The Political Economy of Subsidy-Giving

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Abstract

Why is subsidy-giving such a popular economic development strategy? I estimate the political benefit of subsidy-giving by combining hand-collected subsidy data, county level election returns, and a new survey of voters in states with recent subsidy deals. I find that the incumbent governor's vote share increases by 2 to 3 percentage points in subsidy-winning counties. Governors who run for re-election are willing to pay more for firms than their term-limited counterparts, and this additional subsidy spending translates to a cost per vote of $770. The vote share effect is largest when the subsidy is announced during the election year, which means that the governor accrues political benefit before any jobs are created. I provide suggestive evidence that career concerned governors prefer subsidy-giving to more effective job creation policies because of the positive media coverage of these subsidy deals.

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1 Introduction

The issue of "job creation" is often found at the center of political discourse in the United States, and voters have been found to hold incumbent governors responsible for local economic conditions (Niemi, Stanley and Vogel, 1995; Atkeson and Partin, 1995). Offering a subsidy to attract a single firm to a jurisdiction is one way to create jobs in that area. This may not be the most cost-effective way to create jobs, as a firms' future effect on the local economy is highly uncertain (Greenstone, Hornbeck and Moretti, 2010; Patrick, 2016; Bartik, 2019; Slattery and Zidar, 2020). However, the discretionary subsidy is a policy that is easily attributable to the governor, and may be interpreted as a signal that the governor is working hard to improve local economic conditions.

The existence of a political cycle for subsidy-giving suggests that governors anticipate an electoral benefit to winning a subsidy competition for a given firm (Slattery, 2020; Slattery and Zidar, 2020). This may be the result of the disciplining effect of re-election – governors have an incentive to act in the voters' interest and put in more effort to create jobs. Alternatively, it may be that subsidy-giving is popular with voters, but not necessarily effective in improving the local economy and creating jobs. In this case, politicians use subsidies to pander to voters, which crowds out other, more cost effective, job creation strategies.

The question remains whether, and why, subsidy-giving helps incumbent politicians win elections. In this paper I estimate the effect of subsidy-giving on incumbent vote share in the subsidized locality, and explore the mechanisms by which subsidy-giving confers political benefits. I then discuss the implications of this political benefit to subsidy-giving for the policy choices of incumbent governors and the distribution of spending across economic development efforts.

I quantify the role of politics in subsidy-giving using a hand-collected data set of firm-level discretionary subsidy deals from 2002 to 2017. This data set includes details about the terms of the subsidy deal, the name of the subsidized firm, and information on both the winning county and runner-up location.[1] I pair the subsidy data with county-level election returns from Leip (2018) to compare the change in support for incumbent governors in subsidy-winning counties with runner-up counties in the same state, in a differences-in-differences analysis. I find that support for the incumbent governor increases by 2 to 3 percentage points in subsidy-winning counties. This effect translates to an increase of up to 5,000 votes for the incumbent, which can be an economically significant effect in a tight election. Given that governors who run for re-election are also willing to pay more for firms than their term-limited counterparts, a back of the envelope calculation implies a cost per vote of about $770.

The difference-in-differences empirical strategy allows me to compare subsidy-winning counties to similar

[1] The runner-up location is the other county that was competing for the firm in the subsidy competition.

counties in the same election, while controlling for the governor's unobserved type. The identifying assumption is that support for the incumbent governor would have continued to move in parallel in treatment and control counties in the absence of a subsidy deal win. This assumption would be violated if the location choice of the subsidized firm is endogenous – governors subsidize firms to locate in counties with the most marginal voters. However, anecdotal evidence suggests that the governor has very little influence on where a firm locates within the state. Also, counties with differential voter turn-out or party affiliation are not more likely to be the locations for subsidy deals.

The second identification challenge is the choice of an appropriate control group. I use the runner-up locations for similar subsidy competitions. Runner-up counties are attractive because they were chosen by firms as viable plant location, the governor put in effort to compete for a firm in this location, and the locations are similar to winning counties on observables. However, it may be that the runner-up counties are more or less likely to support the incumbent due to this failed effort to attract a firm. I show that this is not the case with empirical evidence from states that do not win any subsidy competitions, and survey evidence that shows that voters generally know very little about the runner-up "status" of their location.

The survey evidence comes from an original survey of voters in five states with recent large subsidy deals. The voters are given a quiz about the recent subsidy deal which asks about the identity of the firm, the size of the incentive, and the number of jobs promised at the new subsidized establishment. They are also asked about how they learned about the subsidy deal, their sentiment about subsidy-giving, and other general questions about subsidy-giving and state economic development policy. A few stylized facts from the survey motivate the econometric approach and shed light on the mechanisms:

1. Outside of the subsidized county, voters know very little about the impending arrival of a subsidized firm.
2. Voters are twice as likely to know about the number of jobs promised at the new establishment than the size of the incentive offered by the state.
3. Voters learn about subsidy deals from the local news.

The fact that voters outside of the planned location of the subsidized firm do not know about the subsidy deal suggests that other counties in the same state are unlikely to also be treated. Therefore, I can assume there is no effect of the subsidy outside of the commuting zone where the subsidized firm is located, and use my estimates to calculate the aggregate effect of subsidy-giving, as well as the cost per vote.

The survey results also provides suggestive evidence of the mechanism. Why are voters in subsidy-winning counties more likely to support the incumbent? It may be that the subsidy, by attracting a new firm, creates jobs and improves local economic outcomes for residents, thereby generating incumbent votes. I will call this the "direct effect" of subsidy-giving. Voters may also anticipate the job creation and economic growth from

the subsidy deal and recognize that the governor is making an effort to improve economic outcomes in the local area. In this case, voters do not need to have been hired or experienced any economic benefit from the firm's arrival, but they are aware of the impending arrival of the firm due to local news coverage (as implied by the survey). I will call this the "salience effect."

I use variation in the timing of subsidy deals within the governor's term to test these two hypotheses. The "direct effect" suggests the effect should be larger for subsidy-giving earlier in the term, because this gives time for the firm to arrive and start hiring, improving local economic outcomes. The "salience effect" suggests the effect should be largest for more recent announcements of subsidy deals, which are the most salient to voters, due to their recent memory of media coverage. I find that subsidy deals announced in the start of the term have about one half of the effect of a subsidy announced in the election year, at 1.8 and 3.6 percentage points respectively. Due to the lag between a subsidy announcement and a firm's arrival, the large effect in the election year means that the governor can accrue political benefit before any jobs are actually created. This result suggests that the mechanism by which subsidy-giving increases incumbent vote share is the anticipated economic effect rather than a realized improvement in economic outcomes.[2] In short, the expected benefit of the subsidy deal, from the perspective of the voters, is larger than the realized benefit.[3]

In order to understand how subsidy-giving could increase the support for the incumbent before the firm even arrives in the state, it is important to understand how local newspapers cover these subsidy deals. Take the case of Caterpillar, a machinery and equipment manufacturer that, in 2012, received a subsidy of about $70 million to build tractors in Oconee, Georgia. The *Atlanta Journal-Constitution* headline on the subsidy read: "Landing Caterpillar plant a major economic victory for Georgia," citing the job creation, revenue, and spillover estimates given by the firm and the state economic development agency. According to the article, each job at the new plant would create 2.4 additional jobs in the state, for a total of almost 5,000 jobs and $33 million in state and local tax revenue (Diamond, 2012). In the same year, the *Charleston Daily Mail* highlights the benefit of possibly winning a Shell plant with the story: "States still hoping to land ethane cracker: Construction of Shell plant in Marcellus Shale will bring hundreds of direct, indirect jobs." Pennsylvania, not West Virginia, ended up the winner of the promised "hundreds of direct jobs and thousands of related jobs in the chemical industry" (Junkins, 2012). These articles tend to focus on the expected benefit of the firm arrival, the

[2] I am not claiming that subsidy deals announced earlier in the term are less salient, but due to memory decay the most recent deals should have the largest effect on the election, all else equal. Angelucci and Prat (2020) measure voters' knowledge of recent news and find that each months passing decreases the probability of knowing a news story by 3-4 percentage points.

[3] One explanation for the large effect of the election year subsidy deals is that these firms and deals are different from subsidies announced in non-election years. Then the mechanism is not just that voters recently heard about the subsidy in the news, it is that there is more news coverage and more positive expectations because the firm is promising more jobs, is planning a larger investment, and is predicted to have a greater spillover effect. Voters are rational, and the governor just tries harder to attract higher quality firms in the election year. However, I find that subsidy deals announced in election years are indistinguishable from non-election year subsidies in terms of jobs promised, investment planned, and subsidy size. In fact, estimates on firm-specific spillovers from Slattery and Zidar (2020) suggest that election-year subsidies have slightly smaller spillovers than deals announced earlier in the term.

job creation, instead of the potential costs. This is consistent with the survey result that voters are much more likely to know the jobs numbers than the incentive size. The extensive media coverage of the benefits, but not the costs, of these deals causes them to potentially be much more popular, and thus politically beneficial, than other types of economic development strategies. In fact, using data from ProQuest on the newspaper coverage of each subsidy deal, I find that deals with very little news coverage have no effect on incumbent vote share.

Lastly, I discuss the implications of my results on other policy decisions of the governor. Should we be worried that this political benefit is distorting the policy choice of a governor? In this setting the media does not necessarily serve as a disciplining agent for politicians, unlike in much of the existing literature on media and politics (Strömberg, 2004; Snyder and Strömberg, 2010; Ferraz and Finan, 2008; Besley and Burgess, 2002). Therefore, while the election provides an incentive for the governor to put in more effort to create jobs, the positive coverage of large subsidy deals may create an incentive for the governor to prefer subsidy-giving to less salient but more cost-effective job creation efforts, or other public spending. In order to evaluate how political benefit may or may not distort policy choice, one needs to understand which policies are most effective at improving social well-being.

For subsidy-giving, evidence on the economic benefits are mixed and the costs are not well understood (Greenstone, Hornbeck and Moretti, 2010; Patrick, 2016; Slattery and Zidar, 2020). The costs are hard to measure because of the long-term nature of the contracts, and the fact that the majority of the cost is forgone revenue. The long-term aspect means that the governor may enjoy political benefits and job creation in the short-term, while the future governor will have to figure out how to pay for any costs. However, there are also opportunity costs to offering a discretionary incentive: the time effort of the governor and the political capital she might need to use in order to get a discretionary tax abatement passed by the legislature. Bartik (2019) takes these various cost factors under consideration and estimates a relatively low benefit-cost ratio for state and local incentive spending, and higher benefit-cost ratios for both education spending and non-discretionary economic development spending such as job training and customized services for small businesses. Similarly, Hendren and Sprung-Keyser (2020) find the highest marginal value of public funds (MVPF) for direct investment in education of low income children. I find that while incumbent governors are more likely to increase subsidy spending before elections, they are no more likely to increase these high MVPF policies. In fact, there is a negative correlation between the benefit-cost estimates of Bartik (2019) and the probability the governor enacts the policy in the term leading to their election. This suggests that the political benefit of subsidy-giving, which can occur in the absence of any direct economic benefits, may be distorting the policy choice of governors with career concerns. Future work should explicitly consider the governor's trade-off between subsidy-giving and other public spending.

The paper proceeds as follows. After a brief discussion of relevant literature, Section 2 provides a back-

ground on subsidy-giving in the United States, and discusses the potential for pandering in the subsidy competition framework. Section 3 introduces the data on subsidies, elections, and from the survey, Section 4 introduces the empirical strategy and discusses identification concerns, and Section 5 discusses the results and the mechanism. Lastly, Section 6 compares subsidy-giving to other job creation policies.

Related Literature

This paper is most closely related to Huet-Vaughn (2019), who studies the effect of public spending on the support for an incumbent politician. In his setting the public spending is the infrastructure investment resulting from the American Recovery and Reinvestment Act, and the incumbent politician is President Obama. He finds that in New Jersey, areas that are closer to the public investment projects are more likely to support Obama in the next election. Much like my finding for the salience effect of subsidy-giving, the Huet-Vaughn (2019) results suggest that the mechanism is the salience of the project, which operates through large signage attributing the the project to the federal government.

The political economy literature has established that politicians with career concerns behave differently than their term-limited counterparts (Barro, 1973). This has been shown to result in a political budget cycle– politicians looking forward to elections are more likely to lower taxes and increase spending (Besley and Case, 1995; Poterba, 1994; Foremny and Riedel, 2014; Alesina and Paradisi, 2017). The policy of interest in this paper, subsidy-giving, is targeted at an individual firm, and therefore the benefits are concentrated to residents in the area surrounding the new establishment. In this way, it is akin to "pork barrel spending", although I will show that the governor does not have much influence of where to distribute the "pork." See Drazen and Eslava (2006) for more on the intersection of the political budget cycle and pork barrel spending, or, the "pork barrel cycle."

There is a growing literature on discretionary subsidies, and, more specifically, the political aspect of the subsidy-giving process. Biglaiser and Mezzetti (1997) provide a model of politicians' policy decisions under re-election concerns. Their main result is that the politician's willingness-to-pay for a project is different from voters' willingness-to-pay. They apply this analysis to bidding wars for firms. Slattery (2020) provides empirical evidence that governors who can run for re-election are willing to pay more for firms than their incumbent counterparts, suggesting that politician's willingness-to-pay does not equal voters' willingness-to-pay. Relatedly, Bartik (2019) discusses the political popularity of these incentives, Kim (2020) estimates substantial political payoffs to politicians attracting firms from across the border in Kansas City, and Jensen and Malesky (2018) provide extensive survey evidence that voters in the United States would be more likely to vote for a governor who uses incentives to attract investment, even if the governor was not successful at attracting the investment. This paper contributes to this growing literature by estimating the political benefit of

subsidy-giving, where the benefit is measured by the votes gained in the subsidized locale.[4]

De Simone, Lester and Raghunandan (2019) study the benefits of targeted tax breaks and subsidies, and find that the aggregate employment and wage effects of these tax breaks are positively associated with counties that have less information about subsidy-giving, and less local news coverage. This relationship between media and subsidy-giving is counter-intuitive, as much of the literature suggests that media play an important role in keeping politicians accountable (Strömberg, 2004; Ferraz and Finan, 2008; Besley and Burgess, 2002). One might expect that areas with a higher supply of local news has better performing subsidies. However, just as changes in the market for news affect political outcomes (Snyder and Strömberg, 2010; Gentzkow, Shapiro and Sinkinson, 2011; Drago, Nannicini and Sobbrio, 2014; Prat and Strömberg, 2013), all of the evidence on the mechanism in this paper suggests that it is the local news coverage of subsidy-giving that affects the political outcomes of incumbents.

2 Background on Subsidy-Giving in the U.S.

In this section I will provide institutional details on subsidy competition in the United States through the lens of one subsidy deal in my data. This will illustrate the subsidy competition process and highlight the potential political considerations and mechanisms at play.

2.1 Alabama wins Hyundai (2002)

> *I'm trying to teach people it's pronounced 'Hyundai' like 'Sunday,' but however you say it, it means thousands and thousands of new jobs.* Governor Don Siegelman (Niesse, 2002)

On the evening of April 1st, 2002, Governor Don Siegelman announced that Hyundai had chosen a site in Montgomery County, Alabama for its new automobile assembly plant. The company planned to invest $1 billion in the plant, hire 2,000 workers, and pay the workers an average annual salary of about $40,000.

