The Effect of Teacher Strikes on Support for Schools

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Abstract

Opinion polls suggest that the public supports teacher strikes. I examine the impact of teacher strikes on voluntary financial support for schools as a revealed-preference measure of support. I use data from DonorsChoose.org, an online crowdfunding platform for school teachers to fund their classroom projects, combined with teacher strikes' timing and locations across the United States. Variation in the timing of the strikes across school districts does not affect overall private contributions. I do not find any changes in fundraising activities around the strikes.

1 Introduction

A recent poll by Ipsos/USA Today shows that three-quarters of Americans have largely positive views toward the teacher impacts on their life, and two-thirds support public school teachers' right to strike (Jackson and Newall, 2018). But are these stated opinions indicative of actual preferences? A measure of revealed preferences is used in literature to test preference structures and whether the behavior is consistent with utility maximization. In models of privately provided public goods, donations as the altruistic actions are used to understand to what extent the stated and revealed preferences match (Andreoni and Miller, 2002; Deb et al., 2014; de Oliveira et al., 2012; Craig et al., 2017; Vesterlund, 2016). My paper provides evidence of the revealed preferences to determine whether people actually respond to teacher strikes by supporting schools.

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Teacher strikes can affect public perceptions about the education system and, as a result, can change incentives to give. The desire to give can be driven by numerous factors such as social norms, fairness, or the deservedness of recipients (Bolton and Ockenfels, 2000; Charness and Rabin, 2002; Fehr and Schmidt, 1999; Konow, 2010). Teacher strikes can impact the deservedness factor in two ways. Strikes put teachers' demands and work issues under the spotlight and can increase sympathy for education workers. On the other hand, strikes are disruptive to students and parents, leading to prospective donors losing sympathy. In this study, I explore how teacher strikes impact voluntary financial supports to schools.

Amount donation is a function of donors' intent to give and their opportunities. Previous literature demonstrates the "power of the ask" in charitable giving (Andreoni and Rao, 2011; Andreoni et al., 2017; Meer and Rosen, 2011). Teacher strikes may impact fundraising decisions which can affect voluntary contributions. Teachers might ask for more funding given an increased sympathy for their needs. Also, there can be a change in fundraising due to a possible reduction (increase) in school funding after exposure to a strike. In this paper, I also investigate whether teacher strikes affect fundraising activities.

I utilize data from DonorsChoose.org, an online crowdfunding platform for public school teachers to raise money for classroom needs. Combined with the Bloomberg dataset on teacher strikes' timing and locations, I construct a panel at the district level and compare contributions in striking districts with those in non-striking districts. I exploit the variation in the timing of the strikes across regions. I include school district demographics, district, and time fixed effects to mitigate selection bias in my model specifications. I follow recent advances in difference-in-differences (DiD) designs with multiple treatments and heterogeneous treatment effects to account for potential bias from more traditional approaches.

My results show overall contributions do not change after exposure to the strikes. I do not find any conclusive evidence that the amount donated by parents, teachers, and organizations has been affected. That is mainly due to no change in the amount requested by teachers. My findings indicate that teachers are not changing their fundraising activities around the strikes. That can influence donors' opportunity to give.

My findings provide evidence for how teacher movements aimed at impacting public policy shape the private sector's preferences for supporting education. Additionally, my study investigates how strikes affect bystanders' prosocial preferences and behavior. To my knowledge, this study is the first to investigate the effects of teacher strikes on private giving to education. The closest work to this proposal is a recent study by Hertel-Fernandez et al. (2020), who investigated the effects of teacher strikes in 2018 on how other members of the public think about strikes. Using an original survey, they found that parents' support for teacher strikes and labor action increases with exposure to strikes. My work is related to a fairly extensive body of literature that studies teachers' collective bargaining and labor movements.

My study contributes to the literature on the role of private funding in public education.

Prior studies mostly concentrate on the crowd-out of private giving in response to changes in school budgets and government grants (Brunner and Sonstelie, 2003; Jones, 2015; Nelson and Gazley, 2014; Milton, 2017; Grosskopf et al., 2020; Hungerman et al., 2019; Meer and Tajali, 2021). However, less is known how collective bargaining and teacher movements affect private education-related contributions.

This article proceeds as follows: I provide discussion on behavioral responses to teacher strikes in section 2. In section 3, I discuss the data sources and empirical strategy. In section 4, I present the results. Section 5 concludes.

2 Potential Responses to Teacher Strikes

In this study, I investigate how public response to teacher strikes through contributions to teachers' classroom funding campaigns. Although there is no evidence of a direct relationship between strikes and charitable giving in the literature, there are some potential channels through which teacher strikes can affect public perception and responses.

There is evidence that teacher strikes elevate education as a political priority. Lyon and Kraft (2021) explore how teacher strikes shape congressional election campaigns using data from all U.S. teacher strikes between 2007 and 2018 and television political ads for U.S. House of Representatives elections. These campaign ads serve as a form of political discourse, and the empirical results show that teacher strikes increase the salience of education issues. Furthermore, their analyses suggest that shorter strikes lasting a week or less generate greater political and public support.[1]

If teacher strikes elevate education as a political priority, they can play an important role in garnering political support by raising funding for campaigns, influencing voting behavior, and affecting future school district funding. Therefore, it is possible that contributions to teachers' funding requests could be influenced by teacher strikes due to their publicity and increased political importance.

Moreover, the economic impact of teacher strikes on parents, due to school closures, can affect their perception and support of teachers' funding requests. A recent study by Jaume and Willén (2021) investigates how temporary school closures caused by teacher strikes affect parents. They find that mothers respond to teacher strikes by dropping out of the labor force due to disrupted childcare arrangements, and this impact on labor outcomes is stronger for mothers than for fathers in terms of reduced earnings. In another study, Dunbar (2013) specifically examines the impact of teacher strikes on family income due to childcare shocks, finding a reduction in family income.

[1]Kelloway et al. (2008) explore how members of third parties support strike actions. They find out those members support the strike when they believe the contract offered to the strikes was unfair.

Taken together, these studies suggest that teacher strikes may lead to income shocks for some families. The disruption in childcare arrangements is particularly important for household budgets and can influence parents' perceptions of labor movements.[2]

In addition, previous literature focuses mainly on student educational performance due to teacher strikes (Caldwell and Jeffreys, 1983; Zirkel, 1992; Thornicroft, 1994; Zwerling, 2008; Belot and Webbink, 2010; Johnson, 2011; Baker, 2013; Wills, 2014; Jaume and Willén, 2019) or teacher absences (Eberts, 2007; Miller et al., 2008; Clotfelter et al., 2009), with mixed findings on how teacher strikes affect student performance.

3 Data and Empirical Strategy

3.1 Data

3.1.1 DonorsChoose.org

I use a dataset from DonorsChoose.org, an online platform for public school teachers to post projects and collect funding. It provides detailed information on project postings by teachers and donations to the platform. Founded in 2000, more than 790,000 teachers got supported and 2.5 million projects funded. The platform has attracted more than $1.4 billion in donations from 5.7 million donors. Figure 1 presents data on the growth of the organization.

DonorsChoose.org is only one of the sources for private contributions to education. Public schools rely on donations raised by Parent-Teacher Organizations (Cope, 2019) or teachers may use their own money to provide classroom supplies. The use of online crowdfunding is growing as a fundraising tool, particularly in K-12 education. Nowadays, many online platforms can be used to raise money for local communities. Among all, DonorsChoose.org is one of the leading crowdfunding websites extensively used by public school teachers.[3] It includes the criteria mentioned by the National School Board Association for the best-in-class crowdfunding sites, such as financial transparency and accountability, privacy and safety, and integrity controls.[4] Other advantages of using the DonorsChoose.org data is the large sample size and no direct fundraising expenditures.

Unlike other philanthropic crowdfunding platforms, teachers do not receive the actual donations. Teachers select supplies from lists provided by vendors and write a request that

[2]Other papers (Narodowski et al., 2016) investigate the impact of teacher strikes on school choice and find no evidence of switching from public to private schools. However, when explaining the growth in private school enrollment in Argentina, teacher strikes are one of the explanatory variables (Narodowski and Moschetti, 2015).

[3]Given the scope and broad use of DonorsChoose.org among low-income communities, DonorsChoose.org is referred to as "the PTA Equalizer" (Rivero, 2018).

[4]For more details, see: https://help.donorschoose.org/hc/en-us/articles/360002942094-Resources-for-School-Board-Members

includes a discussion of student needs and the proposed use of the supplies. Teachers also provide a photograph of their classroom. The request's page includes information about the school (such as its location and poverty level) and the project (such as its subject matter and the number of students reached). The request includes an itemized list of the materials requested, their price and quantity, and any additional charges. The Donorschoose.org staff and volunteers screen these projects. Donors can browse, search, or filter projects to select ones to fund. Figure 2 shows the page of a representative project; note that the layout of the web page has changed several times over the history of the organization. Donations made on the platform are tax-deductible.

