
	(0.003)	(0.003)	(0.003)	(0.003)
Over 100K	0.078***	0.078***	0.078***	0.078***
	(0.003)	(0.003)	(0.003)	(0.003)
Prefer not to say or missing	0.043***	0.043***	0.043***	0.043***
	(0.004)	(0.004)	(0.004)	(0.004)
Black	-0.043***	-0.043***	-0.043***	-0.043***
	(0.004)	(0.004)	(0.004)	(0.004)
Hispanic	-0.056***	-0.056***	-0.056***	-0.056***
	(0.005)	(0.005)	(0.005)	(0.005)
Others	-0.006	-0.006	-0.006	-0.006
	(0.007)	(0.007)	(0.007)	(0.007)
Female	-0.083***	-0.083***	-0.083***	-0.083***
	(0.002)	(0.002)	(0.002)	(0.002)
Employed Full-Time	0.019***	0.019***	0.019***	0.019***
	(0.003)	(0.003)	(0.003)	(0.003)
Parent	-0.002	-0.002	-0.003	-0.001
	(0.003)	(0.003)	(0.003)	(0.004)
Own Home	0.030***	0.030***	0.030***	0.029***
	(0.003)	(0.003)	(0.003)	(0.003)
Age	0.005***	0.005***	0.005***	0.005***
	(0.000)	(0.000)	(0.000)	(0.000)
Republican	0.001	0.003	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Independent	-0.175***	-0.172***	-0.175***	-0.163***
	(0.004)	(0.004)	(0.004)	(0.005)
Republican # Parent				0.008
				(0.005)
Independent # Parent				-0.029***
				(0.008)
Observations	461,178	461,178	461,178	461,178
Adjusted R-squared	0.167	0.167	0.167	0.168
Election Year Fixed Effects	X	X	X	X
County Fixed Effects	X	X	X	X
All Strikes				

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Continuous years between 2008 and 2021 are included.

Table A10. Robustness Checks for Analysis of NaNDA Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Strike Effect	-0.031***	-0.033***	-0.051***	-0.055***	-0.032***	-0.034***	-0.017***	-0.017***	-0.025***	-0.028***
	(0.006)	(0.005)	(0.013)	(0.012)	(0.006)	(0.006)	(0.003)	(0.003)	(0.005)	(0.005)
Partisanship Index		0.168***		0.175***		0.168***		0.167***		0.169***
		(0.030)		(0.032)		(0.030)		(0.030)		(0.013)
Population (log)		0.075**		0.069*		0.076**		0.070**		0.072***
		(0.027)		(0.028)		(0.027)		(0.027)		(0.011)
Parent (%)		-0.324*		-0.318*		-0.324*		-0.333**		-0.330***
		(0.126)		(0.130)		(0.126)		(0.125)		(0.053)
Hispanic (%)		0.062		0.096		0.062		0.059		0.070+
		(0.097)		(0.100)		(0.097)		(0.097)		(0.041)
African American (%)		0.022		0.039		0.022		0.008		0.028
		(0.092)		(0.095)		(0.092)		(0.093)		(0.038)
Median Income		-0.000***		-0.000***		-0.000***		-0.000***		-0.000***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)
Observations	18,877	18,877	17,533	17,533	18,577	18,577	18571	18571	102,234	102,162
Adjusted R-squared	0.468	0.470	0.453	0.456	0.468	0.470	0.468	0.470	0.462	0.465
Election Year Fixed Effects	X	X	X	X	X	X	X	X	X	X
County Fixed Effects					X	X	X	X		
CountyXEvent Fixed Effects	X	X	X	X					X	X
All Strikes	X	X							X	X

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Columns 1 and 2 show our preferred model specification for reference, as shown in Column 1 and 2 of Table 2. Columns 3 and 4 exclude strikes that occurred in 2018. Columns 5 and 6 show the results estimating the effect of only the first strike in a given county. Columns 7 and 8 show the distance analysis using a dichotomous treatment indicator for a strike 100 or less miles away. Columns 9 and 10 use "stacked" approach utilized by Cengiz et al. (2019). We create and stack distinct samples where each stack includes a distinct cohort of treated counties for which the strike occurred in the same election year. As control units, we only include counties that never experienced a strike during our panel. We then interact all model terms with a series of cohort fixed effects and pool treatment estimates for each stack to calculate the overall treatment effect.