The Competition and the Deal

The subsidy deal was the result of months of negotiations between Alabama and the car manufacturer. Hyundai had started with a longer list of potential locations, and after some research assembled a shortlist with the site in Alabama and competing sites in Kentucky, Mississippi, and Ohio. The states on the shortlist started to put

[4] Aobdia, Koester and Petacchi (2021) specifically study the link between subsidized firms and campaign contributions, and find that subsidized firms are more likely to have given campaign contributions to state politicians. In Appendix D of this paper I show that the ability to benefit more from campaign contributions changes states subsidy-giving behavior, using the *Citizens United* Supreme Court case as a natural experiment. However, the difference in data may be important here, and, given all of the recent work on the non-contribution tools firms have to exert influence (Bertrand, Bombardini, Fisman and Trebbi, 2020), this is a rich area for further work.

together incentive offers, but in February Mississippi and Ohio were dropped from consideration, and competition intensified between Alabama and Kentucky. The negotiations over the incentive packages continued for months, and when the deal was finalized Alabama had put together an incentive package worth about $230 million over 10 years (Lyne, 2002).

Alabama's final subsidy offer for Hyundai was a function of state and local tax credits on corporate income, property, and sales taxes, improvements to the site, and worker training. Kentucky offered at least $123 million in state tax incentives and $30 million in site improvements, but the proposed local incentives were not released to the public. Alabama's team considered not only the 2,000 jobs promised at the plant when determining how much the state would be willing to offer the manufacturer, but other benefits such as increased property values and indirect jobs at suppliers. Governor Siegelman predicted that Hyundai would have a major economic impact throughout the region, saying: "I think we'll see a cluster of suppliers locating in counties inside that 100-mile radius. ... This gives the families of Alabama a real hope for a better quality of life" (Johnson, 2002).

The Media Coverage

The morning after the announcement the front page of the local newspaper read: "HYUNDAI PICKS MONTGOMERY." This paper, the *Montgomery Advertiser*, ran a multiple page special report about the firm's decision (Figure 1, Appendix Figure E.1). The stories about Hyundai included details about Hyundai's plans, details about the incentive package, coverage on the competition between Alabama and Kentucky, and the involvement of state, city, and county officials. The *Advertiser* also highlighted benefits beyond the promised jobs, including an expected increase in property values for local residents and the windfall for farmers with land at the proposed site.[5]

The coverage continued the next day (Appendix Figure E.1), with another front page story: "Alabama hustles for Hyundai," followed by multiple pages with more details on incentives, the types of jobs Hyundai planned to hire, and predictions about the entry of suppliers to the automobile plant. Headlines read: "Work: Facility will begin production in 2005," "Jobs: Rural counties in particular need economic boost," "Parts suppliers expected to change rural economy," and, on the political ramifications of the deal: "Teamwork deserves the credit." This last article lists almost 30 groups that were said to have played critical roles in landing the car plant, ranging from the governor, Don Siegelman, and the state senators, congressmen and legislators, to the state power and gas authorities, and the presidents of the University of Alabama and Auburn University.

[5]Given the size of the firms in my sample, there is often media coverage throughout the negotiation process, even before the firm has made a decision. Once the deal is finalized the governor will often hold a press conference, or have a ribbon cutting at the site, and this will be covered extensively, as was the case with Hyundai in the *Montgomery Advertiser*.

Figure 1: Local News Coverage of the Hyundai Deal



Three's a crowd in Montgomery County sheriff's race 1B

Montgomery Advertiser

TUESDAY
April 2, 2002
Final Edition
50 cents

SPORTS
Maryland wins NCAA

LIFESTYLE
Bar offers breath of fresh air 1D

Israel pushes onward

By Laura King
The Associated Press

SETTING IT STRAIGHT

FORECAST
80° Sunny to partly cloudy today; 56° more clouds, showers tonight. Weather 8A.

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SPECIAL REPORT

HYUNDAI PICKS MONTGOMERY

Hyundai's Santa Fe

Coup for city: Montgomery wins $1 billion plant over Glendale, Ky.

2,000 jobs: Hyundai expects plant to begin production in 2005

State's 4th: Hyundai will join Mercedes, Honda and Toyota

Plans dazzle family

Jim Henry and his relatives own 900 acres near the plant site

By Todd Kleffman
Montgomery Advertiser

Choice ends long fight

The Korean automaker chose Hope Hull site over rural Kentucky location

By Mike Cason, Todd Kleffman and Barb Dugan
Montgomery Advertiser

Montgomery Mayor Bobby Bright talks on the phone at Lagoon Park as his wife, Lynn, looks on after they were notified that Montgomery was chosen as the site for the new Hyundai plant.

INSIDE

COMING WEDNESDAY

ALABAMA AUTO INDUSTRY TIMELINE

on the Web

NEW PLANT

Residents applaud Alabama's Hyundai pitch

By Dave Hendrick
Montgomery Advertiser

Notes: This figure is the front page of the *Montgomery Advertiser* on April 2, 2002 (Montgomery, Alabama, 2002). The *Montgomery Advertiser* is a daily newspaper founded in 1829 and headquartered in Montgomery, Alabama. It has the 5th highest circulation of daily newspapers in Alabama (Cision Media Research, 2016).

The Role of the Governor

The question of who gets "credit" for attracting a firm and creating jobs is central to this paper. In this case, as is typical with the majority of the large incentive deals in the U.S., it is Governor Siegelman who is attributed with attracting Hyundai to Alabama. This is clear from yet another special report on the Hyundai deal in the *Montgomery Advertiser*, covering the groundbreaking ceremony two and a half weeks after the announcement (Appendix Figure E.2). Governor Siegelman is pictured multiple times and is the only Alabama representative on the stage with the President and Chairman of Hyundai, and he is the one that answers questions from journalists.

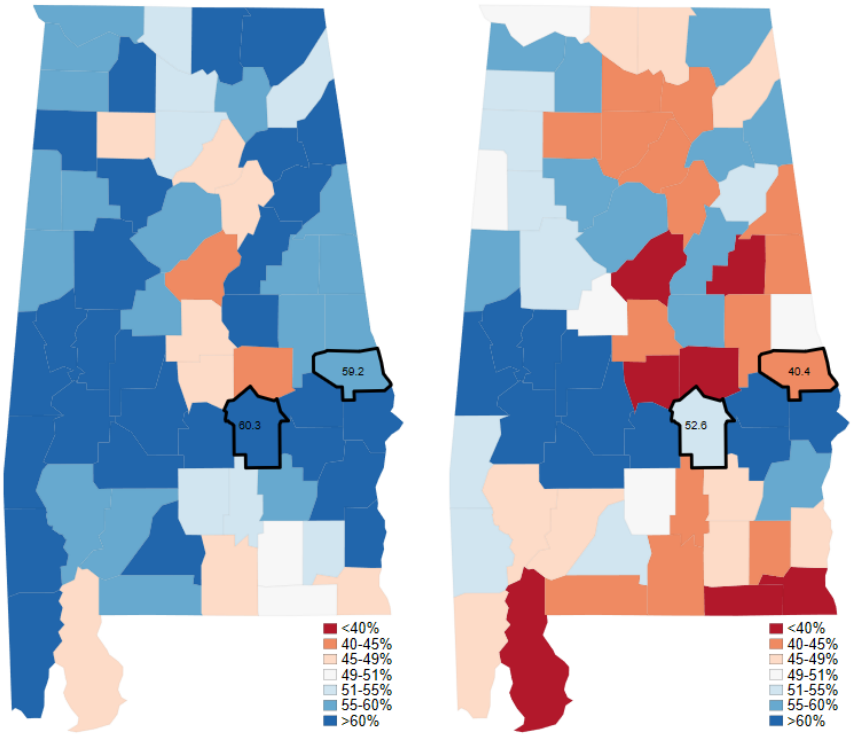
As soon as there are discretionary incentives involved, i.e. tax credits or other funds that a typical new firm in the state would not expect to receive because it is not part of the tax code or the economic development program, the governor has the ability to determine how much effort he or she wants to make, and is able to approve or deny additional funds. If the governor has their own discretionary fund—a pool of money that they

can use to sweeten the deal for firms—then they can do this without any approval from the state legislature.[6] However, if the funds are not already available in the budget, or the tax credit legislation has to be changed for the specific firm, the governor will need to call the legislature into special session and get the incentive bill approved. This was the case with Hyundai. The governor is also usually the face of the state negotiating team, holding meetings with the executives and giving them site tours and hosting dinners.

Hyundai and the 2002 Election

As it happens, 2002 was an election year in Alabama. Understanding whether and why attracting a firm will help a governor win re-election is the goal of this paper, widening the pool to not only include Hyundai and Siegelman but all of the subsidy deals and state governor elections from 2002 to 2018.

Figure 2: Two Elections for Don Siegelman



(a) Siegelman vs. James (1998) (b) Siegelman vs. Riley (2002)

Notes: These maps of Alabama show the vote share won by Don Siegelman in his two elections for governor, in 1998 (Panel (a)) and 2002 (Panel (b)). The two outlined counties are Montgomery and Lee, where Hyundai and Nissan, respectively, were offered subsidies to locate. Hyundai chose Montgomery, while Nissan did not locate in Alabama, and instead put their plant in Mississippi. These maps provide an introduction to the empirical strategy. I will compare the change in vote share for a single governor (e.g. Siegelman), in treated counties (Montgomery), with the change in vote share in control counties (Lee). Election data is from the Election Atlas (Leip, 2018).

[6]These type of funds are usually called "Deal Closing Funds," but the name and structure can vary across states.

To give a brief preview of how this analysis will proceed, I will start by comparing the vote shares for the incumbent in subsidy-winning counties and non-subsidy winning counties in the state, before and after the subsidy deal. Therefore, the governor is held constant in both the pre and post periods, but faces two different competitors. Figure 2 shows this for the case of Alabama. In 1998 Siegelman faced the incumbent governor, Republican Fob James, and won handily, with 57.9% of the total vote (Panel (a)). In 2002 (Panel (b)) Siegelman faced off with U.S. Rep Bob Riley, whose district borders Montgomery County. This was a very tight, and controversial, race, with Bob Riley winning by only 3,000 votes (0.23% of the votes cast).[7]

These maps also provide an introduction to my empirical strategy. The two outlined counties are Montgomery and Lee County. Hyundai received a subsidy to locate in Montgomery, while Lee County, to the west of the state, was in a competition to win a Nissan plant in 2000, but was beat out to a site in Canton, Mississippi.[8] The labels show the vote shares for Siegelman in these counties, and in the surrounding area. I will compare the change in vote share for a single governor (e.g. Siegelman), in treated counties (Montgomery), with the change in vote share in control counties (Lee).

Governor Siegelman lost 7.6 percentage points in Montgomery between 1998 and 2002. Meanwhile, in Lee County, Siegelman lost 18.8 percentage points in vote share. A concern may be that the runner-up location is less likely to support the governor because the subsidy was lost. This would lead me to overestimate the effect on vote share. However, there is very little news coverage of losing subsidy locations, suggesting that voters in runner-up counties do not know their "runner-up status".[9]

In Section 5 I will take this analysis to all the subsidy deals in the data. First I will set ideas by discussing pandering in the subsidy competition framework, and then, in Section 3 I will introduce the data and survey evidence.

2.2 Subsidy Competition and Pandering

This section started with a description of how Hyundai contacted the governor of Alabama, but also, those in Kentucky, Mississippi, and Ohio, to let them know that the car manufacturer was interested in locating at a specific site in their state. This spurred a competition for the new assembly plant, with the states as the bidders.

Hyundai's problem is simple, it will locate in the state that gives the highest payoff, which is a function of how profitable the manufacturer will be in that state and the subsidy offer. This competition approximates an

[7] Siegelman was initially declared the winner, but the call was overturned after a recount in a single county that reassigned thousants of Siegelman votes to Riley. After this controversy the state amended the election rules to mandate supervised recounts in close races (Sharp, 2020). This event happened in Magnolia Springs, which is in Baldwin County, 3 hours southwest of Montgomery.

[8] Nissan planned to create 4,000 jobs and invest $950 million at the plant in Mississippi. The automobile manufacturer received an reported $295 million in incentives from the state, but later accounts report a larger subsidy size.

[9] In this case, a search of ProQuest for newspaper articles with the words "Montgomery" and "Hyundai Plant" lead to 1,114 results, 272 in the local newspaper (the Advertiser). Meanwhile, the same search for Nissan in the runner-up location ("Opelika" and "Nissan Plant") lead to 13 results, 1 in the local newspaper.

English Auction: states will bid, with subsidies, up to their willingness to pay for the plant. The winner then will pay the subsidy that makes Hyundai indifferent between locating in the winning and runner-up location, as the runner-up will drop out when they reach their willingness to pay.[10]

Therefore, the governor's problem, when contacted by Hyundai, is to determine their willingness to pay for winning Hyundai to the proposed site. Suppose the net benefit to the state is B. I will define the willingness to pay of the state as:

$$WTP_{state} = B.$$

However, the willingness to pay of the governor may diverge from that of the state. If the governor is career-concerned, as was Don Siegelman in Alabama, they might also care about the electoral effect of winning the firm. Call the electoral effect E. I will define the willingness to pay of the career-concerned governor as:

$$WTP_{gov} = B + E.$$

If subsidy-giving is a popular policy, i.e. $E > 0$, then the willingness to pay of the governor will be greater than the willingness to pay of the state.[11] If the state with the career concerned governor wins the subsidy competition the size of the subsidy may be larger than B, the net benefit to the state.

If voters were perfectly knowledgeable about both B and the size of the subsidy it would be difficult to believe that the electoral effect would be positive – why would voters reward the governor for paying more than the state would benefit? However, evidence from the survey will show that while voters are aware of potential benefits, they know very little about the subsidy costs. Furthermore, the benefits are concentrated in one location and costs, borne in the future, will be spread across the state. Both of these factors would allow for governors to offer incentives larger than expected benefits and still garner electoral support. Here, the politician and the voter do agree on the benefits of the policy, but they have differing information on the cost (Ashworth, 2012; Canes-Wrone, Herron and Shotts, 2001). This results in the politican overpaying for a policy that is popular, against the interest of the voter.

[10] See Slattery (2020) for more details on using the English Auction to approximate a subsidy competition.

[11] This is a feature of Biglaiser and Mezzetti (1997)'s model: the politician's willingness-to-pay for a project is different from voters' willingness-to-pay.

3 Data and Survey Evidence

3.1 Data on Subsidy Deals

I have detailed data on just under 400 subsidy deals, from 2002 to 2017. The data include the name of the subsidized firm, the type of establishment, the winning and runner-up location in the subsidy competition, the size of the incentive promised by the winning location, and the number of jobs and investment planned by the subsidized establishment. The average subsidy deal is valued at about $164 million over 10 years, for a firm promising 1,500 jobs and an investment of $840 million. Appendix A describes the data collection process and presents descriptive statistics for the firm-level subsidy data, by sector.

The Hyundai deal in 2002 was actually quite standard for the industry; Hyundai received $234 million for a promise of 2,000 jobs and $1 billion in investment, while the average auto manufacturer in the sample receives $243 million for a promise of 2,600 jobs and $980 million in investment. Although manufacturing and utilities make up almost 60% of all deals, and 75% of the total subsidy spending, trade and services firms also receive subsidies over this period. This includes headquarters and offices for finance and insurance, labs for scientific research firms, and warehouses and distribution centers for companies like Amazon and Fedex.