Figure 1: Some Characteristics in the DonorsChoose.org Data between 2002-2020

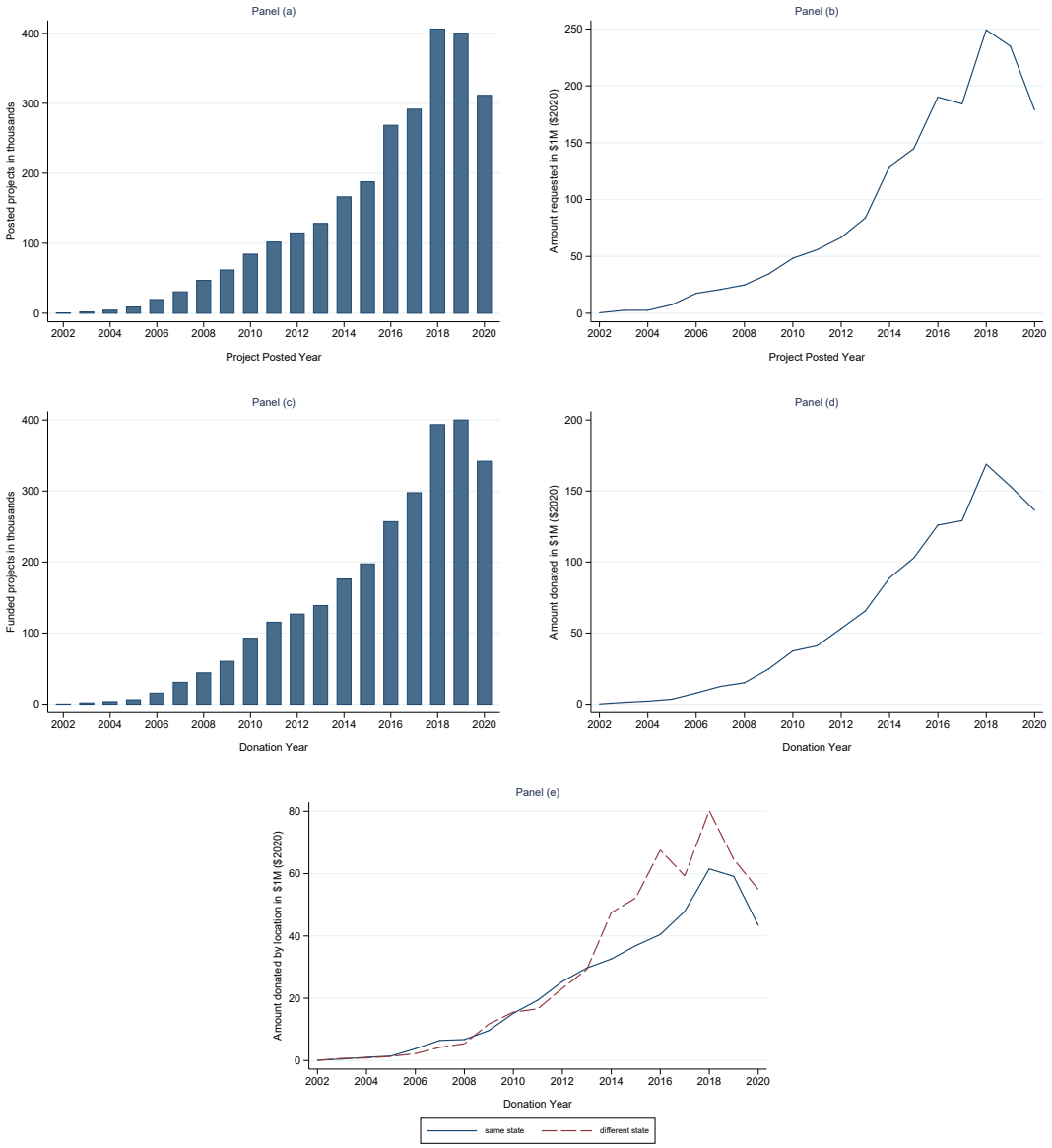
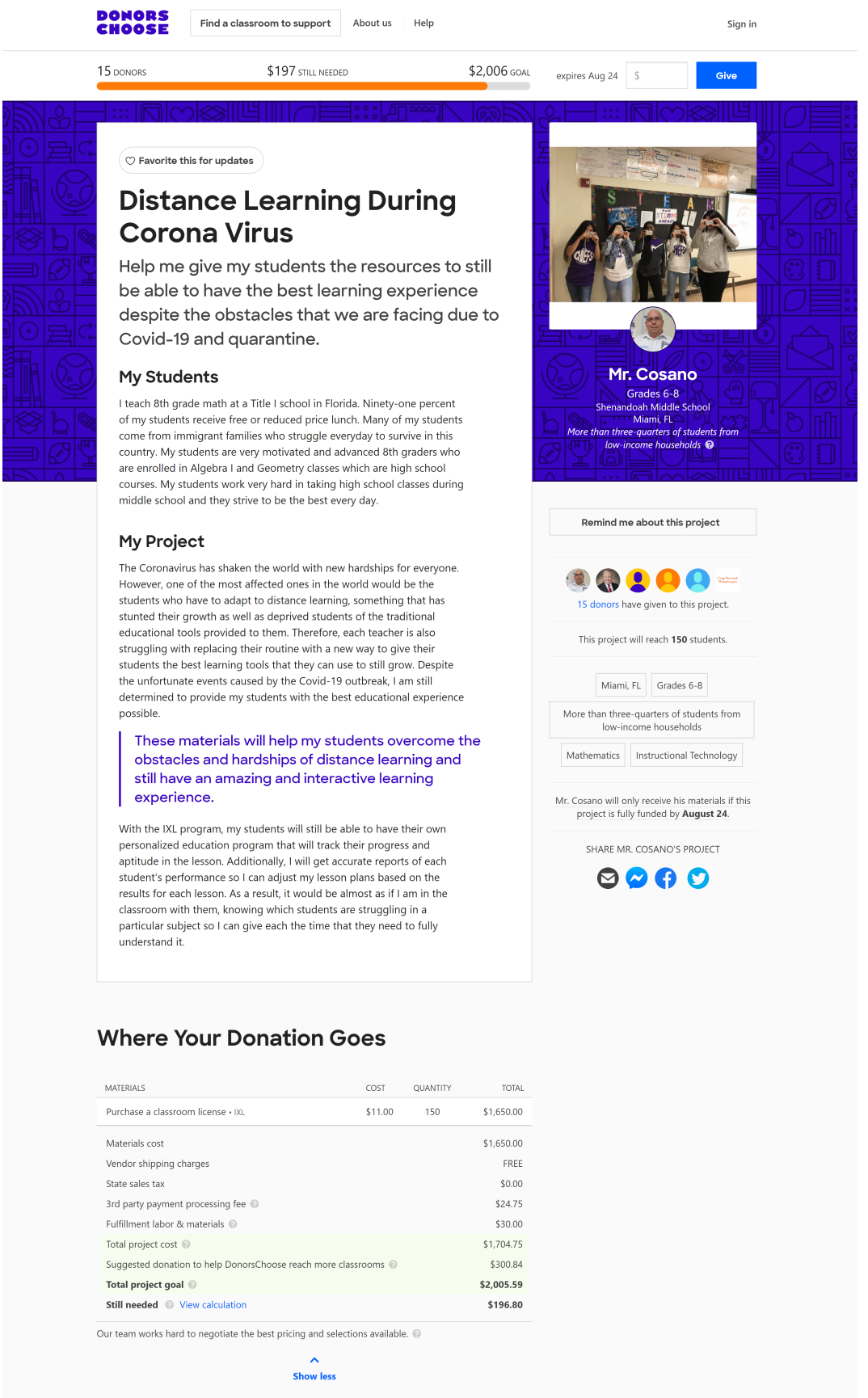


Figure 2: Sample of DonorsChoose.org Requested Project



If a project reaches its goal, DonorsChoose.org purchases the materials and ships them directly to the teacher. If the project expires prior to being funded, donors have the option to have the funds returned to their account to select another project or have DonorsChoose.org select a project for them. Projects that do not reach their goal expire after four months.

I construct a district-year-month panel since the strike variation is at the district or state level. DonorsChoose.org provides detailed information on project posting dates and donation created dates. I construct two versions based on project dates and donation dates when working with contributions or project postings, respectively. I also merge each dataset with district finance information from the Department of Education Common Core of Data (CCD), and enrollment from by race from Rutgers University School Funding Fairness Database.[5] Nominal dollar amounts are adjusted to 2020 dollars.

I collect data on projects, including National Center for Education Statistics ID number for the school, between 2002-2020.[6] These consist of 2,636,031 projects posted by the end of 2020, of which 68% met their goal. 83 percent of projects posted were from low-income schools, as defined by the percent qualifying for free and reduced-price lunch. About 25 percent of projects are related to literacy, and 12 percent are related to mathematics. About 34 percent of projects request some form of technology, 22 percent are for classroom supplies, and 18 percent request books. The mean project amount requested is $636 with a median of $456 (in 2020 dollars). A total number of 14,376,900 donations were made by the end of 2020 (irrespective of project funding status). On average, projects received $342 donations (with a median of $ 211); about 38% of donation amounts are from the same state as the school districts, while 46% are out of state.