Table A11. Robustness Checks for Analysis of CCES Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
							Voter Turnout					
Strike Effect	-0.019***	-0.009+	-0.025***	-0.012*	-0.020***	-0.009+	-0.019***	-0.010*	-0.020**	-0.010	-0.010	-0.003
	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.004)	(0.004)	(0.006)	(0.007)	(0.006)	(0.007)
Strike Effect*Republican		-0.023***		-0.022***		-0.024***		-0.022***		-0.021**		-0.017**
		(0.005)		(0.006)		(0.005)		(0.004)		(0.007)		(0.006)
Some College +	0.131***	0.131***			0.129***	0.129***	0.129***	0.129***	0.128***	0.128***	0.128***	0.128***
	(0.002)	(0.002)			(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)
50-100K	0.041***	0.041***			0.041***	0.041***	0.042***	0.042***	0.047***	0.047***	0.047***	0.047***
	(0.002)	(0.002)			(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)
Over 100K	0.062***	0.062***			0.063***	0.063***	0.064***	0.064***	0.069***	0.069***	0.069***	0.069***
	(0.003)	(0.003)			(0.003)	(0.003)	(0.001)	(0.001)	(0.004)	(0.004)	(0.004)	(0.004)
Prefer not to say or missing	0.013***	0.013***			0.013***	0.013***	0.015***	0.015***	0.019***	0.019***	0.019***	0.019***
	(0.003)	(0.003)			(0.003)	(0.003)	(0.001)	(0.001)	(0.004)	(0.004)	(0.004)	(0.004)
Black	-0.073***	-0.072***			-0.072***	-0.072***	-0.069***	-0.069***	-0.054***	-0.054***	-0.054***	-0.053***
	(0.004)	(0.004)			(0.004)	(0.004)	(0.002)	(0.002)	(0.005)	(0.005)	(0.006)	(0.006)
Hispanic	-0.088***	-0.088***			-0.101***	-0.101***	-0.099***	-0.099***	-0.075***	-0.075***	-0.075***	-0.075***
	(0.005)	(0.005)			(0.005)	(0.005)	(0.002)	(0.002)	(0.006)	(0.006)	(0.006)	(0.006)
Others	-0.059***	-0.059***			-0.077***	-0.077***	-0.074***	-0.074***	-0.060***	-0.060***	-0.060***	-0.060***
	(0.003)	(0.003)			(0.003)	(0.003)	(0.002)	(0.002)	(0.005)	(0.005)	(0.005)	(0.005)
Female	-0.011***	-0.011***			-0.011***	-0.011***	-0.010***	-0.010***	-0.004	-0.004	-0.004	-0.004
	(0.002)	(0.002)			(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Employed Full-Time	0.007***	0.007***			0.008***	0.008***	0.010***	0.010***	0.012***	0.012***	0.012***	0.012***
	(0.002)	(0.002)			(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)
Parent	-0.037***	-0.037***			-0.038***	-0.038***	-0.037***	-0.037***	-0.028***	-0.028***	-0.028***	-0.028***
	(0.003)	(0.003)			(0.003)	(0.003)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)
Own Home	0.043***	0.044***			0.046***	0.046***	0.048***	0.048***	0.053***	0.053***	0.053***	0.053***
	(0.004)	(0.004)			(0.004)	(0.004)	(0.002)	(0.002)	(0.005)	(0.005)	(0.005)	(0.005)
Age	0.007***	0.007***			0.007***	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***
	(0.000)	(0.000)			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Republican	-0.008***	-0.005*		0.047***	-0.005*	-0.002	-0.005***	-0.004***	0.006*	0.010**	0.006*	0.015***
	(0.002)	(0.002)		(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.004)
Independent	-0.169***	-0.167***		-0.203***	-0.168***	-0.165***	-0.168***	-0.168***	-0.181***	-0.180***	-0.181***	-0.180***
	(0.002)	(0.003)		(0.003)	(0.002)	(0.003)	(0.001)	(0.001)	(0.003)	(0.004)	(0.003)	(0.005)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Linear Combination:		-0.033***		-0.034***		-0.033***		-0.032***		-0.031***		-0.020**
Effect on Republicans		(0.006)		(0.006)		(0.006)		(0.005)		(0.008)		(0.007)
Observations	468,292	468,292	469,148	469,148	477,520	477,520	2,100,136	2,100,136	374,111	374,111	374,111	374,111
Adjusted R-squared	0.171	0.171	0.043	0.074	0.176	0.176	0.176	0.176	0.177	0.177	0.177	0.177
Election Year Fixed Effects	X	X	X	X	X	X	X	X	X	X	X	X
CountyXEvent Fixed Effects	X	X	X	X	X	X	X	X				
County Fixed Effects									X	X	X	X
All Strikes	X	X	X	X	X	X	X	X				