Table 1: Probability of Subsidy-Giving

	$\mathbb{1}$(Subsidy in state s, year t)		
Unemployment Rate$_{st}$ (%)	0.041	0.040	0.034
	(0.018)	(0.018)	(0.021)
Governor can run for re-election$_{st}$		0.056	0.075
		(0.038)	(0.038)
Observations	768	768	768
R-squared	0.33	0.33	0.34
State, Year FE	×	×	×
Additional Controls			×

Notes: This table shows the correlation between state characteristics and subsidy-giving in that state. The analysis is at the state-year level, where the dependent variable is equal to 1 in state s and time t when a subsidy deal is announced in state s and year t. The correlates of interest are the state unemployment rate and whether or nor the governor is eligible to run in the next election. The dependent variable mean is 0.33. Each specification includes state and year fixed effects, while the third specification also includes state GDP, the corporate income tax rate, the personal income tax rate, the sales tax rate, whether the state has right-to-work laws, the total manufacturing employment and population in the state, state peronal income per capita, housing prices, and an indicator for whether the governor and state legislature share the same party. Sources for state characteristics include the CSG Book of the States (1950-2018) (tax rates), U.S. Bureau of Economic Analysis (1967-2017) (GDP, income per capita), National Conference of State Legislatures (2019*a*,*b*) (right-to-work, term-limits, party affiliation), Bureau of Labor Statistics (1990-2017) (unemployment), Zillow (1996-2020) (housing prices), Ruggles, Flood, Goeken, Grover, Meyer, Pacas and Sobek (2019) (population), and County Business Patterns (1997-2017) (manufacturing employment). Data on subsidy-giving collected by the author.

Table 1 displays the correlation between subsidy-giving, economic conditions, and the career concerns of the governor. Within a state, a 1% increase in unemployment rate is associated with 12% increase in

probability of subsidy giving. Subsidy-giving is one way to create jobs, and governors put in more effort to create jobs when the unemployment rate is higher. Governors who can run for re-election are 7.5 percentage points more likely to give a subsidy in a given year, or 24% more likely to give subsidies than their term-limited counterparts. This complements the finding in previous work that incumbents winning for re-election are willing to pay more for firms, and are more likely to increase total incentive spending budgets (Slattery, 2020; Slattery and Zidar, 2020).

3.2 Data on Elections of Incumbent Governors

I link the subsidy-giving behavior of governors to political outcomes. I use election outcomes from the "Election Atlas" (Leip, 2018). This includes county level votes for each candidate in gubernatorial elections from 1998 to 2018.

Table 2: Incumbent Elections and Subsidy-Giving

		Vote Share (%)		Economic Vars (%)		Election Advertising	
Incumbent	N	Last	Current	Unemp	Δ Manuf Emp	% Jobs	$ per Vote
Subsidy Deal Winner	66	54.1	56.2	6.05	-0.89	46.1	8.98
Runner-up	23	56.5	57.4	4.91	-1.48	34.9	6.94
Neither	34	54.3	55.8	4.33	2.57	28.7	4.53

Notes: This table presents descriptive statistics for incumbent governor elections in subsidy-winning states, runner-up states, and all other states. Subsidy deal winner governors have won at least one subsidy deal during their term, runner-up governors have competed for firms with subsidy offers during their term, but have not been successful winning a firm, and "neither" governor elections include all other incumbents running for re-election that have not been observed winning or as the runner-up in any subsidy competition. The table lists the number of observations for each group, the vote share for the incumbent in their previous (labeled "last"), and current election (when they run as an incumbent). State economic variables are presented for the year of the current election, and include the state unemployment rate and the change in the state manufacturing employment. Election Advertising variables, again for the current election, include the percent of ads that mention job creation, and the advertising spending per vote. Sources for state election and economic variables are Leip (2018) (election results), Fowler and Ridout (2017); Goldstein and Rivlin (2005); Goldstein, Niebler, Neiheisel and Holleque (2011) (political advertising content and spending), Bureau of Labor Statistics (1990-2017) (unemployment), and County Business Patterns (1997-2017) (manufacturing employment). Data on subsidy winners and runner-ups collected by the author.

Over the sample period, 122 incumbent governors run for re-election. Table 2 presents descriptive statistics for these incumbent elections, broken out by subsidy-giving behavior. The distinction here is that subsidy deal winner governors have won at least one subsidy deal during their term, while runner-up governors have competed for firms with subsidy offers during their term, but have not been successful winning a firm. Lastly, the group of "neither" governor elections include all incumbents running for re-election that have not been observed winning or as the runner-up in any subsidy competition.[12] The table shows across all groups, incumbent governors win re-election by a wide margin. On average, incumbents win with a vote share of about 56.3%

[12]That is not to say necessarily that they did not compete, but they were not in the final two competitors for the firm.

(the "Current Election" column), compared with a vote share of 54.6% in the last election. Over my sample period, only 16 incumbents (13%) lose their re-election bids.

Table 2 also highlights some differences between subsidy-deal winning incumbents and their no subsidy peers. Subsidy deal winners face higher unemployment and declines of manufacturing when they are up for re-election, and they also run more campaign ads that focus on job creation. This is consistent with what we know from Table 1, governors are more likely to give subsidies when the unemployment rate is higher. The subsidy winner elections are also characterized by higher spending, as measured by advertising spending per vote, suggesting more competitive elections. Runner-up governor elections also have higher unemployment and spending than the "neither" category.

These summary statistics highlight the difficulty in estimating the effect of subsidy-giving on the election of incumbent governors: subsidy-winning governors are not similar on observables to the potential control groups, and likely have many unobservable factors to governor type that would confound a strategy that compares subsidy-winners to the rest of the sample.[13] In Appendix B.2 I compare state level vote shares across incumbent races and find a weak positive correlation between subsidy-giving and support for the incumbent. This correlation might be observed by all governors, and therefore could help to rationalize the difference in subsidy-giving behavior of incumbents with and without re-election concerns. However, by taking the analysis to the county level, I can estimate the causal effect of subsidy-giving on incumbent support.

3.3 Survey Data on Voters

I supplement data on subsidy-giving and elections with a survey of voters across 5 states. The goal of the survey is to collect information about what voters know about subsidy-giving in their state. I am able to elicit this information with an incentivized quiz about a recent subsidy deal in the state. The survey also asks voters about how they learned about the subsidy deal, what they think about the subsidy deal, and what they know about other state economic development policies. The survey partner, YouGov, provides demographic information on each participant, therefore I also have data on the age, income, employment status, and education of each respondent, as well as their zip code.

The five states in the survey sample are Georgia, Kentucky, New York, Texas and Wisconsin. The subsidy deals in the survey sample are all for manufacturing firms. The subsidized establishments receive an average subsidy of $206 million, promise 1,680 jobs, and plan to invest $1.1 billion at the new plant. Therefore, the deals are comparable, if slightly larger, than the manufacturing subsidy deals in the data set. Appendix Table

[13] For example, if subsidy winning governors are more aggressive in subsidy competitions because they are more worried about the election and in more competitive elections, this would bias the results downward. Alternatively, if subsidy winning governors are governing in more attractive states to business, making it easier to attract firms and win subsidy competitions, voters may be happy with the governor because the state is attractive in general, not because of the subsidy, biasing the results upward.

C.1 presents the details of each deal in the survey sample.

The survey sheds light on what voters know about subsidy-giving in their state. I will highlight a few stylized facts from the survey that motivate the econometric approach and provide evidence for the mechanism:

1. Voters only know basic details about subsidy deal if they live in the subsidized or neighboring counties. Figure 3(a) shows that about 50% of survey respondents in the subsidized county can correctly identify the name of the firm that is opening a plant in their location. This falls to just over 20% when the respondent lives outside of the subsidized location.[14]

2. Very few voters know the size of the incentive offered to the firm. Figure 3(b) shows that less than 5% of survey respondents in the subsidized county can correctly identify the name of the firm and the size of the incentive. This drops to 2% outside of the subsidized county. Voter knowledge of the number of jobs promised is much higher, at over 10% in the subsidized county and neighboring counties, and about 5% in the general population (Appendix Figure E.4).

3. Voters learn about subsidy deals from the local news. Table 3 shows that for the roughly 25% of the sample that correctly identified the name of the subsidized firm, 60% heard about the plans for the firm's arrival from the local news and 17% read about it on social media.

4. Voter sentiment about subsidy-giving is uniformly positive across the state. Almost 60% of respondents, regardless of location, answered the question "Do you think offering an incentive for [firm name] to locate a [plant type] plant in [location] makes local residents better off?" affirmatively. Another 17% responded, "No, this does not make residents better off", while the remaining 26% were undecided.[15]

In order for subsidy-giving to have an effect on voter behavior one would expect voters to know about projects that are creating new jobs in the state. The survey confirms that this is the case, at least in the subsidized locale. The lack of voter knowledge about the subsidized project across the state suggests that the other counties in the state are not treated, and therefore the effect in the subsidized locale can be interpreted as the state level effect. Moreover, the fact that voters are much more knowledgeable about job creation than incentive size is consistent with the pandering framework discussed in Section 2.2 – voters recognize the benefit to subsidy-giving but not the cost. This finding, paired with the result that voters learn about subsidy deals from the local news, motivates further investigation into the role of salience and news coverage of subsidy-giving as a potential mechanism.

[14]The question about the firm name gives 4 choices of names and the option to respond "I am not sure." Therefore, a 20% correct response rate could be the result of guessing between the 4 options.

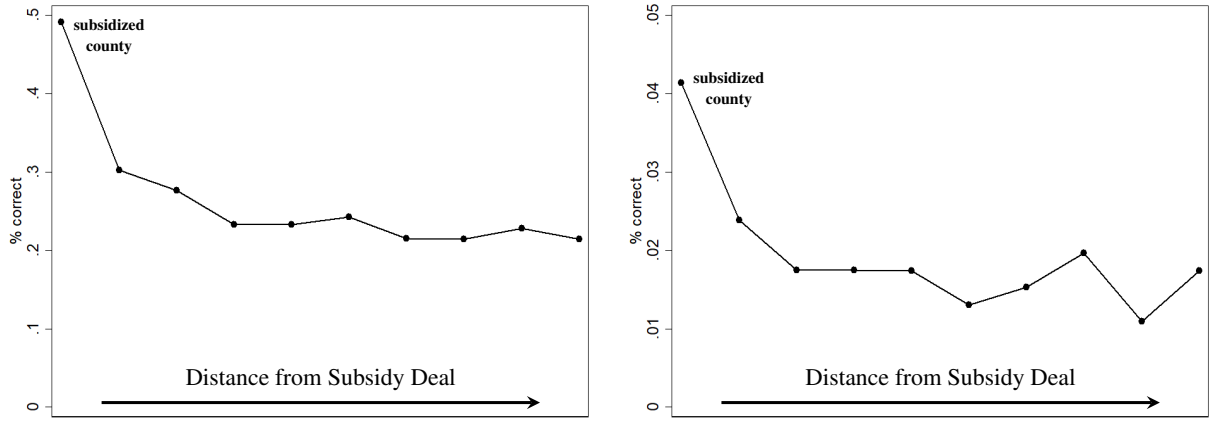
[15]Appendix Table E.1 shows correlates between respondent and location characteristics with support for subsidy-giving.

Table 3: How did you learn about [firm name]'s plans to locate in [state]?

	% of respondents
I heard about it on the local news or read about it in the newspaper.	60.29
I heard about it on social media.	17.14
I heard about it from a friend or family member.	10.14
I heard about it in a political campaign.	1.88
Other.	10.55
N = 1,074	

Notes: This table reports results on how voters learn about subsidy deals in their state. The survey question is: "How did you learn about [firm name]'s plans to locate in [state]?" Only respondents that correctly identified the subsidized firm are asked this question, which is why the sample size is 1,074 instead of 4,300. For more information on the survey see Appendix C.

Figure 3: Voter Knowledge of Subsidy by Distance from Deal



(a) Voter correctly identifies subsidized firm

(b) Voter correctly identifies subsidy size

Notes: This figure shows how voter knowledge of the details of a recent subsidy deal changes with the voter distance from the deal. Distance is measured in deciles, in order to normalize across state geographies (recall the survey includes Texas, New York, Wisconsin, Georgia, and Kentucky). The two survey questions are multiple choice questions. The question about the identity of the firm (panel a) asks: "To the best of your knowledge, which of the following companies is building a [type of plant] in [location]?", and gives 4 choices of firm names, along with the choice "I am not sure." The question about subsidy size (panel b) asks "To the best of your knowledge, what was the value of the incentive offered to [firm name]?", and gives 5 choices with bins of a subsidy size, as well as "I am not sure." The question about the subsidy size is only asked to respondents who correctly identify the firm and correctly respond that the firm received any incentive. However, the figure shows the unconditional share of respondents that correctly answer the subsidy size question. For more information on the survey see Appendix C.

4 Empirical Strategy

In order to estimate the effect of subsidy-giving on voters support for the incumbent governor I compare counties that receive subsidy deals with similar counties within the same state with a difference-in-differences estimation strategy. Comparing counties within the same state allows me to examine how support changes for a single governor, while controlling for unobservables about the governor's type.

There are two specifications. The first, Equation 1, estimates the effect of a subsidy win on within county changes in vote share for the incumbent. For incumbent governor (g), county (c), state (s), and election year (e):

$$\Delta\% \text{ vote}_{gcse} = \alpha + \beta \text{win}_{gcs[e-1,e]} + \gamma X_{gcse} + \eta_{se} + \varepsilon_{gcse}, \tag{1}$$

where $\text{win}_{gcs[e-1,e]} = 1$ if governor g won a subsidy deal for county c since last election $(e-1)$. This specification compares within county changes in vote share, while holding the state and election fixed with a state by year fixed effect, η_{se}. The economic and demographic controls from Table 5 are included, as X_{gcse}. The coefficient of interest is β, the effect of winning a subsidy deal on the within county change in vote share.

The second specification, Equation 2, is the difference-in-differences approach. Here the outcome is the county level vote share for a governor, g, who will be the incumbent in the post period. Again, $\text{win}_{gcs[e-1,e]} = 1$ if the county wins a subsidy between the two elections:

$$\% \text{ vote}_{gcst} = \alpha + \beta \text{win}_{gcs[e-1,e]} \times \text{Post}_t + \phi \text{Post}_t + \gamma X_{gcst} + \eta_{gcs} + \xi_t + \varepsilon_{gcst}, \tag{2}$$

where there are two election periods, $t \in \{e-1, e\}$, and $\text{Post}_t = 1$ if it is the governor's second election ($t = e$). I include county-governor fixed effects, η, and election year fixed effects, ξ.

I am interested in changes of support for a single governor, which means that I do not have multiple pre or post periods – there are two observations for each governor-county pair. Therefore, I am unable to analyze differential pre-trends in treatment and control counties. The identifying assumption is that support for the incumbent governor would have continued to move in parallel in treatment and control counties in the absence of a subsidy deal win.