3.1.2 Strike Data

Teacher strikes were common in the 1950s and 1960s, but they became less prevalent in the 1990s (Education Week Staff, 2018).[7] Since 2010 however, teacher strikes have become more frequent once again across states, districts, and localities. Recent strikes are not limited to states where teacher strikes are legal. Even in states where it is illegal for teachers to go on strikes, teachers have engaged in strike-like movements.[8] There have been between 3 and 24 teacher strikes per year since 2010 (Education Week Staff, 2018). In 2018, mass teacher strikes occurred at the state level. Thousands of teachers went on strike in West Virginia, Oklahoma, Arizona, Colorado, Kentucky, and North Carolina, continuing into 2019 with teacher walkouts in Los Angeles.

[5]The CCD includes district (finance) information by the end of the 2017-2018 school year.

[6]DonorsChoose.org provides data on projects beginning in 2002.

[7]Hundreds of strikes occurred in some years during those decades, mainly focused on getting school boards to recognize teachers' right to bargain.

[8]Despite the legality of collective bargaining for teachers in most states, the opposite is the case when it comes to the right to strike (Sanes et al., 2014). Figures A.1 and A.2 show collective bargaining and the right to strike across nation.

I use the Bloomberg Labor Plus (nd) database on work stoppages to collect teacher strikes timing and locations. The database covers labor unrest of different types (strikes, sickouts, lockouts, etc.). It provides information on start and end date, the location of a strike, the number of workers involved, the North American Industry Classification System (NAICS), and the Standard Industrial Classification (SIC) codes. Unlike the U.S. Bureau of Labor Statistics, which only including work stoppages involving 1,000 or more workers, the Bloomberg database includes smaller stoppages.[9]

I limit the strikes to those that occurred in the educational sector involving teachers in school districts with accessible information on the event dates or locations[10], occurring between 2002 to 2020 since the DonorsChoose.org data starts from 2002 onwards.

Strikes occur at the state and district level. When a strike is called "statewide", it does not mean that the entire state and all school districts go on a strike. For example, Kentucky's strike in 2004 and West Virginia's in 2007 were called "statewide" strikes, while less than half of districts were involved (Education Week Staff, 2018). It is difficult to determine which district went on strike in those cases. Therefore, I treat all the districts in that state as having has a strike at that time.

The Bloomberg dataset includes the location and the name of the district that a strike occurred. I connect this information with the School District Geographic Relationship files from the U.S. Department of Education (Geverdt, 2018). The LEA identifiers allow me to merge the strikes information with the DonorsChoose.org panel data. If multiple strikes occur in one district, I exclude the second strike if the difference between the two strikes is less than one year to avoid overlapping.[11]

During 2002-2020, eight states had a statewide strike, mainly in 2018 and 2019.[12] Although North Carolina (NC) and South Carolina (SC) had state-wide strikes in May 2018 and May 2019, they have also been hit by devastating hurricanes in mid-September.[13] It is likely that teacher responds to those natural disasters by requesting more funding. They might also receive more contributions as a result of that.[14] Since the timing of the strikes overlaps with

[9]I also use local news such as Education Week (Education Week, 2009) to look for any missing information on the database.

[10]For generality, I use the term strike for all types of work stoppages. Teachers or unions may use different tactics and tools to protest. However, it is common to use the word "strike" when referring to any type of work stoppages.

[11]My initial sample includes 2,996 district-strike events. About 10 percent of the sample has overlapping strikes within a year from each other, which in this case, the second strike is excluded from the sample.

[12]Including Arizona, California, Colorado, Kentucky, North Carolina, Oklahoma, South Carolina, and West Virginia. Table A.1 presents the timing of those strikes. Figure A.3 shows those states with district-wide strikes between 2002-2020.

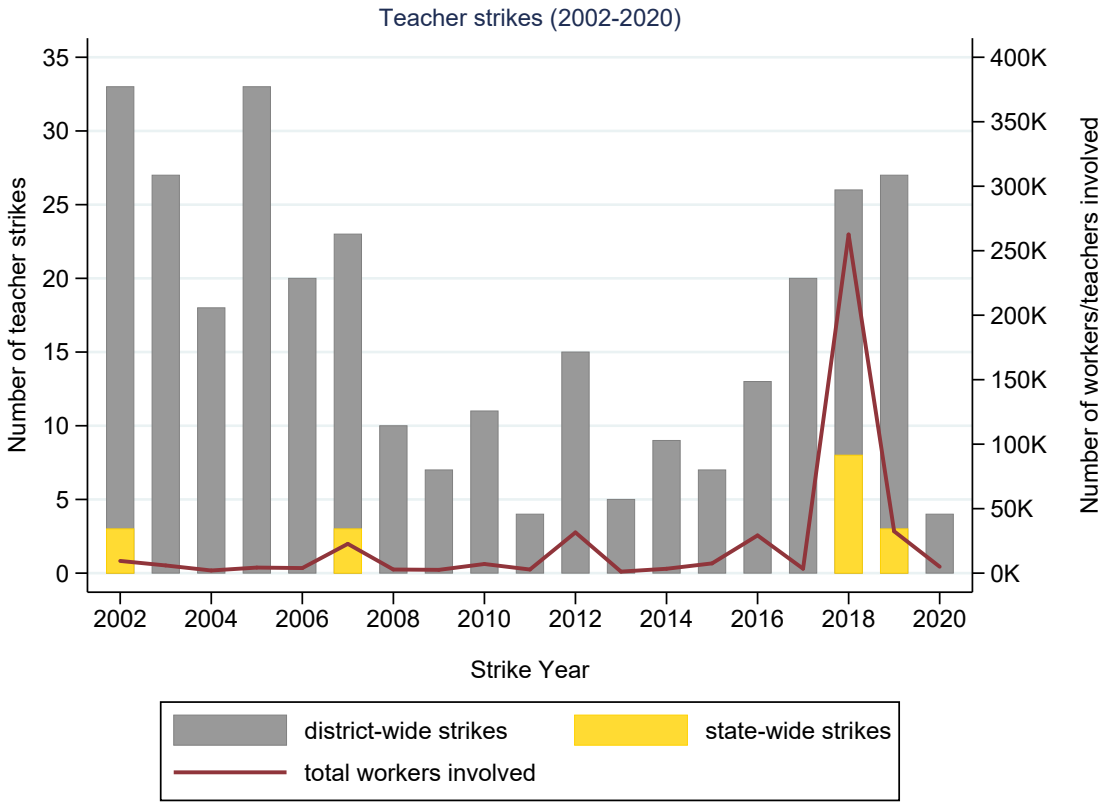
[13]Hurricane Florence in 2018 and Hurricane Dorian in 2019 hit both states in mid-September. Although SC teacher strikes occurred in May 2019, and the hurricane hit the state in September, it is still likely to impact teachers' postings since a few months after the strike lined up with the time of the hurricane.

[14]After Hurricane Florence hit North Carolina and South Carolina and caused catastrophic damage, there has been a surge of grants to fund relief projects by public school teachers in those states to help teachers and

the hurricanes, I exclude those strikes from the analysis to avoid confounding issues.

Figure 3 presents the number of teacher strikes that occurred at the state and district level between 2002 to 2020, including the total number of teachers involved in those strikes. Out of 2,474 unique districts with at least one strike event, 93 had two strikes, and 59 had three strikes during this time. The mean strike duration is 6.9 days with a median of 7 days.[15][16] Teachers may go on strike for various reasons such as pay raises, wages, and benefits, school funding issues, working conditions, smaller class sizes, teaching preparation time, contract length, special education, classroom aides, having more nurses and counselors, etc. In my database, a strike may include a combination of these factors.

Figure 3: Teacher Strikes between 2002 to 2020



Excluding North Carolina and South Carolina strikes. Source: Bloomberg Database

After merging the strike dataset with the DonorsChoose.org, I constructed two panels based on the donation dates (576,193 district-year-month observations) and based on project

students (Duke Energy Release, 2018).

[15]Bloomberg reports the number of workers as the reported number of employees involved, compiled from published news sources. Hence, it depends on how it was counted in those sources; as the number of people protesting or just the number of teachers who would not work as a result of the strike.

[16]Figure A.4 shows teacher strikes duration across districts in days between 2002-2020.

posted dates (459,622 district-year-month observations).[17] The latter is used when studying the demand side of charitable giving, while I use the former to look at the donation outcomes. The difference between the number of observations between the panels is because a posted project can receive donations at a different time until it gets funded or expires.

The mean monthly giving is $2,095.46 (in 2020 dollars) with $790.28 received from the same state. On average, 5.7 projects are posted, and 4.7 projects get funded across months. Conditional on having a strike, teachers requested around $5,148 on average across months, which is higher than non-striking districts (mean of $2,977). The average amount donated in treated districts is about $3,439, more than the mean of donations ($1777) in non-striking districts. On average, organizations contribute a larger amount ($1479.10) relative to parents ($443) or teachers ($173.36). Parents give on average $717.37 in striking districts, while $377.91 in non-striking districts. Districts with ever had a strike in the sample tend to have lower per-pupil teacher salaries (mean of $6,300) and per-pupil local revenues (mean of $5,064.7). Total teachers are relatively higher in striking districts, with a mean of 626.72 teachers. The fraction of enrollment by Hispanics is around 34 percent in those districts, which is relatively greater than non-striking districts. Table 1 shows the summary statistics for both panel datasets.