Notes: + $p<.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$. Robust standard errors, clustered at the county level in parentheses. Columns 1 and 2 show our preferred model specifications for reference. Columns 3 and 4 show the results with control variables removed. Columns 5 and 6 show the results removing the sample restriction of self-identified citizens. Columns 7 and 8 use the "stacked" approach utilized by Cengiz et al. (2019). We create and stack distinct samples where each stack includes a distinct cohort of treated counties for which the strike occurred in the same election year. As control units, we only include counties that never experienced a strike during our panel. We then interact all model terms with a series of cohort fixed effects and pool treatment estimates for each stack to calculate the overall treatment effect. Columns 9 and 10 estimate the effect of just the first strike in a county using Equations 2 and 3 respectively. Columns 11 and 12 replicate the distance analysis using a dichotomous treatment indicator from Table 4, replacing the treatment indicator for a strike 50 or less miles away with an indicator of a strike 100 miles or less away.

Table A12. Effect of Teachers Strikes on Voter Turnout using Zipcode Level Merge Process

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Voter Turnout				
Strike Effect	-0.016***	-0.002	-0.012**	0.003	-0.013*	0.003	-0.004	0.014+
	(0.004)	(0.005)	(0.004)	(0.005)	(0.006)	(0.007)	(0.007)	(0.008)
Strike Effect X Republican		-0.036***		-0.038***		-0.042***		-0.044***
		(0.007)		(0.007)		(0.009)		(0.011)
Strike Effect X Independent		-0.015+		-0.019*		-0.006		-0.019
		(0.008)		(0.009)		(0.011)		(0.013)
Strike Effect X Parent			-0.017*	-0.020*			-0.035***	-0.047***
			(0.007)	(0.009)			(0.010)	(0.013)
Strike Effect X Republican X Parent				0.009				0.012
				(0.014)				(0.021)
Strike Effect X Independent X Parent				0.019				0.054*
				(0.017)				(0.026)
Some College +	0.129***	0.129***	0.129***	0.129***	0.128***	0.128***	0.128***	0.127***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
50-100K	0.039***	0.039***	0.039***	0.039***	0.045***	0.045***	0.045***	0.044***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Over 100K	0.061***	0.061***	0.061***	0.061***	0.068***	0.068***	0.068***	0.068***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Prefer not to say or missing	0.009**	0.009**	0.009**	0.010***	0.015***	0.015***	0.015***	0.015***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Black	-0.072***	-0.072***	-0.072***	-0.070***	-0.058***	-0.058***	-0.058***	-0.057***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)
Hispanic	-0.085***	-0.085***	-0.085***	-0.084***	-0.071***	-0.071***	-0.071***	-0.070***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Others	-0.057***	-0.057***	-0.057***	-0.057***	-0.060***	-0.060***	-0.060***	-0.060***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)
Female	-0.012***	-0.012***	-0.012***	-0.012***	-0.004	-0.004	-0.004	-0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Employed Full-Time	0.005*	0.005*	0.005*	0.005**	0.009***	0.009***	0.009***	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Parent	-0.037***	-0.037***	-0.035***	-0.054***	-0.029***	-0.029***	-0.026***	-0.043***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Own Home	0.041***	0.041***	0.041***	0.041***	0.047***	0.047***	0.047***	0.047***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Age	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Republican	-0.009***	-0.007**	-0.009***	-0.016***	0.002	0.006*	0.002	-0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Independent	-0.168***	-0.167***	-0.168***	-0.173***	-0.179***	-0.179***	-0.179***	-0.183***
	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
Republican # Parent				0.040***				0.037***
				(0.004)				(0.006)
Independent # Parent				0.026***				0.018*
				(0.005)				(0.008)
Observations	401,727	401,727	401,727	401,727	370,280	370,280	370,280	370,280
Adjusted R-squared	0.184	0.184	0.184	0.184	0.221	0.221	0.221	0.221
Election Year Fixed Effects	X	X	X	X	X	X	X	X
Zipcode Fixed Effects					X	X	X	X
ZipcodeXEvent Fixed Effects	X	X	X	X				
All Strikes	X	X	X	X				

Notes: + p<.10, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors, clustered at the county level in parentheses. Election years between 2008 and 2020 are included. Columns 1-4 show results including all strikes and Columns 5-8 shows results only including the first strike.