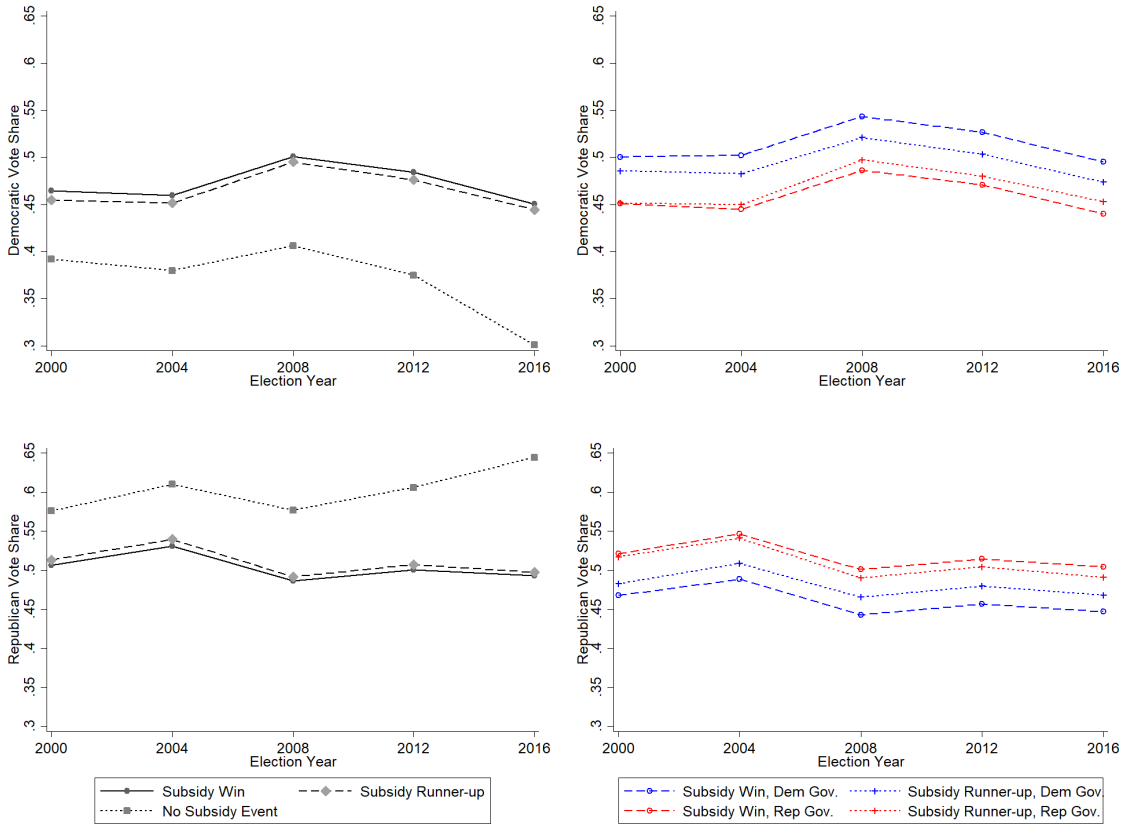
Figure 4 shows the presidential vote share for subsidy-winning and runner-up counties, throughout the sample period. Although I am unable to compare pre-trends for the outcome of interest, I can compare presidential vote share by party. This shows that the subsidy winning and subsidy runner-up counties have very similar trends when it comes to presidential elections – the non-participating counties, that I do not use as a control, diverge post 2012.

There are two potential identification issues that should still be discussed before proceeding to the analysis. First, what if the location of the subsidy deals is endogenous? Second, what is the right control group?

4.1 Identification: Is location endogenous?

Governors may be willing to pay more for subsidies in counties where they need more votes. In Appendix Table E.2 I look for patterns between the political characteristics of counties and the location of subsidy-giving within a state. Subsidies are not more likely to go to counties with higher turnout in the last election, to

Figure 4: Presidential Vote Share 'Pre-Trends'



Notes: These 4 figures show the presidential vote share for winning and runner-up counties. The top panel shows the vote share for the democratic candidate, while the bottom panel shows the vote share for the republican candidate. The figures on the right separate out the vote share by the party of the governor at the time of the subsidy event. In each figure the solid line tracks runner-up counties and the dashed line tracks winning counties. The dotted line, in the figures on the left, are the counties that are neither a winner or a runner-up during the sample period.

counties with legislators who share the party of the governor, or to counties where the support for the governor was higher in the first election. Therefore, at least with this sample of large firms receiving subsidies, it does not seem that governors are able to manipulate where the firm locates within the state to help their re-election chances.

This is consistent with institutional details on the site selection process for large firms. In most cases, like Alabama with Hyundai, states are not going out to recruit firms. Each firm has a multi-step site selection process, which typically involves hiring a consulting team to put together a list of many potential sites. The consultants will do the research to narrow the list to a few of the most appropriate or attractive locations for the firms, and once the team has this shortlist, the firm will contact the chosen states. Only then will the governor and local officials within the state be aware that they are a possible location for the firm, and decide how much they are willing to offer the firm. The state's team can go back and forth with the firm, updating the incentive package when they are made aware of competing offers.[16,17]

The identification strategy assumes that the county specific approval of the governor is not increasing in all treatment counties, independent of subsidy-giving. This exclusion restriction would be violated if there is an effort by the governor, such as public works projects, happening in the subsidized counties and not in the control counties. This effort would increase support for the governor, and any increase in goodwill from this project would be attributed to the subsidy, biasing the results upward. I have read articles and local news coverage on each of the subsidy deals in the data set, and I have not noticed any patterns that suggest that this would be the case. This would also be surprising, given that we now know that the locations that win subsidy deals are not necessarily places where the governor is trying to win more votes. I also show that governors are not advertising more in the subsidized areas (Appendix Table E.3).

Table 4: Control Group: Subsidy Characteristics

	Control		Treated	
	Mean	Med.	Mean	Med.
Subsidy ($M)	157.4	65.7	151.2	59.4
Jobs Promise	851.3	500.0	877.7	600.0
Investment ($M)	883.0	313.6	1567.9	227.7
Manufacturing	0.6	1.0	0.6	1.0

Notes: This table displays the characteristics of subsidy deals that were awarded to firms in winning counties, and the characteristics of deals that were awarded to firms that the runner-ups competed for, but ultimately did not win. The characteristics include the size of the subsidy, the number of jobs promised by the firm, the size of the investment planned by the firm, and whether or not the firm is in the manufacturing sector. Data collected by the author.

[16]To read more about site selection see the discussion of the Volkswagen plant deal in Slattery and Zidar (2020), more general details in Slattery (2020), or trade publications on site selection such as `siteselection.com`.

[17]Governor intervention may be a margin for smaller firms receiving subsidies, as these firms are making location choices within a single state. Those types of smaller deals are not included in the sample.

4.2 Identification: An appropriate control group

I use runner-up locations for similar subsidy competitions as the control group. Table 4 shows the characteristics of subsidy deals that were awarded to firms in winning counties, and the characteristics of deals that were awarded to firms that the runner-ups competed for, but ultimately did not win. The control group is chosen for having similar jobs promises and the same sector, but Table 4 shows that the deals also have similar sized incentive amounts and investment planned.[18]

I use the runner-up locations for two reasons. First, just like the treated locations, runner-up locations are selected on being attractive to large firms in the site selection process. So, to the extent that there are some common unobservables in what makes a location attractive the firms getting subsidy deals in my sample, this is shared by both the runner-up and treatment counties. Table 5 confirms that the runner-up and treatment counties are very similar on observables. They are both larger, more urban, and wealthier than the average county in a state.[19] Second, I know the governor put in an effort to compete for a firm for the runner-up location. A subsidy package was assembled and was attractive enough so that the location was almost chosen as the winning site. So, to the extent that there are some common location unobservables in what makes a governor want to exert effort and win a firm to a location, this is shared by both the runner-up and treatment counties.

Placebo Test

One identification concern is that voters in counties that lost out on subsidy deals are more or less likely to support the governor. Voters may be more likely to support the governor if they perceive the governor's effort to attract a firm to their location as a positive signal, even though the governor was not successful. Alternatively, voters may be less likely to support the governor if they are upset that they lost the subsidy competition, and believe the governor could have worked harder to create jobs in their area. Either one of these concerns require that voters in the runner-up locations are aware that the county was in the running for a new firm. Ultimately, survey evidence suggests that voters know very little about the runner-up status. When asked about past subsidy competitions in their area, almost 40% of respondents replied "I am not sure," and about 12% responded that the government had tried but failed to attract a firm to their area. The share of respondents that thought the government had tried but failed to attract a firm to their area did not differ by the actual runner-up status of their location.

It is still possible to test whether runner-up locations have differential support for incumbents. I implement the difference-in-differences strategy from equation 2, but with the sample of states that only have runner-up

[18] I had to drop 14 subsidy deals (9%) for which I could not find an appropriate runner-up in the same state and election cycle.

[19] In fact, Table 5 shows that winning counties are very different than the average county in a state on almost every variable.

Table 5: Descriptive Statistics

	Winning Counties	Runner-up Counties Mean	Runner-up Counties Difference	All Counties Mean	All Counties Difference
Economic and Demographic Variables:					
log(Population)	12.47	12.49	0.02	10.25	-2.22***
	(1.38)	(1.38)	(0.15)	(1.45)	(-19.10)
log(Personal Income Per Capita)	10.62	10.66	0.05	10.41	-0.21***
	(0.30)	(0.31)	(1.30)	(0.29)	(-8.40)
log(Average Housing Price)	5.05	5.15	0.10	4.73	-0.32***
	(0.52)	(0.58)	(1.52)	(0.53)	(-7.36)
Unemployment (%)	6.29	5.94	-0.35	5.91	-0.39
	(2.31)	(1.92)	(-1.43)	(2.34)	(-1.98)
% Urban	80.56	75.82	-4.74	23.48	-57.08***
	(39.72)	(42.96)	(-0.99)	(42.38)	(-17.05)
% Black	16.39	14.92	-1.47	8.77	-7.63***
	(13.59)	(14.22)	(-0.91)	(13.37)	(-6.67)
% Hispanic	12.02	12.03	0.01	9.23	-2.78
	(13.01)	(11.38)	(0.01)	(13.79)	(-2.54)
% with HS degree	68.05	68.39	0.34	66.31	-1.74***
	(4.91)	(5.16)	(0.58)	(6.69)	(-4.17)
% with BA	20.60	20.97	0.37	14.60	-6.00***
	(8.07)	(8.66)	(0.38)	(5.69)	(-8.87)
Election Variables:					
% Vote in Previous Election	53.92	54.18	0.27	54.92	1.01
	(11.82)	(14.28)	(0.18)	(13.99)	(1.01)
% Turnout in Previous Election	0.30	0.29	-0.02	0.33	0.03***
	(0.08)	(0.07)	(-1.64)	(0.10)	(3.81)
Change in % Vote for Incumbent	2.73	0.42	-2.31	1.31	-1.41
	(9.83)	(9.59)	(-2.05)	(11.41)	(-1.70)
Observations	144	153		7,181	

Notes: This table compares the characteristics of subsidy-winning counties with other counties in the state. First, I consider the control group of "runner-up" counties. These are the counties that were reported to be in close competition for winning a firm, but they come in second place and do not win the subsidy competition. In practice, the analysis will compare treated and control counties within a state, so it is not necessarily the case that the treated county and runner-up county in a given state will have been in the same competition. The runner-up county may have been the runner-up for another subsidized firm, that located in another state. However, given that these are counties that firms have put on the shortlist, they have similar characteristics and serve as the preferred control group. I also compare subsidy-winning counties with all other the counties in the state. For the means, standard deviations are reported in parentheses. For the differences, t-stats are reported in parentheses. Sources for county level characteristics include Bureau of Labor Statistics (1990-2017) (unemployment), Ruggles, Flood, Goeken, Grover, Meyer, Pacas and Sobek (2019) (population, % Black, % Hispanic, % Urban, % BA, % high school), U.S. Bureau of Economic Analysis (1967-2017) (personal income per capita), Zillow (1996-2020) (housing prices), and Leip (2018) (turnout and vote share of incumbent).

Table 6: Runner-ups and Incumbent Vote Share

	Incumbent Vote Share		
Subsidy Deal Runner-up × Post	0.31	0.15	-0.47
	(1.52)	(1.50)	(1.50)
R-squared	0.91	0.92	0.91
County, Year FE	×	×	×
County Unemp. Control		×	
All Demographic Controls			×
Observations	2,156	2,154	1,592

Notes: This table reports the difference-in-differences estimates of the effect of being a runner-up county on vote share. Each specification includes County-Governor and Year FE, the second specification includes a control for the county unemployment rate, while the third specification controls for county unemployment as well as the county demographic and economic variables listed in Table 5. The dependent variable is the county level vote share for the governor. The governor is the incumbent, by definition, in the post election but likely not the incumbent in his or her previous election. The control group is counties with over a population over 10,000, within the same state.

counties, and did not have any winning locations. Here, I compare vote shares in runner-up counties with vote shares in similarly sized counties that were neither runner-ups or winners in the same state, before and after the subsidy competition. Table 6 shows the results; runner-up counties are not more or less likely to support the incumbent governor.

5 Voting Results

Table 7 shows the results for both specifications, at different levels of aggregation – Columns (1) - (3) report the results using county level data, while Columns (4) - (6) report results at the commuting zone level. In Columns (7) - (9) the analysis is at the county level, but the subsidy-winning county *and* it's neighbors are considered treated, while the runner-up county and each of it's neighbors are used as controls. For each specification and control group there is a baseline regression, with no control variables (Columns (1), (4), (7)). The next column in each control group includes the county or commuting zone unemployment rate (Columns (2), (5), (8)), and all of the demographic and economic variables from Table 5 are included in Columns (3), (6), and (9). The top panel shows the results from Equation 1, where the dependent variables is the raw change in county vote share for the incumbent governor. The middle panel uses the same specification, with the percent change in county vote share as the dependent variable. The bottom panel presents the result from the difference-in-differences specification (Equation 2).