Table 1: Summary statistics

	Mean	Std. Dev.	Median	Observations
Panel A: Project Posting				
Amount requested	3649.62	18330.51	959.03	459422
Number of posted projects	5.74	26.74	2.00	459622
Panel B: Contribution				
Amount donated	2095.46	12319.93	451.19	558349
Amount donated within same state	790.28	6643.02	126.54	558349
Amount donated from different state	962.39	6393.72	130.41	558349
Amount donated by parents	443.00	3767.42	75.93	558349
Amount donated by teachers	173.36	1010.95	0.00	558349
Amount donated by organizations	1479.10	9021.87	248.00	558349
Dumber of funded projects	4.71	22.80	1.00	576193

This table presents the unconditional summary statistics. Donation and requested amounts are in January 2020 USD.

3.2 Empirical Strategy

Teacher strikes are not randomly assigned, so unobserved characteristics that affect both strikes and charitable giving can lead to incorrect conclusions. Strikes are likely to correlate with

[17] These constructed panels are my baseline samples, which are modified based on the empirical strategy to estimate the outcomes.

the district's economic conditions (permanent and transitory) that impact charitable giving as well as the underlying prosociality of a district's residents. I include district fixed effects to control for time-invariant district unobservable characteristics across time. I also control for time-varying district characteristics such as enrollment, number of teachers, and finances. Year-month fixed effects account for time shocks that affect all the districts, like general attitudes' towards teachers.

My identification strategy takes advantage of the variation in the timing of the strikes across regions. A conventional approach in staggered difference-in-differences (DiD) setups incorporates a standard two-way fixed effects (TWFE) model to identify the causal effects. However, there is growing literature on estimating the average treatment effect for the treated group (ATT) in a DiD setup with multiple events and heterogeneous treatment effects. The traditional TWFE is biased when there is differential timing and heterogeneous treatment effects over time (Callaway and Sant'Anna, 2020; Goodman-Bacon, 2021; Sun and Abraham, 2020; de Chaisemartin and D'Haultfœuille, 2020; Borusyak and Jaravel, 2017; Meer and West, 2016).

Since teacher strikes occur at different times, my approach may suffer from these problems. However, most proposed solutions have strict assumptions that do not match my context. Subsequent strikes in a district can have an additional impact, and restricting my sample to the first strike can lead to biased estimates. Furthermore, teacher strikes are short-lived and seem to have a transitory impact. Therefore, the proper approach is the one that assumes treatments can turn on and off.

I follow Borusyak et al. (2022) who propose "imputation" procedure for difference-in-differences designs with staggered treatment adoption and heterogeneous causal effects. The procedure first estimates the unit and time fixed effects by regression using only untreated observations. Then, these fixed effects are used to impute the untreated potential outcomes and obtain the estimated treatment effect for treated observations, which is a weighted sum of these effects.[18]

The imputation approach is an ideal methodology for my setting since it can be extended to applications where the treatment of interest may switch on and off for the same unit over time. Furthermore, the framework can be applied to settings with multiple events per unit and including time varying controls (Borusyak et al., 2022).

In my study, I investigate immediate changes in outcomes considering seven months before a strike started and seven months after a strike ended (estimation window of m=-7 to m=+7). Although it is common in a standard event study approach to only consider the first of many events, this approach may lead to biased estimates if the subsequent events may have additional effects (Sandler and Sandler, 2014; Schmidheiny and Siegloch, 2020). Hence, I

[18]I also implement a stacked regression estimator described by Baker et al. (2021), which has been used by papers such as Cengiz et al. (2019) and Clemens and Strain (2021). Following their approach, I create event-specific datasets, including the treated school districts, the outcome variables, and right controls within the selected event window.

include all the strikes that occurred in a district during my observation window in my study. As mentioned in section 3.1.2, if multiple strikes occur in one district, I exclude the second strike if the difference between the two strikes is less than one year.[19]

I estimate a dynamic OLS specifications of the form:

$$Y_{dt} = \alpha_d + \alpha_t + \sum_{m=-7}^{+7} \rho_m (I\left[t - E_d = m\right]_m \times treated \;\; district_d) + \epsilon_{dt} \tag{1}$$

where d and t indicate districts and relative time, respectively. I include g as an indicator for each event-specific dataset. Y_{dt} is outcomes of interest, like the amount donated and the number of funded projects. I also look at other outcomes from the demand side of charitable giving, such as the number of posted projects and the amount requested by teachers. $(I\left[t - E_d = m\right]_m \times treated\ district_d)$ is a binary variable indicating a district had a strike and the number of months relative to the event time. α_d and α_t are the district and time fixed effects. ρ_m represents a different coefficient for each of those indicators. I cluster the standard errors at the district level.

4 Results

4.1 The Effect of Teacher Strikes on Project Posting

DonorsChoose.org provides detailed information on teachers' postings: the number of projects posted by teachers and the requested amount. This information gives me an ideal setting to explore the first stage as changes on fundraising activities. I show the estimates of ρ_m from equation 1 for outcomes, such as amount requested (Figure 4) and the number of posted projects (Figure 5). For these estimations, I use a district-year-month panel constructed based on project posted dates.

Figures 4 and 5 show that the coefficients associated with months before the strike are zero or statistically insignificant. Since unions may vote to authorize a strike, there could be anticipatory effects, and teachers respond to an upcoming strike in advance.[20] There are also a few districts with many postings at a specific time, which led to an increase in the amount requested and the number of posted projects (and donations later on) four months prior to the strike.[21] That can explain some variations in requesting and posting projects for months before the event.

[19] I include the second and third strikes as separate events.

[20] In Chicago, after the unions file a formal notice of intent to strike, there is a required 10-day "cooling off" period, which adds some lags between the time they authorize a strike and the actual strike date (Leone, 2019).

[21] For instance, Chicago Public School District 299 had more than 1,500 projects posted in August 2018; compare to the baseline mean 5.7 projects posting across months (see section 2.1).

Figures 4 and 5 show the results for the amount requested and the number of projects. There is no evidence that strikes affect the demand side of charitable giving. Performing the pre-trend tests shows that the coefficient estimates are jointly insignificant at a 10% significant level, with P-values of 0.0375 and 0.0477, respectively.[22]

Figure 4: Impact of Teacher Strikes on Amount Requested (2002-2020)

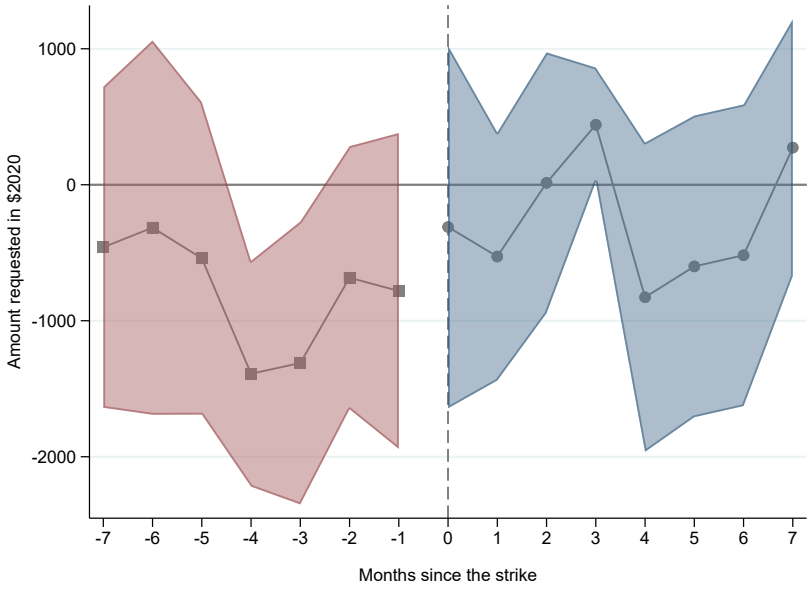
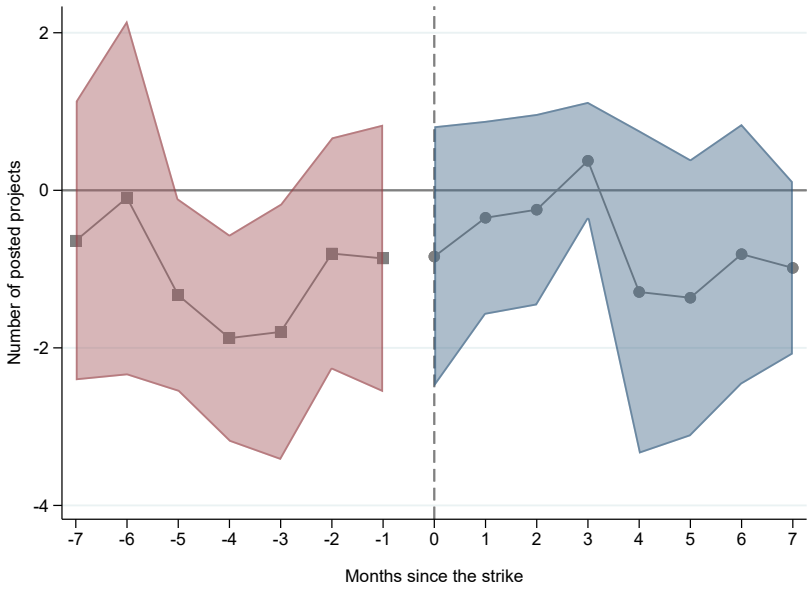