Figure A1. Number of School District Strikes by Election Year
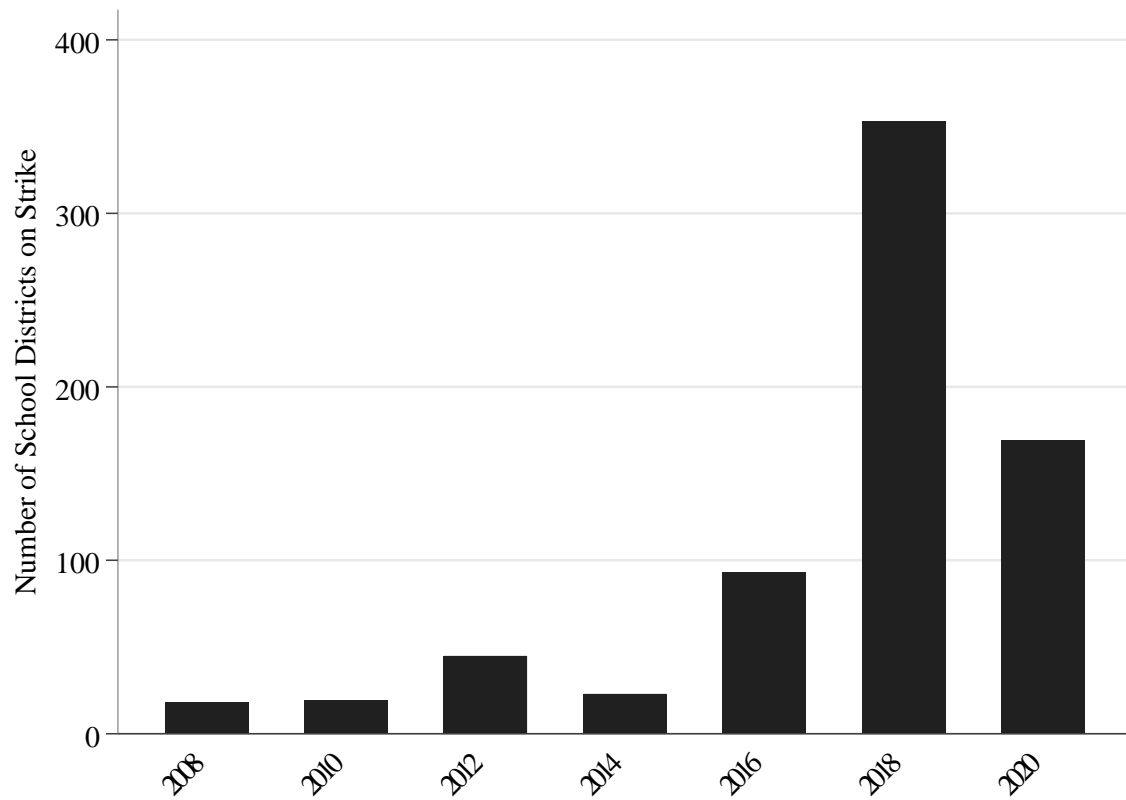
Notes: The figure shows the number of school district strikes by election year.

Appendix B

We merged the strike level data to the individual level, CCES data at the county-election year level. First, we identified all counties in which school districts had experienced strikes by merging our original strike dataset with 2021 School District Geographic Relationship Files (https://nces.ed.gov/programs/edge/geographic/relationshipfiles) downloaded from National Center for Education Statistics. We then merged these data with the individual level, CCES data at the county-election year level, identifying if a strike had taken place in a given election cycle in a given county.

Some county FIPS codes in CCES did not match with the counties identified using the geographic relationship files downloaded from IES. They are listed below. All of these county FIPs codes had changed over time.