The results show that subsidy winning increases support for the incumbent. The increase in incumbent vote share is 2.3 to 3.5 percentage points higher in subsidy-winning counties, depending on the specification. A 3 percentage point vote share in one or two counties may not seem like a large enough increase to sway an

election, and in most cases it is not. However, as noted in Table 5, most subsidized firms locate in large counties. The mean turnout for gubernatorial elections in the sample of subsidy-winning and runner-up counties is about 160,000 (85,000 at the median). This means that the 3 percentage point increase in vote share translates to about 4,800 votes at the mean, and 2,550 votes at the median. In Alabama in 2002, Don Siegelman lost re-election by 3,000 votes.[20]

Table 7: Subsidy-Giving and Incumbent Vote Share

	County			Commuting Zone			County + Neighbors		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Change in Vote Share:									
Subsidy Deal Winner	2.16	2.16	2.26	1.47	1.56	1.47	0.74	0.75	0.81
	(0.66)	(0.67)	(0.68)	(0.61)	(0.61)	(0.63)	(0.29)	(0.29)	(0.30)
R-squared	0.81	0.81	0.83	0.89	0.89	0.90	0.84	0.84	0.85
Percent Change in Vote Share:									
Subsidy Deal Winner	4.67	4.57	4.71	3.36	3.58	3.52	1.27	1.40	1.56
	(1.41)	(1.41)	(1.45)	(1.18)	(1.18)	(1.22)	(0.67)	(0.67)	(0.69)
R-squared	0.80	0.80	0.81	0.89	0.90	0.90	0.80	0.80	0.80
State × Year FE	×	×	×	×	×	×	×	×	×
Unemployment		×			×			×	
All Demographic Controls			×			×			×
Obervations	271	271	270	202	202	202	1,390	1,390	1,368
Diff-in-Diff Estimate:									
Subsidy Deal Winner × Post	3.13	3.12	3.53	1.44	1.63	1.82	0.56	0.64	1.05
	(1.17)	(1.15)	(1.15)	(1.41)	(1.40)	(1.41)	(0.59)	(0.59)	(0.59)
R-squared	0.89	0.90	0.90	0.82	0.83	0.84	0.86	0.86	0.87
Area, Year FE	×	×	×	×	×	×	×	×	×
Unemployment		×			×			×	
All Demographic Controls			×			×			×
Observations	542	542	540	404	404	404	2,780	2,780	2,736

Notes: This table reports the estimates of the effect of subsidy-winning on changes in vote share, and the difference-in-differences estimates of the effect of subsidy-winning on vote share. Columns 1-3 use runner-up counties in the same state as controls for the subsidy-winning county, while Columns 4-6 does the same at the commuting zone level instead of the county level. In Columns 7-9 the analysis is at the county level, but the subsidy-winning county and each of it's neighbors are considered treated, while the runner-up county and each of it's neighbors are used as controls. Each specification in the top two panels (corresponding to Equation 1) include State × Year FE. The second specification (Columns 2,5,8) includes a control for the area (county or CZ) unemployment rate, while the third specification (Columns 3,6,9) controls for unemployment as well as the demographic and economic variables listed in Table 5. The top row of 'Subsidy Deal Winner' results uses the raw change in vote share, while the next row of 'Subsidy Deal winner' uses the percent change in vote share. The bottom panel is the difference-in-differences estimates, which corresponds to Equation 2. The difference-in-differences specifications include both county/CZ-governor and year fixed effects. The dependent variable is the county level vote share for the governor. The governor is the incumbent, by definition, in the post election but likely not the incumbent in his or her previous election.

Appendix Table B.1 shows that the results are robust to alternative control groups. Using a Coarsened Exact Matching procedure, I use per capita income, turnout, and vote share in the previous election to create a

[20] Also note that the results are not driven by turnout (see Appendix Table E.4).

control group.

Persuasion Rate

Following (DellaVigna and Kaplan, 2007) I calculate the persuasion rate: the percent of receivers (voters) that change their behavior, among those that receive a message and are not already persuaded. The formula follows:

$$f = 100 \times \frac{y_T - y_C}{e_T - e_C} \frac{1}{1 - y_0},$$

where $y_T - y_C$ is the treatment effect (the difference in vote share between the treatment and control group), $e_T - e_C$ is the exposure (the voters who receive the message), and y_0 is the voters that would vote for the incumbent if there were no subsidy. The treatment effect is the 1.82 percentage point increase in vote share (Table 7). The exposure effect is the difference between the voters who know about the subsidy in the treated area (e_T =49.1%) and the voters who know about the subsidy in the control area (e_C =20.6%), which I know from the survey (Figure 3(a)). Lastly, I take the 54.5% vote share in control group as y_0.[21]

$$f = 100 \times \frac{0.018}{0.285} \frac{1}{0.455} = 14.0\%$$

This persuasian rate is similar to the effect of get out the vote efforts on turnout in Gerber and Green (2000) (15.6%) and news media on vote share in DellaVigna and Kaplan (2007) (11.6%).

5.1 The Aggregate Effect

The question remains – does subsidy-giving help incumbent governors win elections? An increase in support in the subsidized county may not translate to an increase in support in the aggregate, if voters in the rest of the state are less likely to support the governor. This would be the case if the costs of discretionary subsidy are paid by all counties, in the form of increased taxes or reduced public goods. However, the bulk of the costs of subsidy-giving are borne in the future. This is because the largest share of most subsidy deals is a tax abatement for the firm, i.e. the state is agreeing to forgo future tax revenue. This would not increase costs for voters in the short-run. Alternatively, it may be that voters in non-subsidized counties know about the subsidy deal and think they are being harmed because the governor did not successfully attract a firm to their locale. However, the survey shows that voters in non-subsidized counties know very little about any details of the subsidy deal.[22]

[21] Alternatively, one could use the 53.9% vote share of subsidy winning counties in the *previous* election (Table 5).

[22] Conditional on correctly identifying the subsidized firm (<25% of sample), 62% believe there is an incentive (15% unconditional), and only 7% select the correct incentive size (2% unconditional).

Table 8: Calculating the Aggregate Effect

Geography	Δ Vote Share (ppt)	Average Turnout	Votes Gained
County	3.53	160,000	5,658
Commuting Zone	1.82	413,000	7,517

Notes: The table reports the estimates of the effect of subsidy-winning on within county changes in vote share, at the county and commuting zone level, along with the average turnout in subsidy-winning counties and commuting zones. These two numbers are used to calculate the number of votes gained.

It also may be that subsidy-giving helps the incumbents' campaign statewide, and by only estimating the change in vote share in the subsidized locale I am underestimating the aggregate effect.[23] A vast literature on quid-pro-quo in politics (Grossman and Helpman, 2002), suggest that governors might be willing to pay more for firms that are supportive of their party, and therefore will be more likely to support their re-election campaign. In Appendix D I test two related hypotheses relating to a campaign finance channel, and I find no evidence of either.[24] Another potential mechanism is that the incumbent uses the firm's arrival in political ads, and, by running as a "job creation" candidate, gains support from voters around the state. However, the survey shows that less than 2% of voters learned about the firm's plan to locate in the state from a political campaign.

There is the possibility that neighboring counties are also affected by the treatment. Residents could easily commute to a job at the new plant, or just be more likely to know about the subsidy deal because of local news coverage. In Section 3, Governor Siegelman predicts that suppliers to Hyundai would locate all over the region, creating jobs within a 100 mile radius of the automobile plant. Therefore, in order to calculate the aggregate effect at the state level, we want to use the estimates from the commuting zone level analysis. The aggregate effect, when using the commuting zone as the treatment level, is just over 7,500 votes.[25]

Cost per vote

If we are willing to assume the vote share effect of subsidy-giving is isolated to the winning commuting zones, we can calculate a back of the envelope estimate of the cost per vote.

The average incumbent in the sample gives subsidies in 2 commuting zones in their term, and Table 8 shows that the commuting zone level effect is approximately 7,500 additional votes for the incumbent. The additional 7,500 votes in 2 commuting zones translates to 15,033 additional votes in the state.

[23] I cannot causally identify a 'state level' effect, but I do find a small positive effect between subsidy-giving and state-level vote share. If there is an effect outside of the subsidized county, this should bias my results downward.

[24] First, I exploit exogenous variation created by the 2010 *Citizens United* Supreme Court case to identify the relationship between subsidy-giving and campaign spending. I find that the ability of corporations to spend more in state elections has no effect on subsidy-giving. Second, I test whether local stakeholders who expect to benefit from firm arrival (i.e. related businesses, property owners, unions) are more likely to support the incumbent's campaign. I do not find evidence of differential financial support for the incumbent in the subsidized county.

[25] I can also use the slightly smaller commuting zone estimate, 1.47, to arrive at 6,071 votes gained. I use the larger estimate because this will result at a more conservative cost per vote.

Next, we need to calculate the additional costs. The average incumbent in the sample offers 2.9 subsidies. Previous work estimates that incumbent governors are willing to pay $40 million more for subsidy deals when they are eligible to run for re-election. However, as discussed earlier in the section, subsidy deals are not necessarily lump-sum payments from the governor. The majority of the subsidy package comes in the form of tax abatements for the individual firm – the state agrees to forgo future tax revenue from the firm. Only a portion of the subsidy has budget consequences in the year the subsidy is announced. Furthermore, the subsidy data are normalized to a 10 year time horizon. Due to the time horizon of the subsidy package, I assume a conservative 10% of the subsidy size is incurred in the year the subsidy is announced.

With the number of votes gained and the additional subsidy size I can calculate the cost per vote:

$$\text{Cost per vote } = \frac{2.9 \text{ subsidies } \times (\$40,000,000 \times 10\%)}{15,033 \text{ votes}} = \$772 \text{ per additional vote.}$$

The additional subsidy spending translates to almost $800 per additional vote. This is larger, but of a similar magnitude, of estimates of the cost per vote of campaign spending in the literature; Bombardini and Trebbi (2011) estimate an additional vote costs politicians $145, while Levitt (1994) estimates a cost per vote between $130 and $390. Note that, unlike campaign spending, in this case the governor is spending from the state budget, not their own funds. Furthermore, they are promising future funds. If the full 10 years of the additional subsidy spending is included, the cost per vote increases to almost $8,000 per vote.

5.2 Mechanism

The goal of the remainder of this section is to identify the mechanism by which subsidy-giving confers political benefits in a local area. The first hypothesis is that the subsidy, by attracting a new firm, creates jobs and improves local economic outcomes for residents, thereby generating incumbent votes. I will call this the "direct effect" of subsidy-giving. The second hypothesis is that voters are aware of the subsidy deal because of the local news coverage. Then, even if these voters have not been hired or experienced any economic benefit from the firm's arrival, they might anticipate jobs and economic growth from the subsidy deal and realize the governor is making an effort to improve economic outcomes in the local area. I will call this the "salience effect."

I can test these two hypotheses by using the timing of subsidy deals within the term. Hypothesis (1), the "direct effect", suggests the effect should be larger for subsidy-giving earlier in the term, because this gives time for the firm to arrive and start hiring, improving local economic outcomes. Hypothesis (2), the "salience effect," suggests the effect should be largest for more recent announcements of subsidy deals, which are the most salient to voters, due to media coverage and, possibly, political advertisements.

Table 9: Vote Change Results by Date of Subsidy Deal

	1st Year	2nd Year	3rd Year	Election Year	All Years
Subsidy Winner	2.02	1.85	1.16	3.61	2.26
	(1.08)	(0.91)	(0.86)	(1.14)	(0.68)
R-squared	0.90	0.91	0.89	0.83	0.83
Observations	62	100	113	98	270
Wins	20	35	39	36	133

Notes: This table presents results for the effect of subsidy-giving on vote share (per Equation 1), by the year of the subsidy deal announcement. The baseline results (Column (5)) correspond to Specification (3) in Table 7, which uses runner-up counties as a control, and includes county and demographic controls. For each year the sample of winners is restricted to counties that do not win subsidies at some other year in the term.

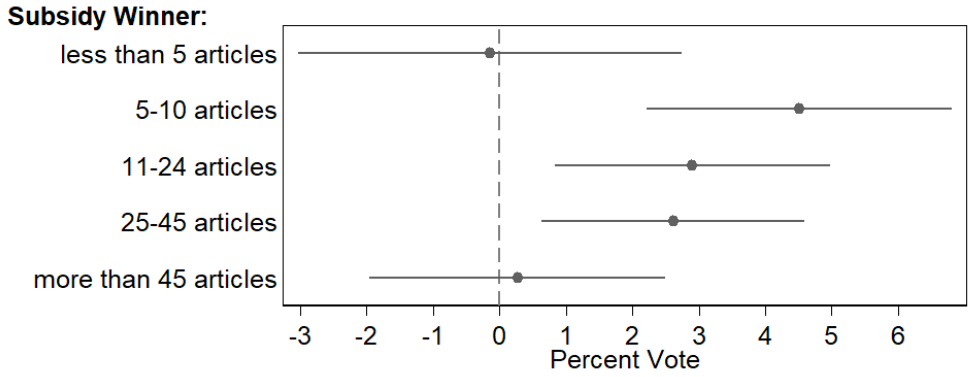
Table 9 shows the results by the date the subsidy deal was announced. The baseline result, or "all years," corresponds to Specification (3) in Table 7. The table shows that subsidy deals announced in the start of the term have about one half of the effect of a subsidy announced in the election year. Due to the lag between a subsidy announcement and a firm's arrival, the large effect in the election year means that the governor can accrue political benefit before any jobs are actually created. This suggests that it is the salience of the subsidy deal and the anticipated economic effect that is more important than the realized outcomes. This is consistent with recent work by Huet-Vaughn (2019), who finds that an increase in support for Democrats following ARRA infrastructure spending was due to the salience of the spending, and not because the spending stimulated economic growth in the local area.

In Section 3, the story of Hyundai's subsidy deal in Alabama was characterized by significant amounts of local news coverage, as well as political advertisements. This is not specific to Hyundai or Alabama, there is plentiful anecdotal evidence on news coverage of subsidy deals and political ads touting job creation from attracting specific firms. The firms in the sample are selected on receiving large subsidy deals and spurring competition between localities, two features that lead to a subsidy deal being covered by the media. Also, many of the details of the subsidy deal in the data were collected from local news articles, which suggests that there was at least some media coverage of the majority of the subsidy deals in the data. In terms of political advertisements, Appendix Figure E.5 shows that incumbent governors who win subsidy deals are 60% more likely to mention job creation in the ads they run for their re-election campaign, on average. However, since there is nothing stopping governors from running ads that mention subsidy deals that were announced in earlier years, the election year effect is more likely to be driven by local media coverage. Subsidy deals that were announced in earlier years are likely equally as salient ot voters, but memory decay leads the most recent subsidy deals to have the largest effect (Angelucci and Prat, 2020).

Subsidy-Giving and News Coverage

I collect data on news coverage on each subsidy deal from ProQuest (ProQuest, 2021). ProQuest allows users to search for past newspaper articles, with a search term and a publication date, in newspapers across the country. There are 2,291 English language papers in the database, and 567 of those papers are published in the United States. For each subsidy deal I collect data on the number of newspaper articles mentioning the deal, the titles of the articles, and the source of each article. Appendix Figure E.6 shows that the data are highly skewed, half of the sample of subsidy deals have 15 or less articles in the database, but there are 11 deals with over 100 relevant hits. I use this data on news coverage as a continuous treatment effect, instead of a dummy variable for whether the county won a subsidy deal, now the treatment is the number of newspaper articles covering that deal. Figure 5 shows the results of this analysis. [26] Perhaps surprisingly, the vote share effect is highest for subsidy deals where there is some non-negligible number of news stories (more than 5 articles), but not too much coverage (more than 45 articles). It may be the case that the deals with the most news coverage are more likely to have some controversy or some negative publicity. For example, the subsidy deal with the highest number of news articles in the database is Foxconn, which was a highly controversial deal that was discussed regularly in the national news.

Figure 5: Vote Change Results by News Coverage

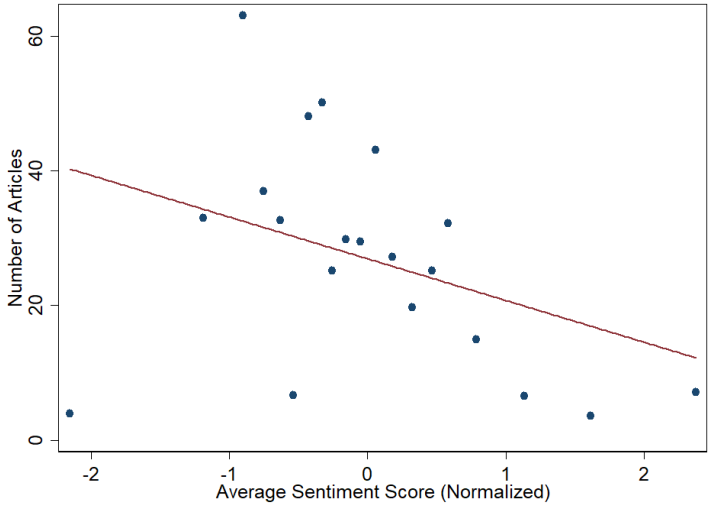


Notes: This figure shows the point estimates and confidence intervals for the effect of subsidy-giving on vote share, by the year of the subsidy deal announcement. Appendix Table E.5 displays the coefficient and details for each specification.