Figure 5: Impact of Teacher Strikes on the Number of Project Posted (2002-2020)



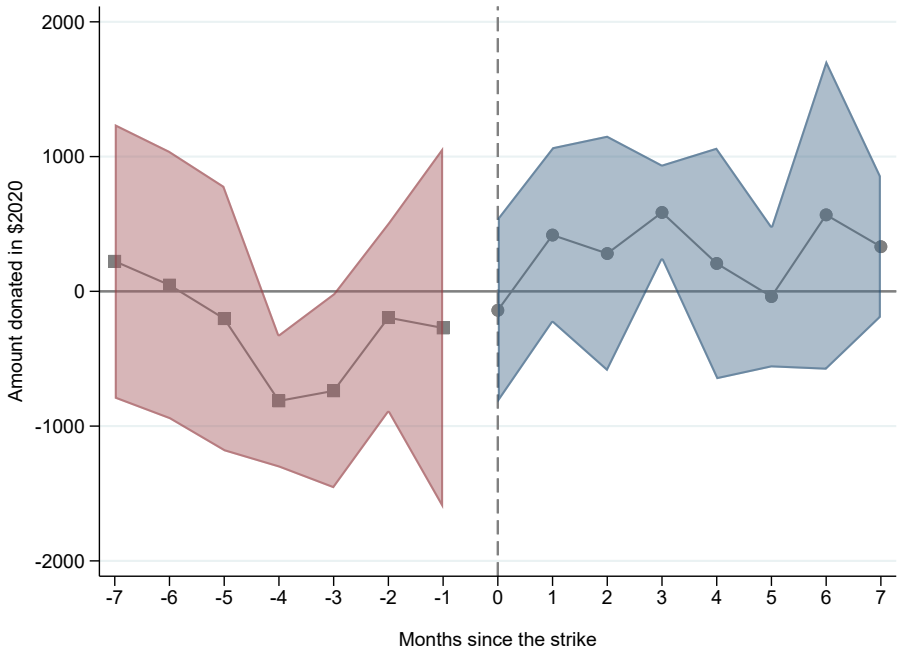
[22]Figures A.5 and A.6 present the results using the stacked regression estimator.

4.2 The Effect of Teacher Strikes on Private Contributions

In this section, I show the results of the impact of teacher strikes on donations to education-related projects. I use a district-year-month panel, in which I use the donation dates as my main calendar date. Figures 6 and 7 show the estimates of ρ_m from equation 1 for the amount donated and the number of funded projects, respectively. The estimated coefficients associated with months before the strike are statistically insignificant.

Figures 6 and 7 show no conclusive evidence that teacher strikes impact total private contributions. Although donors can contribute to the platform based on their preferences, they are not giving more since teachers' requests have been unaffected.[23] My results demonstrate the power of asking and opportunities to give. These results are suggestive since the coefficient pre-trend estimates are jointly significant, with P-values of 0.001.[24]

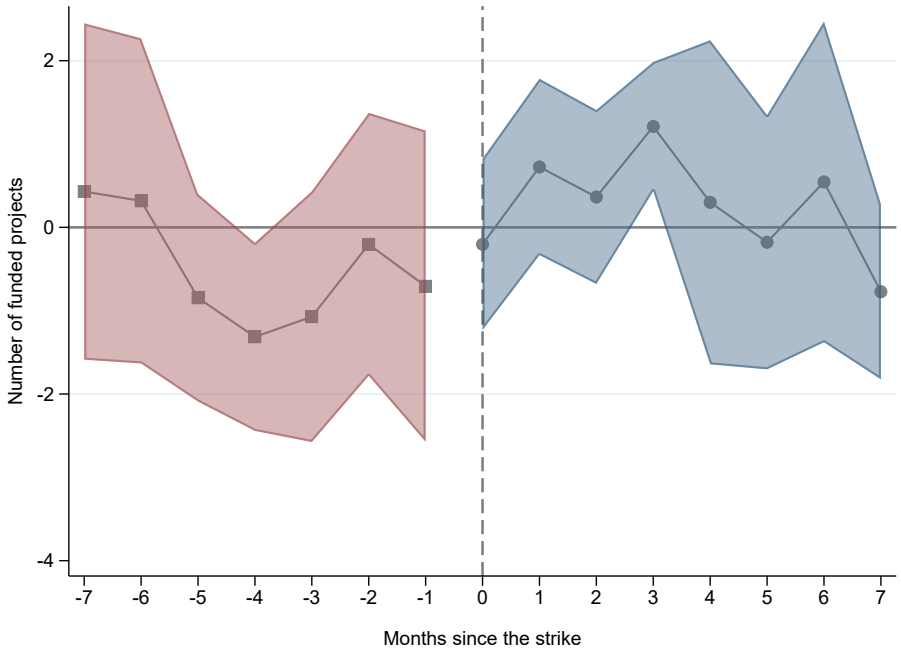
Figure 6: Impact of Teacher Strikes on Donation Amount (2002-2020)



[23] No donations will be received if there are no postings. Hence, more postings increase the opportunities for donors to contribute.

[24] Figures A.7 and A.8 present the results using the stacked regression estimator.

Figure 7: Impact of Teacher Strikes on the Number of Funded Projects (2002-2020)



4.3 Donor Location

Teacher strikes are likely to be more salient to locals. Hence, examining local and non-local donors' responses to the teacher movements shows how those strikes affect local preferences to give. I investigate this by looking at the geographic location of contributions. In this section, I look at the heterogeneous effects by geographic location. I create two outcome variables: the amount donated with the same state as the school or from a different state.[25] This classification helps me determine whether donors with the same region (state) as the striking district show different behavior when knowing about the strike.

Figure 8 shows the estimates of ρ_m from equation 1 for the amount donated within the same geographic location as the school district, while Figure 9 show the out of state donations. There is no suggestive evidence that local donors respond differently to teacher strikes relative to non-locals.

[25]ZIP codes are available for far fewer observations, so I focus on state.

Figure 8: Impact of Teacher Strikes on Amount Donated from the Same State (2002-2020)

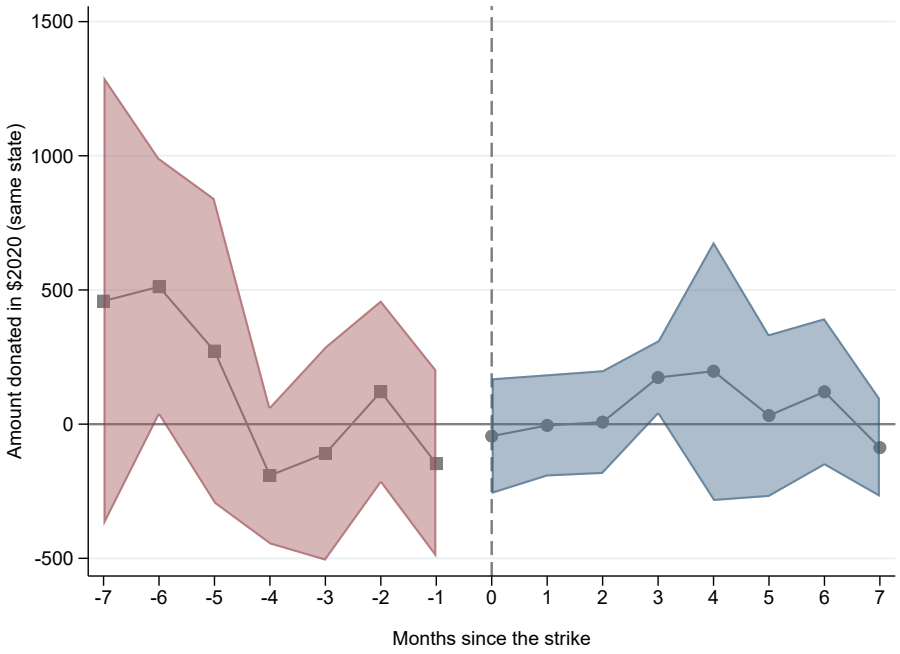
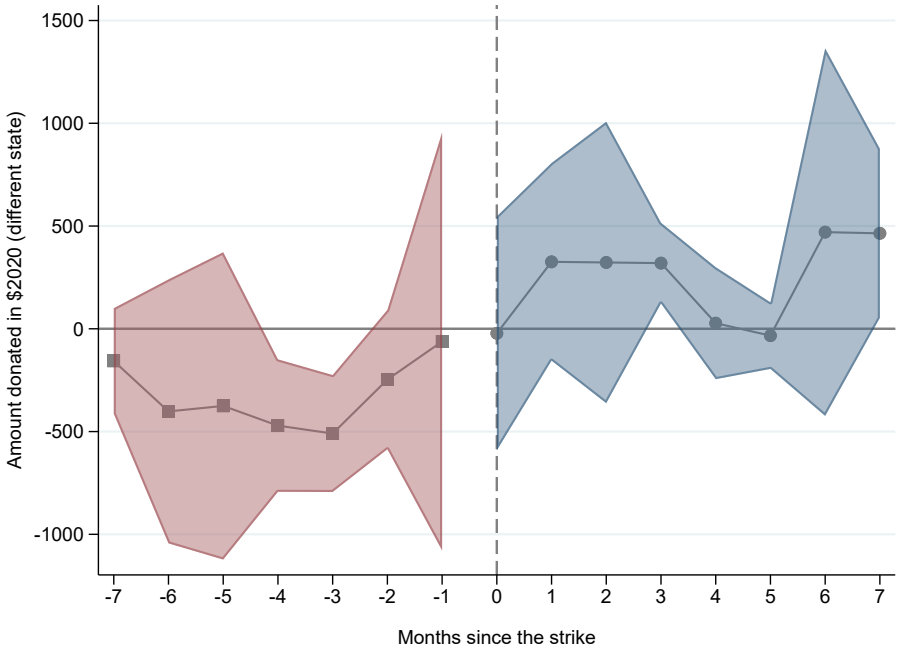