County of residence	Frequency	Percent	Cumulative
02201	2	6.90	6.90
02232	7	24.14	31.03
02261	15	51.72	82.76
02280	4	13.79	96.55
46113	1	3.45	100.00
Total	29	100	

If the FIPS code had just changed or the county had been renamed, we simply replaced the previous county code with the one in CCES. If the counties had diverged into more than one county, we determined which divided area the respondents were living in and used the county code for that area (see table below). We did this by referring to the respondents' zip code. We used the "United States Zip Code Database" (https://www.unitedstateszipcodes.org/zip-code-database/), to find the matching county for each zip code. Then we replaced the FIPS code based on that. The detailed process and how the cases have changed are illustrated in below table. Using this process, we were able to match all county FIPs codes in the CCES with the county FIPS code in the IES Geographic Relationship files.

Old County_fips in CCES dataset do not match those in the strike dataset	Identified New County_fips in CCES dataset that now matched those in the strike dataset
02201	02198, 02275 ⑩ Prince of Wales-Hyder Census Area, AK **(FIPS code = 02198).** In 2008, Prince of WalesHyder Census Area was created from the remainder of the former Prince of Wales-Outer Ketchikan Census Area (FIPS code = 02201) after part (Outer Ketchikan) was annexed by Ketchikan Gateway Borough (FIPS code = 02130and another part was included in the new Wrangell Borough. This entity has a category code in the 2013 and 2006 NCHS schemes, but not in the 1990 census-based scheme. ⑩ Wrangell City and Borough, AK **(FIPS code = 02275).** In 2008, Wrangell City and Borough was created from part of Wrangell-Petersburg Census Area (FIPS code = 02280) and part of Prince of Wales-Outer Ketchikan Census Area (FIPS code = 02201). This entity has a category code in the 2013 and 2006 NCHS schemes, but not on the 1990 census-based scheme. ⑩ Above wordings cited from: https://www.cdc.gov/nchs/data/data_acces_files/County-Geography.pdf

02232	02105, 02230
	⑩ Hoonah-Angoon Census Area, AK **(FIPS code = 02105).** In 2007, Skagway-HoonahAngoon Census Area (FIPS code = 02232) was split into Hoonah-Angoon Census Area and Skagway Municipality **(FIPS code = 02230).** Hoonah-Angoon Census Area has a category code in the 2013 and 2006 NCHS schemes, but not in the 1990 census-based scheme.
	⑩ Above wordings cited from: https://www.cdc.gov/nchs/data/data_acces_files/County-Geography.pdf
02261	02063, 02066
	⑩ Chugach Census Area, Alaska **(FIPS code = 02063)** was created from part of former Valdez-Cordova Census Area(FIPS code = 02261) effective January 02, 2019. Estimates for this area appear on Vintage 2020 and later bridgedrace population files
	⑩ Copper River Census Area, Alaska **(FIPS code = 02066)** was created from part of former Valdez-Cordova Census Area (FIPS code = 02261) effective January 02, 2019. Estimates for this area appear on Vintage 2020 and later bridged-race population file
	⑩ Above wordings cited from: https://www.cdc.gov/nchs/nvss/bridged_race/county_geography-_changes1990-present.pdf
02280	02195, 02275
	⑩ Petersburg Census Area, AK **(FIPS code=02195).** Petersburg Census Area was created from part of the former Wrangell-Petersburg Census Area (FIPS code = 02280) in 2008. This entity has a category code in the 2013 and 2006 NCHS schemes, but not in the 1990 census-based scheme.
	⑩ Wrangell City and Borough, AK **(FIPS code = 02275).** In 2008, Wrangell City and Borough was created from part of Wrangell-Petersburg Census Area (FIPS code = 02280) and part of Prince of Wales-Outer Ketchikan Census Area (FIPS code = 02201). This entity has a category code in the 2013 and 2006 NCHS schemes, but not on the 1990 census-based scheme.
	⑩ Above wordings cited from: https://www.cdc.gov/nchs/data/data_acces_files/County-Geography.pdf
46113	46012
	⑩ Oglala Lakota County, SD. Shannon County, SD **(FIPS code = 46113)** was renamed Oglala Lakota County and assigned anew FIPS code (46102) effective in 2014. Oglala Lakota County has a category code in all three of the NCHS schemes.
	⑩ Above wordings cited from: https://www.cdc.gov/nchs/data/data_acces_files/County-Geography.pdf