Figure 6 shows the correlation between the amount of news coverage and the average sentiment score for the text of those articles. This preliminary analysis shows that there is a negative correlation between the amount of news coverage and positive sentiment.

[26] Appendix Table E.5 shows the results in table form.

Figure 6: News Coverage and News Sentiment



Notes: This figure shows the correlation between the number of articles written about the subsidy deal and the sentiment of the text of those articles. This is a binned scatter plot, where the number of news articles about the deal is on the y-axis and the average sentiment of those articles is on the x-axis. I normalize the sentiment score so that 0 is the average sentiment within the sample of articles.

Are Election Year Subsidy Deals Different?

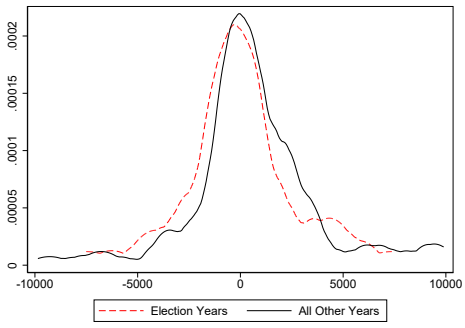
Now, one explanation for the large effect of election year subsidy deals is that they are different from non-election year subsidy deals. Then the story is not just that voters recently heard about the subsidy in the news, it is that there are more news coverage because the firm is promising more jobs, is planning a larger investment, and is predicted to have a greater spillover effect. The voters are rational, and the governor just tries harder to attract higher quality firms in the election year.

Table 7(a) shows the characteristics of subsidy deals, split out by election year and whether the governor is eligible run for re-election. For incumbent governors running for re-election, the bottom two rows, subsidies announced in election years are slightly larger in size than other years, at $151 million compared to $141 million, and slight larger in jobs promised, with a little under 100 more jobs promised at the mean. However, at the median, the non-election year subsidies promise slightly more jobs. Investment promises look the same across the two groups as well. The figure on the right shows the distribution of pairwise spillover estimates for each subsidy deal. This is from Slattery and Zidar (2020), where we estimated the difference in employment in the three digit NAICS industry of the subsidized firm, between the winning and runner-up location before and after the subsidy deal. There is no noticeable difference in estimated employment spillover, if anything the non-election year subsidies have more positive spillovers in the local area.

Figure 7: Are Election Year Deals Different?

Can Run	Election Year	N	Subsidy ($M) Mean	Subsidy ($M) Med.	Jobs Promised Mean	Jobs Promised Med.	Investment ($M) Mean	Investment ($M) Med.
		104	136	72	1,457	893	629	295
	×	31	97	57	1,579	886	424	165
×		213	141	49	1,422	1,000	1,193	157
×	×	62	151	67	1,519	950	1,034	220

(a) Subsidy Deals by Year



(b) Diff-in-Diff Employment Estimates

Notes: The table on the left shows the characteristics of subsidy deals that are announced under term-limited governors ("Can Run = 0"), and governors who can run in the next election ("Can Run = 1"), in election years and all other years. Data on subsidy deals collected by the author, data on term limits from National Conference of State Legislatures (2019*b*). The figure on the right shows the distribution of pairwise spillover estimates for each subsidy deal. This is from Slattery and Zidar (2020), where we estimated the difference in employment in the three digit NAICS industry of the subsidized firm, between the winning and runner-up location before and after the subsidy deal. This is limited to subsidy deals announced in 2012 or earlier, so that we had sufficient number of post years for the difference-in-differences.

Subsidy deals are no different in election years than in non-election years. Therefore, likely due to the local media coverage, the mechanism by which subsidy-giving confers political benefits is the salience of the subsidy deal. The anticipated economic effect and observed effort from the governor is more important than the realized outcomes.

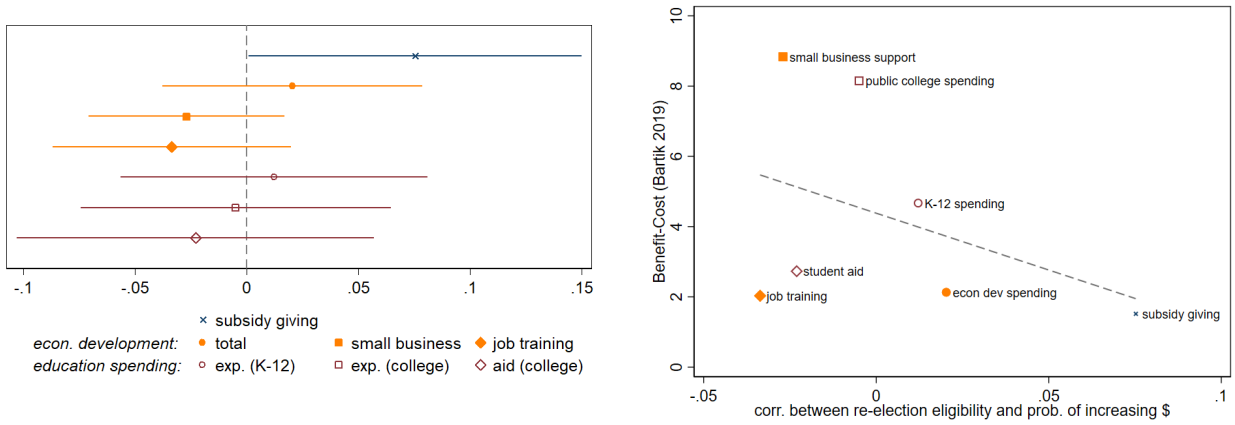
6 Discussion: Politics and Policy Choice

Should we be worried that the political benefit of subsidy-giving is distorting the policy choice of a governor? In order to evaluate how political benefit may or may not distort policy choice, one needs to understand which policies are most effective at improving social welfare. Recent work by Hendren and Sprung-Keyser (2020) sets out to calculate the benefit and the net cost for 133 different policies in the U.S. and to create a measure that allows comparison across policies. They divide the willingness to pay by the net cost to arrive at the policy's marginal value of public funds (MVPF). They find the highest MVPF for direct investment in health and education of low income children; these policies pay for themselves in long run. They find a lower MVPF for policies targeted to adults, even job training programs. Meanwhile, Bartik (2019) does a similar exercise for economic development spending and education spending, also finding a large benefit-cost ratio for education spending for children and a relatively low benefit-cost ratio for job training.

I use the estimates from Bartik (2019) to compare subsidy-giving with other job creation policies. The Bartik (2019) estimates are positively correlated with the Hendren and Sprung-Keyser (2020) MVPFs for the

policies in both papers, but include economic development programs that are not evaluated in the latter. For each of the policies that I have data on: subsidy-giving, total state economic development spending, state small business economic development support, state job training programs, state K-12 spending, state higher education spending, and state financial aid for undergraduates, I estimate the correlation between the governors' career concerns and changes in spending for each policy instrument. This replicates the exercise in Table 1, which looks at the correlation between state economic and political characteristics with subsidy-giving.

Figure 8: Correlation between Elections and Policy Choices



Notes: The figure on the left shows the correlation between whether the governor can run for re-election and increases in economic development and education spending in that state. The analysis is at the state-year level, where the dependent variable is equal to 1 in state s and time t when a subsidy deal is announced in state s and year t (or is equal to 1 when spending increases for the non-subsidy policies). The regressions include state and year fixed effects, state GDP, the corporate income tax rate, the personal income tax rate, the sales tax rate, whether the state has right-to-work laws, the total manufacturing employment and population in the state, state peronal income per capita, housing prices, and an indicator for whether the governor and state legislature share the same party. The point estimate for "subsidy giving" corresponds to Spec. 3 in Table 1. The other six estimates use alternative policies as the dependent variable, which is noted in the legend. The figure on the right shows the point estimates from the figure on the left, against the benefit-cost estimate from Bartik (2019). Data on economic development spending is collected by the author. Data on education spending is from the National Science Foundation (2000-2017): K-12 expenditures is from the "public school per pupil expenditures" series, college expenditures is from the "state support for higher education per FTE student" series, and college aid is from the "state student aid expenditures per full time undergraduate student."

The results are shown on the left panel of Figure 8. As we learned in Section 3, subsidy-giving is positively correlated with the ability of governors to run for re-election: a governor who can run for re-election is 24% more likely to give subsidies than their term-limited counterparts. Meanwhile, there is no correlation between career concerns and changes in spending for any of the other policies I have data on, despite the fact that these policies have uniformly higher benefit-cost ratios that subsidy-giving (Bartik, 2019). The right panel of Figure 8 shows that there is a negative correlation between the benefit-cost estimates and the probability the governor enacts the policy in the term leading to their election.[27]

[27]It is not exactly a 1 to 1 mapping of policies that Bartik (2019) analyzes and policies that I have data on. I use his estimate for "Community college workforce education" for state higher education spending, his estimate for "Public school spending increases" for state K-12 spending, "Place-based college scholarships" for state financial aid for higher education, "Job training services" for economic development spending focused on job training, the average of his estimate for "Business services" and "Up-front Incentives"

This result suggests that the political benefit of subsidy-giving may be distorting the policy choice of governors with career concerns. For subsidy-giving it is important to note that the costs are hard to measure because of the long-term nature of the contracts, and the fact that the majority of the cost is forgone revenue. The long-term aspect means that the governor may enjoy political benefits and job creation in the short-term, while the future governor will have to figure out how to pay for any costs. There is also an opportunity cost to offering a discretionary incentive: the time effort of the governor and the political capital she might need to use in order to get a discretionary tax abatement passed by the legislature. Understanding why career concerned governors are more likely to give subsidies than they are to increase spending on high benefit programs is an important area for future work. It may be the issue of the timing of when jobs are created, the state budget and the ability to get subsidies approved, or the popularity of subsidy-giving versus other programs that have more salient costs.

7 Conclusion

There is an ongoing debate over the effectiveness of discretionary subsidies, due to the potential for competition between states to drive up subsidy size and the uncertainty over the benefits that a firm entry actually creates. Moreover, a lack of transparency in the subsidy-setting process raises concerns that the subsidies are allocated for political, rather than economic, reasons.

In this paper I estimate the political-benefit to subsidy-giving, and I find that support for the incumbent governor increases by about 3 percentage points in subsidy-winning counties. The effect is largest when the subsidy is announced during the election year, which means that the governor can accrue political benefit before any jobs are created. This result suggests that the mechanism by which subsidy-giving increases incumbent vote share is the salience of the subsidy deal and the anticipated economic effect rather than any realized improvement in economic outcomes. Subsidy deals announced in election years do not promise more jobs and do not have larger spillovers.

I then provide suggestive evidence that career concerned governors prefer subsidy-giving to other job creation policies that have much higher benefit-cost ratios, but longer time horizons. Future work should explicitly consider the governor's trade-off between subsidy-giving and other economic development strategies, in order to better understand whether the salience of subsidy-giving is leading politicians to favor subsidy-giving over alternative, less newsworthy, but potentially more cost-effective job creation strategies.

for economic development spending focused on small businesses, "Up-front incentives" for my economic development spending total, and "Average Incentives" for subsidy-giving.

References

Alesina, Alberto, and Matteo Paradisi. 2017. "Political budget cycles: Evidence from Italian cities." *Economics & Politics*, 29.

Angelucci, Charles, and Andrea Prat. 2020. "Measuring Voters' Knowledge of Political News." MIT Sloan Working Paper 6132-20.

Aobdia, Daniel, Allison Koester, and Keining Petacchi. 2021. "The politics of government resource allocation: Evidence from U.S. state government awarded economic incentives." Available at SSRN: `https://ssrn.com/abstract=3127038`.

Ashworth, Scott. 2012. "Electoral Accountability: Recent Theoretical and Empirical Work." *Annual Review of Political Science*, 15(1): 183–201.

Atkeson, Lonna Rae, and Randall W. Partin. 1995. "Economic and Referendum Voting: A Comparison of Gubernatorial and Senatorial Elections." *The American Political Science Review*, 89(1): 99–107.

Barro, Robert. 1973. "The Control of Politicians: An Economic Model." *Public Choice*, Spring.

Bartik, Timothy J. 2019. *Making Sense of Incentives: Taming Business Incentives to Promote Prosperity.* W.E. Upjohn Institute for Employment Research.

Bertrand, Marianne, Matilde Bombardini, Raymond Fisman, and Francesco Trebbi. 2020. "Tax-Exempt Lobbying: Corporate Philanthropy as a Tool for Political Influence." *American Economic Review*, 110(7): 2065–2102.

Besley, Timothy, and Anne Case. 1995. "Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits." *The Quarterly Journal of Economics*, 110(3): 769–798.

Besley, Timothy, and Robin Burgess. 2002. "The Political Economy of Government Responsiveness: Theory and Evidence from India." *The Quarterly Journal of Economics*, 117(4): 1415–1451.

Beyle, Thad, Richard G. Niemi, and Lee Sigelman. 2002. "Gubernatorial, Senatorial, and State-Level Presidential Job Approval: The U.S. Officials Job Approval Ratings (JAR) Collection [Now hosted at `https://jmj313.web.lehigh.edu/node/6` by Jennifer Jensen]." *State Politics & Policy Quarterly*, 2(3): 215–229.

Biglaiser, Gary, and Claudio Mezzetti. 1997. "Politicians' decision making with re-election concerns." *Journal of Public Economics*, 66(3): 425–447.

Bombardini, Matilde, and Francesco Trebbi. 2011. "Votes or money? Theory and evidence from the US Congress." *Journal of Public Economics*, 95(7-8): 587–611.

Bonica, Adam. 2016. "Database on Ideology, Money in Politics, and Elections: Public version 2.0 [Computer file]." `https://data.stanford.edu/dime`.

Bureau of Labor Statistics. 1990-2017. "Local Area Unemployment Statistics."

Canes-Wrone, Brandice, Michael C. Herron, and Kenneth W. Shotts. 2001. "Leadership and Pandering: A Theory of Executive Policymaking." *American Journal of Political Science*, 45(3): 532–550.

Cason, Mike. 2002. "Teamwork deserves the credit." *Montgomery Advertiser*, Retrieved from `newspapers.com`. Accessed January 10, 2021.

Cision Media Research. 2016. "Top 10 Alabama Daily Newspapers." Accessed January 19, 2021.

County Business Patterns. 1997-2017. "CBP Datasets."

CSG Book of the States. 1950-2018. *Book of the States.* Council of State Governments.

DellaVigna, Stefano, and Ethan Kaplan. 2007. "The Fox News Effect: Media Bias and Voting*." *The Quarterly Journal of Economics*, 122(3): 1187–1234.

De Simone, Lisa, Rebecca Lester, and Aneesh Raghunandan. 2019. "Do Targeted Business Tax Subsidies Achieve Expected Benefits?" Available at SSRN: `https://ssrn.com/abstract=3482207`.