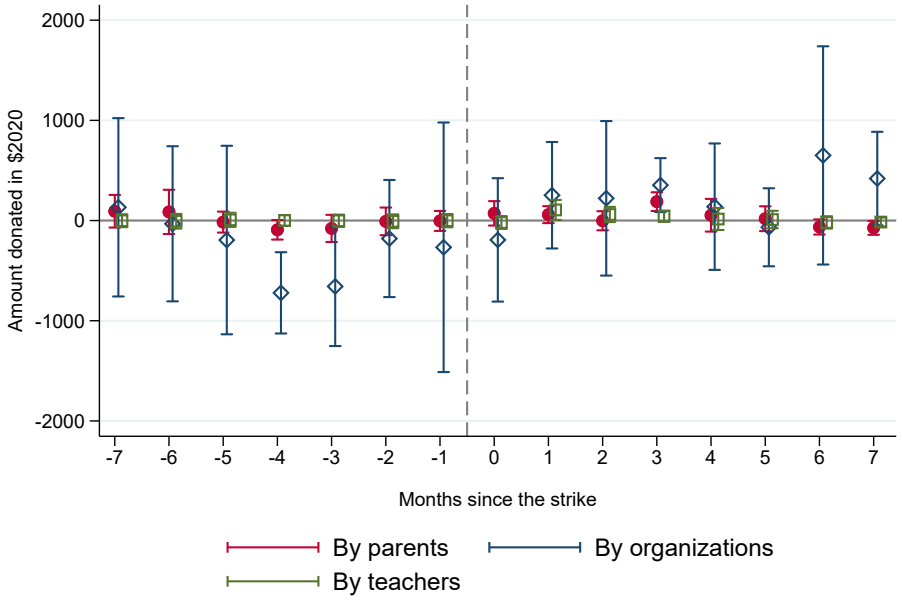
Figure 9: Impact of Teacher Strikes on Amount Donated from Different State (2002-2020)



4.4 Donor Type

DonorsChoose.org provides limited information about donors for confidentiality purposes. However, donors can self-identify as a teacher, parent, or organization. I use this classification to investigate the amount donated by each type. Figure 10 show the estimates of ρ_m from equation 1 for the amount donated by parents, teachers, and organizations, respectively. I do not observe any significant change in the amount donated by donor type.

Figure 10: Impact of Teacher Strikes on Amount Donated by Donor Type (2002-2020)



4.5 Other Results

In the following subsections, I demonstrate that the results are robust to alternative approaches and considerations.[26]

4.5.1 Project Type

I explore whether there are any compositional changes in project postings (and giving to specific projects) after exposure to teacher strikes. I categorize the types of projects as applied learning, health and sports, history, math and science, music, the arts, special needs, and literacy. There is no evidence that teacher strikes affect the types of projects posted by teachers. My results also indicate that the amount requested by project type is unaffected after exposure to the

[26] Estimated results for this section are available upon request

strikes, and there is no conclusive evidence that specific projects receive donations differently.

4.5.2 30-Day-Long Strikes

As shown in Figure A.4, strikes duration may vary. However, the majority of the strikes took less than a month. In this section, I exclude strikes lasting more than a month to explore whether longer strikes drive the results. The outcomes are unaffected after excluding longer strikes, indicating no significant difference in strike duration.

4.5.3 First Strike

As discussed in section 3.1.2, most districts had only one strike during 2002-2020, meaning that about 6% of district-event observations had more than one strike. I investigate whether the first strike had a different impact on the results. Overall, there are no statistically significant impacts on private contributions and fundraising efforts, but the estimates increase in magnitude.

4.5.4 COVID Impact

The COVID-19 pandemic prompted many states and localities to issue stay-at-home orders, and almost all schools and businesses closed in 2020. To mitigate the potential confounding impact of the pandemic, I limit my sample to 2002-2019 in this section. The results remain robust even after excluding 2020 from the analysis.

5 Discussion and Conclusion

This paper examines the impact of teacher strikes on private contributions to support schools. I explore whether people's stated support for teacher strikes in polls aligns with their revealed preferences. My findings suggest that teacher strikes do not strongly affect overall private contributions. One possible explanation is that strikes have not affected the demand side of charitable giving. I also find no significant changes in the type of projects or the amount requested by teachers on the crowdfunding platform. This indicates that teachers are not exploiting public sympathy to ask for more funding during strikes.

In this study, I focus on changes in private contributions to classroom projects requested by teachers on the crowdfunding platform. These projects benefit the associated schools and students directly. Given that school funding and the need for classroom aides are often the reasons for teacher strikes, I explore contributions to schools and students rather than giving directly to teachers.

One limitation of this study is the challenge of identifying successful and unsuccessful strikes. The Bloomberg database does not provide information on strike outcomes. However, any impact of the teacher movement would likely be reflected in the next fiscal year and may not significantly affect the results based on a few months after a strike.

Another limitation is the heterogeneous nature of the reasons why teachers go on strike. In most of my district-event observations, at least two or more reasons are cited in the strike description, such as pay raises, better working conditions, and school funding. Hence, it is challenging to draw clear distinctions between these reasons.

There is empirical evidence on how teachers' collective bargaining can affect district resources. Hence, another channel to investigate the impact of teacher strikes is whether the strikes crowd out contributions to the schools. Empirical literature shows how teachers' collective bargaining affects district resources and productivity of schools; showing mixed results from no impact to positive effects (Hoxby, 1996; Lovenheim, 2009; Rosenfeld, 2006; Eberts and Stone, 1987; Kurth, 1987; Grimes and Register, 1990, 1991b,a; Carini et al., 2009). However, further investigation is needed to determine the impact of the strikes on districts' budgets, and subsequently on crowding out (in) the private contributions as wells as fundraising efforts.

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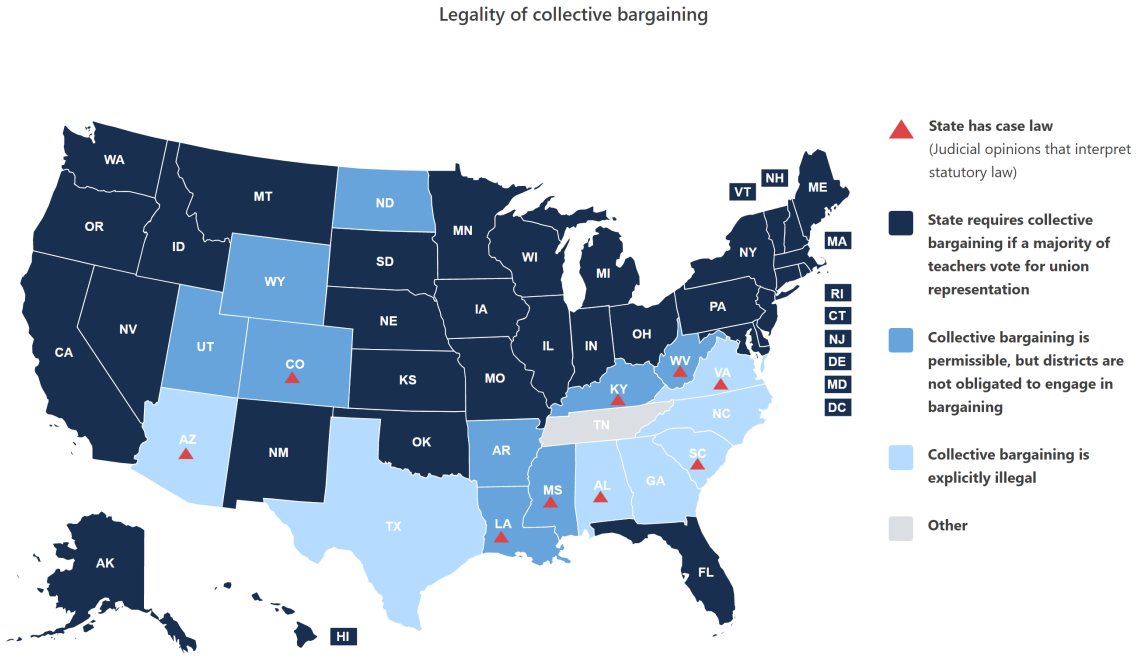
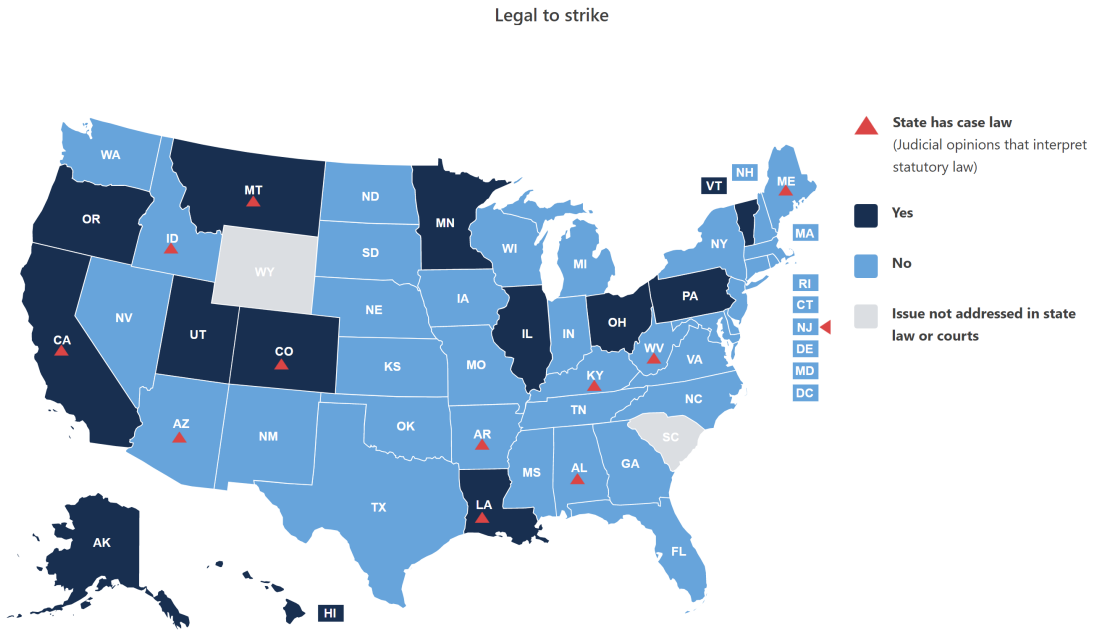
A Appendix