Diamond, Laura. 2012. "Landing Caterpillar plant a major economic victory for Georgia." *Atlanta Journal-Constitution*. `https://www.ajc.com/business/landing-caterpillar-plant-major-economic-victory-for-georgia`.

Drago, Francesco, Tommaso Nannicini, and Francesco Sobbrio. 2014. "Meet the Press: How Voters and Politicians Respond to Newspaper Entry and Exit." *American Economic Journal: Applied Economics*, 6(3): 159–88.

Drazen, Allan, and Marcela Eslava. 2006. "Pork Barrel Cycles." National Bureau of Economic Research Working Paper 12190.

Ferraz, Claudio, and Frederico Finan. 2008. "Exposing Corrupt Politicians: The Effects of Brazil's Publicly Released Audits on Electoral Outcomes." *The Quarterly Journal of Economics*, 123(2): 703–745.

Foremny, Dirk, and Nadine Riedel. 2014. "Business taxes and the electoral cycle." *Journal of Public Economics*, 115(C): 48–61.

Fowler, Erika, Michael Franz, and Travis N. Ridout. 2017. "Political Advertising in 2006, 2010, 2012, 2014, 2016."

Gentzkow, Matthew, Jesse M. Shapiro, and Michael Sinkinson. 2011. "The Effect of Newspaper Entry and Exit on Electoral Politics." *American Economic Review*, 101(7): 2980–3018.

Gerber, Alan S., and Donald P. Green. 2000. "The Effects of Canvassing, Telephone Calls, and Direct Mail on Voter Turnout: A Field Experiment." *The American Political Science Review*, 94(3): 653–663.

Goldstein, Kenneth, and Joel Rivlin. 2005. "Political Advertising in 2002-2004."

Goldstein, Kenneth, Sarah Niebler, Jacob Neiheisel, and Matthew Holleque. 2011. "Presidential, Congressional, and Gubernatorial Advertising, 2008."

Greenstone, Michael, Richard Hornbeck, and Enrico Moretti. 2010. "Identifying agglomeration spillovers: Evidence from winners and losers of large plant openings." *Journal of Political Economy*, 118(3): 536–598.

Grossman, Gene M., and Elhanan Helpman. 2002. *Special Interest Politics.* Vol. 1 of *MIT Press Books*, The MIT Press.

Hendren, Nathaniel, and Ben Sprung-Keyser. 2020. "A Unified Welfare Analysis of Government Policies*." *The Quarterly Journal of Economics*, 135(3): 1209–1318.

Huet-Vaughn, Emiliano. 2019. "Stimulating the Vote: ARRA Road Spending and Vote Share." *American Economic Journal: Economic Policy*, 11(1): 292–316.

Jensen, Nathan M, and Edmund J Malesky. 2018. *Incentives to pander: How politicians use corporate welfare for political gain.* Cambridge University Press.

Johnson, Bob. 2002. "Hyundai plant expected to bring jobs to Black Belt." *The Associated Press State & Local Wire*.

Junkins, Casey. 2012. "States still hoping to land ethane cracker: Construction of Shell plant in Marcellus Shale will bring hundreds of direct, indirect jobs." *Charleston Daily Mail*. Accessed Using Nexis Uni.

Kim, Donghyuk. 2020. "Economic Spillovers and Political Payoffs in Government Competition for Firms: Evidence from the Kansas City Border War." Iowa State University Working Paper.

Klarner, Carl. 2018. "State Legislative Election Returns, 1967-2016: Restructured For Use."

Leip, David. 2018. "Dave Leip's Atlas of U.S. Presidential Election." `http://uselectionatlas.org` Accessed January 29, 2021.

Levitt, Steven D. 1994. "Using Repeat Challengers to Estimate the Effect of Campaign Spending on Election Outcomes in the U.S. House." *Journal of Political Economy*, 102(4): 777–798.

Lyne, Jack. 2002. "Hyundai's $1B Plant Alabama Bound After 11th-Hour Bargaining." *Site Selection*.

Mattera, Phillip, and Kasia Tarczynska. 2019. "Good Jobs First Subsidy Tracker."

Montgomery, Alabama. 2002. "Front Page, April 2nd 2002." *Montgomery Advertiser*, Retrieved from `newspapers.com`. Accessed January 10, 2021.

National Conference of State Legislatures. 2019*a*. "Elections and Campaign Finance." `http://www.ncsl.org/research/elections-and-campaigns/campaign-finance.aspx`.

National Conference of State Legislatures. 2019*b*. "Right-to-Work Resources."

National Institute on Money in Politics. 2000-2018. "Follow the Money." `https://www.followthemoney.org/`.

National Science Foundation. 2000-2017. "Science and Engineering Indicators: State Indicators." `https://ncses.nsf.gov/indicators/states/` Accessed March 30, 2021.

Niemi, Richard G., Harold W. Stanley, and Ronald J. Vogel. 1995. "State Economies and State Taxes: Do Voters Hold Governors Accountable?" *American Journal of Political Science*, 39(4): 936–957.

Niesse, Mark. 2002. "Board Grants Authority to Close Hyundai Deal." *The Associated Press State & Local Wire*.

Patrick, Carlianne. 2016. "Identifying the local economic development effects of million dollar facilities." *Economic Inquiry*, 54(4): 1737–1762.

Poterba, James M. 1994. "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics." *Journal of Political Economy*, 102(4): 799–821.

Prat, Andrea, and David Strömberg. 2013. "The Political Economy of Mass Media." *Advances in Economics and Econometrics: Tenth World Congress*, , ed. Daron Acemoglu, Manuel Arellano and Eddie Dekel Vol. 2 of *Econometric Society Monographs*, 135–187. Cambridge University Press.

ProQuest. 2021. "Advanced Search: Newspapers." Access Provided by Columbia University Libraries, `https://www.proquest.com/advanced`.

Ruggles, Steven, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Joe Pacas, and Matthew Sobek. 2019. "IPUMS USA, version 9.0 [dataset]."

Sharp, John. 2020. "'Stop the Steal': Election fraud claims revive memories of Alabama's 2002 governor's race." *AL.com*. https://www.al.com/news/mobile/2020/12/stop-the-steal-election-fraud-claims-revive-memories-of-alabamas-2002-governors-race.html.

Slattery, Cailin. 2020. "Bidding for Firms: Subsidy Competition in the U.S." Columbia University.

Slattery, Cailin, Alisa Tazhitdinova, and Sarah Robinson. 2022. "Corporate Political Spending and State Tax Policy: Evidence from *Citizens United*." Working Paper.

Slattery, Cailin, and Owen Zidar. 2020. "Evaluating State and Local Business Incentives." *Journal of Economic Perspectives*, 34(2): 90–118.

Snyder, James M., and David Strömberg. 2010. "Press Coverage and Political Accountability." *Journal of Political Economy*, 118(2): 355–408.

Strömberg, David. 2004. "Radio's Impact on Public Spending." *The Quarterly Journal of Economics*, 119(1): 189–221.

U.S. Bureau of Economic Analysis. 1967-2017. "Regional Economic Accounts."

Zillow. 1996-2020. "Zillow Home Value Index."

Appendix

A Subsidy Data

In order to study the political ramifications of subsidy-giving I need detailed data on subsidy deals. States vary widely in the structure of their corporate and individual income taxes and payroll, and the absence of comprehensive data on state taxes, incentives, and subsidies has been a difficulty for empirical research in this field. In response, I have created two new data sets on state incentive spending and subsidy-giving behavior. The first data set tracks state spending on tax credits and economic development incentives from 2007-2014. I collect this by reading state level legislation, budget documents, and annual revenue reports.

The second data set contains details on firm-specific subsidy deals. To create this data set of firm-level subsidies I start with the publicly available *Good Jobs First* Subsidy Tracker (Mattera and Tarczynska, 2019). I restrict the sample to subsidies worth over $5 million, and remove any entry that does not mention expansion, relocation, or a discretionary incentive. Finally, I add any firm locations reported by *Site Selection* Magazine's "Incentives Deal of the Month" columns and annual "Top Deals" reports. This gives a sample of over 500 firms and locations that reportedly made subsidy deals. I then search local news reports and press releases to fill in details on each deal, including the runner-up location in the subsidy competition, and the number of jobs promised. I use the state level data set to identify any non discretionary tax credits the firm would qualify for, such as an R&D tax credit or a universal jobs training grant.[28]

Table A.1: Terms of Subsidy Deals

	# of	Subsidy ($ M)		Jobs Promised		Invest ($ M)		Cost per Job ($)	
Industry (NAICS)	Deals	Mean	Med.	Mean	Med.	Mean	Med.	Mean	Med.
Mining, Utilities (21-22)	8	781.6	824.2	300	238	5,607	4,797	2,605,227	3,470,518
Manufacturing (31-33)	226	189.8	66.5	1,443	850	1,027	376	131,504	78,291
Wholesale, Retail Trade (42-45)	18	63.8	26.2	1,908	710	268	153	33,428	36,936
Transport/Warehousing (48-49)	13	87.1	77.0	1,912	1,190	230	205	45,570	64,674
Information Svc. (51)	28	82.3	59.1	762	375	590	165	107,944	157,616
Finance, Insurance, RE (52-53)	49	86.0	28.8	1,916	1,455	262	71	44,885	19,812
Prof., Scientific, Tech Svc. (54)	40	145.8	56.4	1,552	688	304	62	93,934	81,998
Management, Other Svc. (55-81)	14	81.4	57.7	1,333	966	330	300	61,093	59,768
Full sample	396	163.9	54.3	1,474	900	842	238	111,209	60,311

Notes: This table displays sector level descriptive statistics on subsidy deals. For each industry group, the mean and median subsidy size, number of direct jobs promised, and planned investment is displayed. I also list the number of subsidy deals in each category. The data were collected by the author. The sample period is 2002-2017.

[28] I describe the data collection process in detail, and provide descriptive statistics for both the state-level and firm-level data sets in Slattery (2020) and Slattery and Zidar (2020).

B Extended Voting Analysis

In this appendix I provide robustness checks for the main analysis in the text. I also show results on the relationship between subsidy-giving and incumbent support at the state-level in the gubernatorial races, and at the district level in state legislature races.

B.1 Robustness

Table B.1 shows the results of estimating Equation 1 using alternative control groups. Instead of using the runner-up counties, I use a coarsened exact match on within-state and year county characteristics. The characteristics are per-capita income (column (2)), income + turnout in the previous gubernatorial election (column (3)), and income, turnout, and vote share for the governor in the previous election (column (4)). I use 7 bins for income and turnout, and 6 for vote share. The table shows the percentage of winning counties I am able to find control counties for, and the percentage of runner-up counties that are included in the control. The baseline results (using the runner-up control group) are shown for comparison in Column (1). The results are robust to these alternative control groups, though 0.1 - 0.4 percentage points lower.

Table B.1: Vote Share Results: Coarsened Exact Matching

	County Level Results: Differences			
	(1)	(2)	(3)	(4)
Subsidy Deal Winner	2.26	1.83	2.16	1.89
	(0.68)	(0.43)	(0.44)	(0.46)
R-squared	0.83	0.81	0.81	0.82
Control Group	Runner-ups	CEM	CEM	CEM
CEM Variables		Income	+ Turnout	+ Vote Share
Winning Counties	133 (92%)	139 (97%)	130 (90%)	119 (83%)
Runner-up Counties	137 (100%)	90 (66%)	80 (58%)	48 (35%)
Observations	270	3,664	3,604	2,288

Notes: This table reports the estimates of the effect of subsidy-winning on changes in vote share (corresponding to Equation 1). The specification include States $\times$ Year FE as well as the demographic and economic variables listed in Table 5. Column (1) presents the baseline results with the runner-up control groups, while Columns (2) - (4) use a coarsened exact matching procedure to choose a control group. The variables used to create the control groups are per-capita income (column (2)), income + turnout in the previous election (column (3)), and income + turnout + vote share for the governor in the previous election (column (4)).

B.2 State Level Governor Results

Table B.2 shows the result of estimating Equation 3, which is the state-level equivalent of Equation 1. The change in percent vote for the incumbent, g, in state s, and election year e, is the dependent variable:

$$\Delta\%\ \text{vote}_{gse} = \alpha + \beta \text{win}_{gs[e-1,e]} + \gamma X_{gse} + \eta_e + \varepsilon_{gse}, \tag{3}$$

and the coefficient of interest is β, the correlation between winning a subsidy during the term (between the last election the governor won, in $e-1$, and the current election, in e). These results cannot be interpreted as causal, as the control group is elections of incumbent governors in other states, so there is no way to control for unobservables about the governor's type. However, we can see here that subsidy wins are correlated with slightly larger increases in incumbent support, although the results are imprecise.

Election-level advertising spending is an additional control in the state level analysis. The Wesleyan Media Project and Wisconsin Advertising Project host political advertising data sets for Gubernatorial, Senate, House, and Presidential elections (Fowler and Ridout, 2017; Goldstein and Rivlin, 2005; Goldstein, Niebler, Neiheisel and Holleque, 2011). This data include not only the air date, sponsor, location, and cost of each ad as well as the content of the ads.

B.3 State Legislature Results

I repeat the analysis for elections for incumbent state legislators. Here the specification is at the district level, which is the level of analysis for which I have data for state legislature elections.[29] Much like in the state level gubernatorial races, because the data is at the district level, I cannot compare voting results within a single legislator. Instead, I compare across incumbent state senators (or state house representatives) that have won subsidies in their district with state senators in the same state and year running for re-election in districts without subsidies.

Table B.3 presents the results. Here I have pared down the specifications, because I am also interested in the affiliation of state legislators with the incumbent governor. Therefore, the first three specifications are for the state senate and the second three are only for the state house (for which there are many more members). The control group is the runner-up counties, which is mapped to a district. So, a subsidy winning district is any district that overlaps with a subsidy winning county, and a runner-up district is any district that overlaps with a runner-up county.

[29]The sample for state legislative elction returns ends in 2016, and is from Klarner (2018).

Table B.2: Subsidy-Giving and State-Level Vote Share

	All Incumbent Elections				Control: Runner-ups	
	(1)	(2)	(3)	(4)	(5)	(6)
Subsidy Deal Winner	2.19	1.06	1.41	3.01	1.96	6.96
	(2.06)	(2.16)	(2.32)	(2.68)	(3.08)	(2.87)
State Characteristics:						
State Unemployment (%)	-0.53	-0.60	0.41	0.89	0.65	0.55
	(0.86)	(0.89)	(1.03)	(1.34)	(1.19)	(1.38)
Corporate Tax Rate (%)		-0.41	-0.47	-0.73	-0.26	-0.60
		(0.44)	(0.52)	(0.45)	(0.71)	(0.63)
Top Personal Income Tax Rate (%)		-0.04	-0.02	0.35	-0.35	0.03
		(0.33)	(0.32)	(0.36)	(0.36)	(0.44)
% Revenue Collected from Prop. Tax		-0.16	-0.07	0.06	-0.13	0.06
		(0.12)	(0.14)	(0.14)	(0.21)	(0.22)
Change in State Manuf. Employment (%)		0.08	0.03	-0.03	0.08	-0.02
		(0.09)	(0.11)	(0.09)	(0.10)	(0.06)
Election Characteristics:						
log(# TV Ads in Race)			-1.77		-3.00	
			(0.73)		(0.67)	
# of Challengers in Race			-0.55		-0.04	
			(0.70)		(0.75)	
log($ Cost of TV Ads in Race)				-2.12		-2.67
				(0.90)		(0.70)
R-squared	0.14	0.20	0.27	0.32	0.44	0.62
Subsidy Deal Winner: Mean	0.53	0.53	0.53	0.52	0.71	0.75
Observations	122	122	101	69	76	48

Notes: Here are the within state changes in support for the incumbent governors who win subsidies during their terms ("Subsidy Deal Winners"), compared to the within state changes in support for the incumbents who do not win any subsidies during the term. Election year fixed effects are included in each specification. Specifications (1) through (4) use all incumbent elections in the sample, while Specification (5) and (6) limit the control group to incumbent elections where the governor had attempted to win a subsidy during his or her term, but had been the runner-up. There are not many elections where the governor was only the runner-up for each competition, and never one, so over 70% of the observations are for subsidy winners in Specifications (5) and (6). Data on state characteristics are from U.S. Bureau of Economic Analysis (1967-2017); County Business Patterns (1997-2017); CSG Book of the States (1950-2018). Data on state election advertising from Goldstein and Rivlin (2005); Goldstein, Niebler, Neiheisel and Holleque (2011); Fowler and Ridout (2017). Data on subsidy deals collected by the author.