Figure A.1: Legality of Teacher Collective Bargaining Across States



Source: National Council on Teacher Quality retrieved from nctq.org

Figure A.2: Teachers' Right to Strike Across States

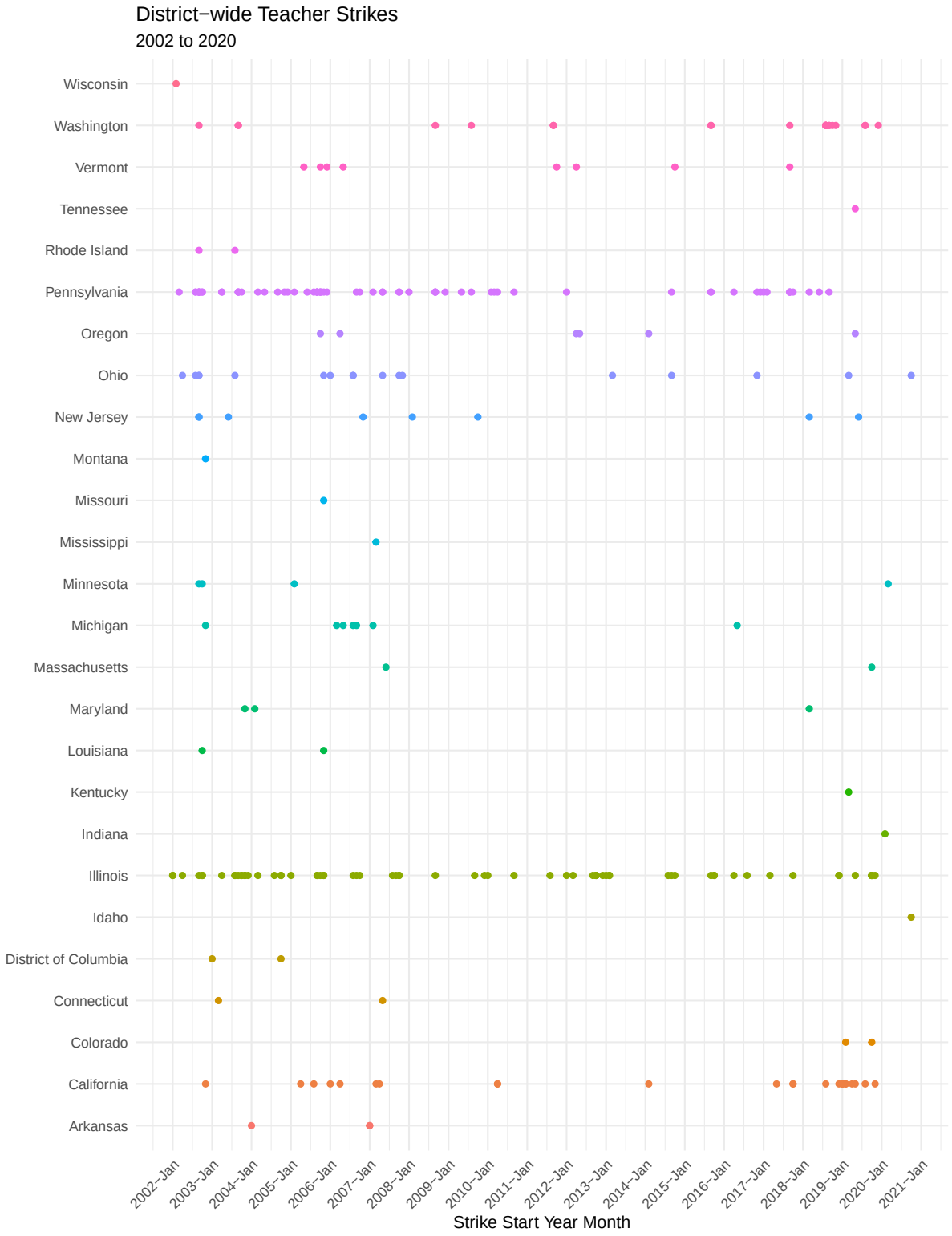


Source: National Council on Teacher Quality retrieved from nctq.org

Table A.1: State-wide Teacher Strikes (2002-2020)

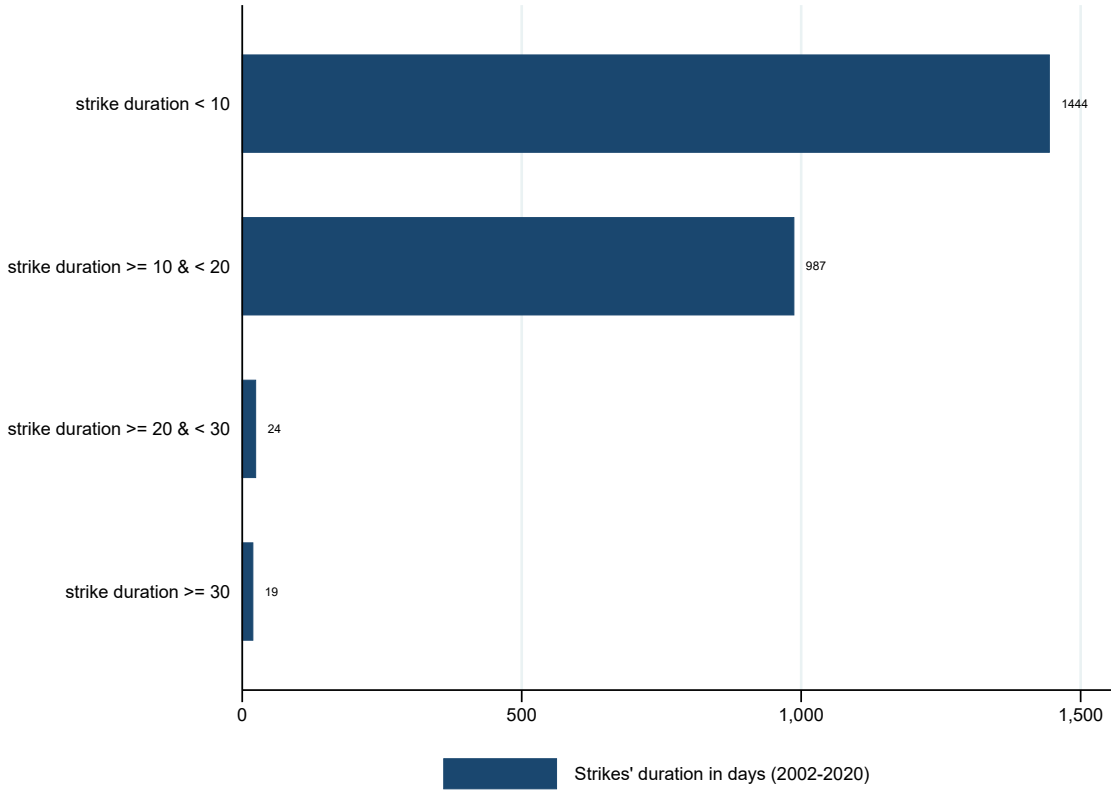
State	Strike start date	Strike end date
Arizona	4/26/2018	5/3/2018
California	5/27/2002	5/27/2002
Colorado	4/26/2018	5/12/2018
Kentucky	3/30/2018	4/16/2018
Kentucky	2/28/2019	2/28/2019
North Carolina	5/16/2018	5/16/2018
North Carolina	5/1/2019	5/1/2019
Oklahoma	4/2/2018	4/12/2018
South Carolina	5/1/2019	5/1/2019
West Virginia	3/14/2007	3/14/2007
West Virginia	2/22/2018	3/7/2018
West Virginia	2/19/2019	2/20/2019

Figure A.3: States with District-wide Teacher Strikes between 2002 to 2020



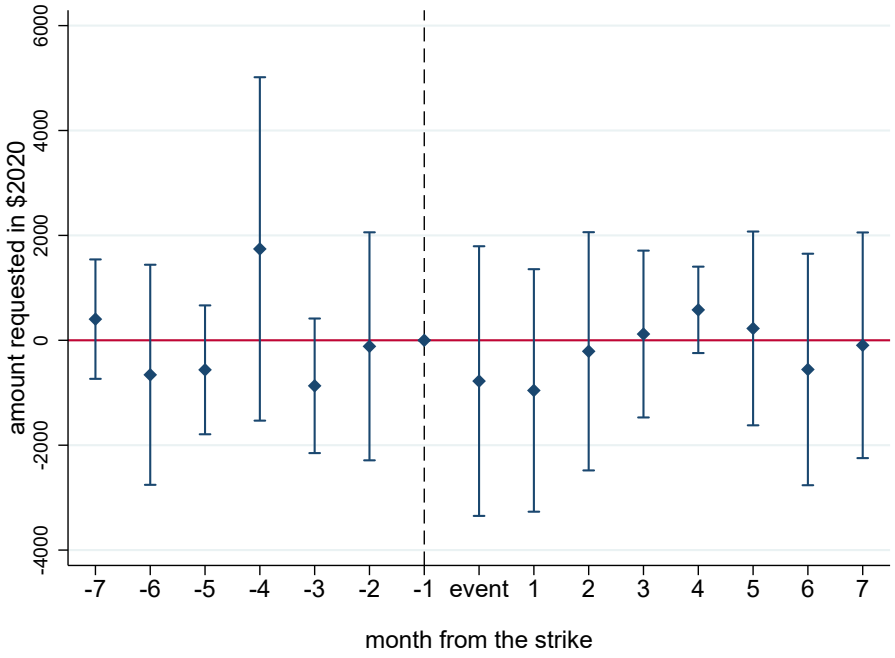
Source: Bloomberg Database

Figure A.4: Teacher Strikes Duration Across Districts in days between 2002 to 2020



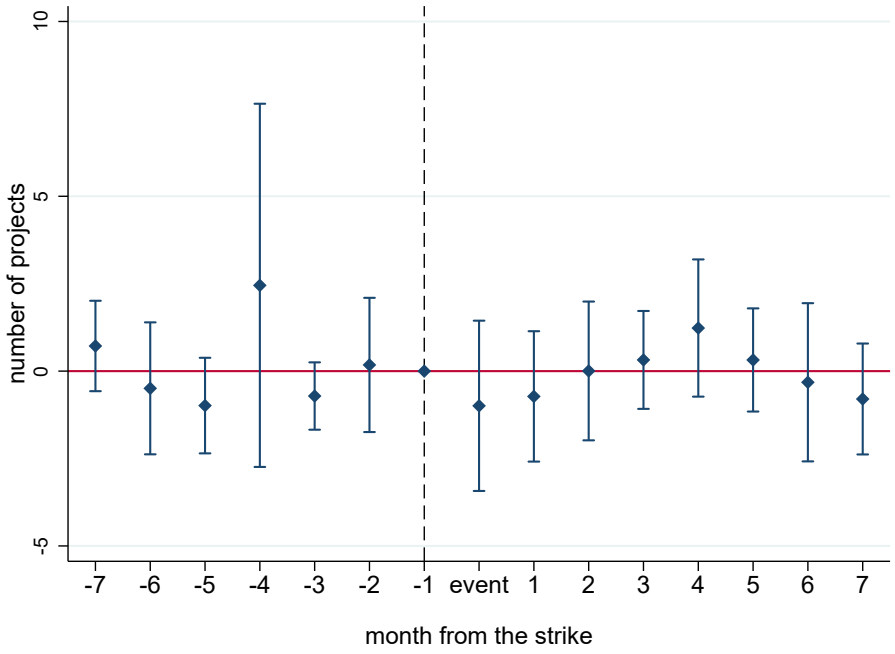
It includes both statewide and district-wide strike, but excluding North Carolina and South Carolina strikes. Source: Bloomberg Database.

Figure A.5: Impact of Teacher Strikes on Amount Requested (2002-2020)



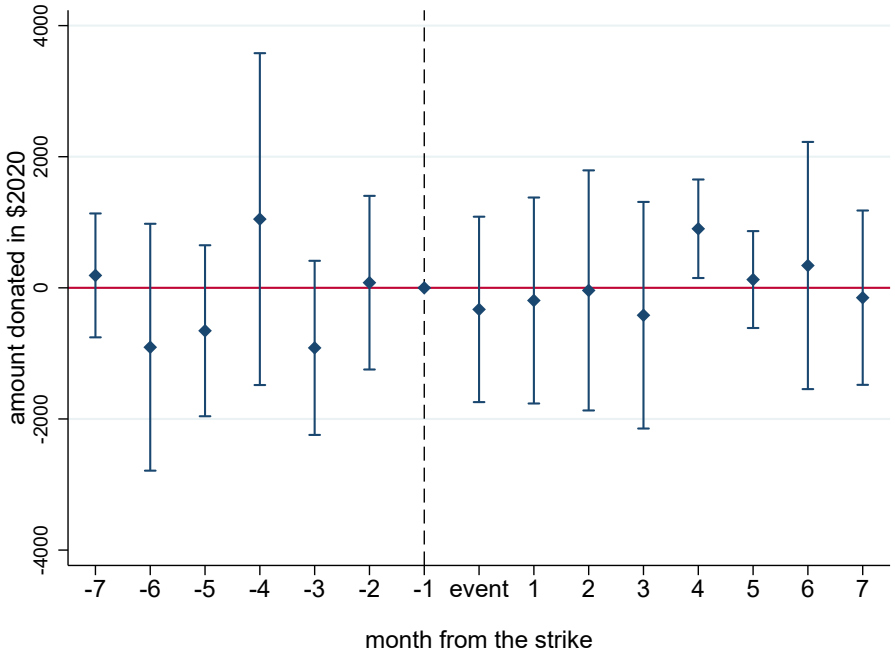
This figure plots estimates of ρ_m from equation 1 using the stacked regression estimator.

Figure A.6: Impact of Teacher Strikes on the Number of Project Posted (2002-2020)



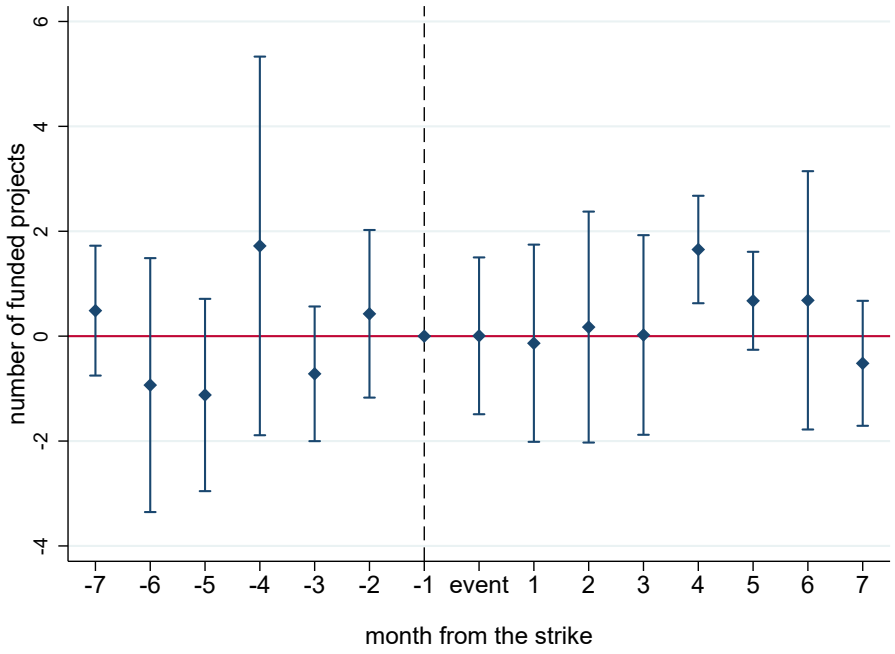
This figure plots estimates of ρ_m from equation 1 using the stacked regression estimator.

Figure A.7: Impact of Teacher Strikes on Donation Amount (2002-2020)



This figure plots estimates of ρ_m from equation 1 using the stacked regression estimator.

Figure A.8: Impact of Teacher Strikes on the Number of Funded Projects (2002-2020)



This figure plots estimates of ρ_m from equation 1 using the stacked regression estimator.