There is a very small positive effect of subsidy-winning for state senators, but Specification (2) shows that this result is driven entirely by state senators who share the party of the governor. State senators in the opposing party do not receive any vote share bump for subsidy-winning. These results do not hold as strongly for the lower house of the legislature, which might be because there are many more state house members.

Table B.3: State Legislature Vote Share Results

	State Senate			State House		
	(1)	(2)	(3)	(4)	(5)	(6)
Change in Vote Share:						
District Subsidy Win	1.65	-0.16		0.50	0.30	
	(0.94)	(1.29)		(0.60)	(0.74)	
District Subsidy × Same Party		3.14			0.60	
		(1.53)			(0.76)	
State Subsidy × Same Party			2.33			-0.03
			(0.72)			(0.30)
R-squared	0.29	0.29	0.15	0.15	0.16	0.08
Percent Change in Vote Share:						
District Subsidy Win	2.20	-0.84		1.85	1.35	
	(1.46)	(2.00)		(1.17)	(1.44)	
District Subsidy Win × Same Party		5.27			1.30	
		(2.38)			(1.47)	
State Subsidy Win × Same Party			3.52			0.73
			(1.21)			(0.75)
R-squared	0.28	0.29	0.16	0.20	0.21	0.11
Vote Difference Mean	0.45		0.36	0.85		0.45
	(8.74)		(8.73)	(8.62)		(8.35)
Runner-up Control Group	×	×		×	×	
State × Year FE	×	×	×	×	×	×
Observations	694	694	3,039	2,419	2,419	14,306
Diff-in-Diff Estimate:						
District Subsidy Win × Post	0.83	-0.79		0.53	-0.34	
	(0.65)	(1.14)		(0.36)	(0.61)	
District Subsidy × Same Party × Post		3.07			1.38	
		(1.45)			(0.77)	
State Subsidy × Same Party × Post			0.53			-0.10
			(0.67)			(0.28)
R-squared	0.92	0.92	0.91	0.96	0.96	0.96
Vote Share Mean	65.42		61.07	57.10		51.13
	(14.89)		(14.76)	(22.20)		(21.28)
Runner-up Control Group	×	×		×	×	
State Legislator, Year FE	×	×	×	×	×	×
Observations	1,484	1,484	6,848	4,906	4,906	34,452

Notes: This table reports the estimates of the effect of subsidy-winning on within district changes in state legislator's vote share, and the difference-in-differences estimates of the effect of subsidy-winning on vote share, equation. The results are split for the upper and lower houses of the state legislature, labeled "Senate" and "House", respectively. State legislators in districts that overlap with subsidy-winning counties are attributed a "District Subsidy Win." Specifications 2 and 4 allow for an interaction of the district subsidy win with a dummy for whether or not the legislator is in the same party as the governor. In Specifications 1, 2, 4 and 5 the control group is the set of districts that overlap with counties that were runner-ups in subsidy competitions. In Specification 3 and 6 the sample is restricted to all districts in the state that did not win subsidy competitions, to measure the correlation between election outcomes for same-party legislators and a subsidy win elsewhere in the state. Specifications 1-6 on the top two panels include state times year FE and the demographic controls from Table 5. The bottom panel is the difference-in-differences result estimates which include state legislator and year fixed effects. Data on state legislative election returns from Klarner (2018).

C Survey

A survey of 4,300 voters across 5 states was launched in late June 2021, with the help of the survey contract firm YouGov. The five states, sample size in each state, and the characteristics of the recent subsidy deal in each state are described in Table C.1. The survey questions ar elisted in Section C.1. The questions are listed for the survey that was administered in the state of Georgia, each state's survey was tailored to be specific to the details of the subsidy deal in that state.

Along with the responses to the questions asked in the survey, YouGov provides the following demographic variables about respondents: Gender, Age, Education, Income, Employment, Marital Status, Zip Code, Party Affiliation, Voting Registration, and Past Voting (Presidential).

Table C.1: Survey Sample

Firm	Project	State	Announced (Complete)	Sub ($M)	Jobs	Invest ($B)	Sample Size
SK Innovation	Battery manufacturing plant	GA	2019 (2021)	299.5	2,000	1.6	1000
Nucor	Steel plant	KY	2019 (2022)	40.0	400	1.4	650
Cree	Semiconductor plant	NY	2019 (2022)	541.1	600	1.0	1000
Tesla	Cybertruck plant	TX	2020 (2021)	68.0	5,000	1.1	1000
Komatsu Mining	HQ/Manufacturing Campus	WI	2018 (2022)	84.5	400	0.3	650

Notes: This table presents the details of the subsidy deals in the survey sample. Each state's survey asks the respondents questions about one recently announced subsidy deal. The table includes details about the deal: the firm name, type of project, when the project was announced, the size of the subsidy, the number of jobs promised at the new establishment, and the size of the investment planned. The sample size in each state is also included, smaller states (KY, WI) have only 650 respondents, while the other three states (GA, NY, TX) each have 1,000 respondents. Section C.1 lists the survey questions.

C.1 Survey Questions

Background:

1. On a scale of 1-5, how informed are you about state and local economic growth policies?

   1 Not at all informed. I do not follow state and local news.

   2

   3 Somewhat informed. I occasionally listen to local news and read the local paper.

   4

   5 Extremely well-informed. I listen to local news and read local paper every day.

2. What are the three most important issues to you in deciding how to vote for governor: taxes, job creation, government corruption, the environment, the state budget, education, infrastructure, or health care? Please rank from (1) most important, to (3) third most important.

Specific Subsidy Deal:

3. To the best of your knowledge, which of the following companies is building an electric car battery plant in Commerce, Georgia?

   (a) Panasonic
   (b) SK Innovation
   (c) Samsung
   (d) A123 Systems
   (e) I am not sure.

4. To the best of your knowledge, did the state or local government offer SK Innovation any specialized incentives to locate its plant in Georgia? This could be a tax credit that lowers the tax bill for the company, a direct grant given to the company, or land, buildings, and equipment given to the company free of cost.

   (a) Yes.
   (b) No.
   (c) I am not sure.

5. To the best of your knowledge, what was the value of the incentive offered to SK Innovation?

   (a) Less than $50 million.
   (b) $50-$99 million.
   (c) $100-$249 million.
   (d) $250-$499 million.
   (e) $500 million or more
   (f) I am not sure.

6. To the best of your knowledge, when it was announced in 2019 that SK Innovation would build a plant in Georgia how many jobs did the battery manufacturer plan to hire at the new plant?

   (a) 0-499.
   (b) 500-999.
   (c) 1,000-1,999.
   (d) 2,000 or more.
   (e) I am not sure.

7. How did you learn about SK Innovation's plans to locate in Georgia?

   (a) I heard about it on the local news or read about it in the newspaper.
   (b) I heard about it from a friend or family member.

(c) I heard about it on social media.
(d) I heard about it in a political campaign.
(e) Other.
(f) I don't recall hearing about it.

8. Do you think that offering an incentive for SK Innovation to locate a battery plant in Commerce, Georgia makes local residents better off?

(a) Yes, but only the residents that get jobs at SK Innovation are better off.
(b) Yes, on net, residents are better off.
(c) No, this does not make residents better off.
(d) I am not sure.

Knowledge of other state policies, past voting behavior:

9. In the past 10 years, how many specialized tax incentives or subsidies worth over $100 million has your state offered to private companies?

(a) 1 to 2.
(b) 3 to 5.
(c) 6 to 10.
(d) More than 10.
(e) I am not sure.

10. Besides offering large specialized tax incentives to specific firms, which economic development policies does the state government use to attract firms and create jobs? Select all that apply.

(a) A low corporate tax rate relative to other states.
(b) A job creation tax credit for new jobs created in Georgia.
(c) A research and development tax credit for research and development activities conducted in Georgia.
(d) Grants to reimburse firms for job training expenses.
(e) None of the above.

11. In the past 5 years, has the state or local government used specialized incentives to try to attract private companies to the city or county where you live?

(a) Yes, and the government was successful in attracting new companies.
(b) Yes, but the government was not successful in attracting any companies.
(c) No, the government did not try to attract companies to my area.
(d) I am not sure.

12. To the best of your knowledge, which education policies does your state government use to increase educational attainment and/or prepare students for the workforce? Select all that apply.

    (a) Universal Pre-Kindergarten: Free pre-K for 3 and 4 year old children.
    (b) Investments in broadband infrastructure to increase internet connectivity for public schools and students across the state.
    (c) Scholarship program and/or tuition assistance for low-income college students attending state universities.
    (d) Free community college for all in-state students.
    (e) None of the above.

13. Did you vote in the last gubernatorial election?

    (a) Yes, I voted for Brian Kemp.
    (b) Yes, I voted for Stacey Abrams.
    (c) No, I did not vote.

D Alternative Mechanism: Campaign Finance and Subsidy-Giving

I test two related hypotheses relating to a campaign finance channel, and I find no evidence of either. First, in other work I exploit exogenous variation in corporations' abilities to spend in elections created by the 2010 *Citizens United v. Federal Election Commission* Supreme Court ruling to identify the effect of corporate campaign spending in state elections on state level incentive spending for firms. We find no effect of increased corporate spending on any subsidy outcomes (Slattery, Tazhitdinova and Robinson, 2022). Here, I test whether local stakeholders who expect to benefit from firm arrival (i.e. related businesses, property owners, unions) are more likely to support the incumbent's campaign.

It may be that local stakeholders are more likely to support the campaign of the incumbent, due to the subsidy deal. This increase in campaign funds from individuals and businesses in the subsidized locality would translate to an increase in total campaign funds, which could be used for advertising or voter outreach in any part of the state.

Table D.1 present the results of the difference-in-differences specification (Equation 2), with campaign contributions to the incumbent as the dependent variable instead of vote share. Specifications (1) - (3) use individual campaign contributions as the dependent variable, while Specifications (4) - (6) use corporate campaign contributions, both in $1,000s. Individual campaign contributions to the incumbent are potentially slightly larger in the subsidized county, but a zero effect is within the 95 percent confidence interval.

Table D.1: Campaign Contributions from Individuals and Corporations in the Subsidized County

	Individual			Corporate		
	(1)	(2)	(3)	(4)	(5)	(6)
Subsidy Deal Winner × Post	10.57	11.24	9.31	1.97	2.44	1.74
	(15.46)	(15.24)	(16.20)	(11.83)	(11.67)	(12.23)
County Unemp. Control		×			×	
All Demographic Controls			×			×
Observations	536	536	524	536	536	524
R-squared	0.93	0.93	0.94	0.94	0.95	0.95

Notes: This table present the results of the difference-in-differences specification (Equation 2), with campaign contributions to the incumbent as the dependent variable instead of vote share. Specifications (1) - (3) use individual campaign contributions as the dependent variable, while Specifications (4) - (6) use corporate campaign contributions, both in $1,000s. Data on county-level campaign contributions is sourced from Bonica (2016) and National Institute on Money in Politics (2000-2018).

E Additional Tables and Figures

Figure E.1: Local News Coverage of the Hyundai Deal: First Week of April, 2002



(a) April 2, 2002 (b) April 3, 2002

Notes: This figure shows some of the news coverage the *Montgomery Advertiser* published about the subsidy deal for Hyundai. These articles were published the week the deal was announced.

Figure E.2: Local News Coverage of the Hyundai Deal: April 17, 2002



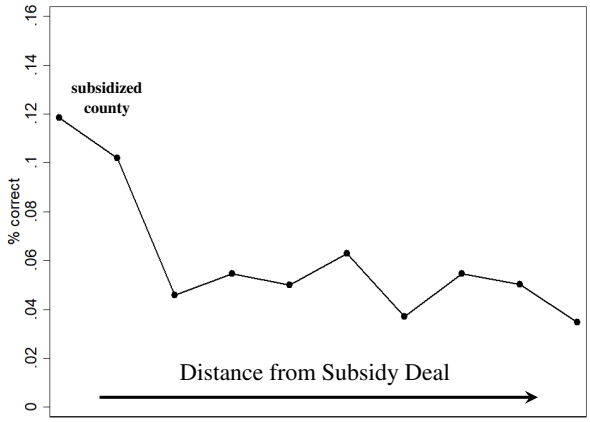
Notes: This figure shows some of the news coverage the *Montgomery Advertiser* published about the subsidy deal for Hyundai. These articles were published two weeks after the deal was announced.

Figure E.3: "Siegelman New Jobs" TV Ad Spot (2002)



Notes: This figure shows the storyboard for one of Governor Siegelman's television advertisements in Alabama's 2002 gubernatorial election. Governor Siegelman was running for re-election, and the ad highlights his success in attracting firms and creating jobs in Alabama over his first term. Four automobile manufacturers are mentioned by name: Honda, Mercedes, Toyota, Hyundai, and the narration is coupled with images of newspaper headlines about the firms locating in Alabama. The ad concludes with the claim that Don Siegelman had brought more than 68,000 new jobs to Alabama. This ad ran 525 times across the state in the month of May 2002, for an estimated cost of $129,927 (Goldstein and Rivlin, 2005).

Figure E.4: Voter Knowledge of Jobs Promised by Distance from Deal



Notes: This figure shows how voter knowledge of the details of a recent subsidy deal changes with the voter distance from the deal. Distance is measured in deciles, in order to normalize across state geographies (recall the survey includes Texas, New York, Wisconsin, Georgia, and Kentucky). The survey asks: "To the best of your knowledge, when it was announced in [year] that [firm name] would build a plant in [location], how many jobs did [firm name] plan to hire at the new plant?", and gives 4 choices with bins of jobs promised as well as "I am not sure." The question about the jobs promised is only asked to respondents who correctly identify the firm. However, the figure shows the unconditional share of respondents that correctly answer the jobs question.

Table E.1: Correlation between Survey Responses and Respondent Characteristics

	Q3: Identify Subsidized Firm		Q8: Positive about Subsidy	
	(1)	(2)	(3)	(4)
Subsidized County	0.24	0.26		
	(0.04)	(0.05)		
Within 25 Miles of Subsidy	0.16	0.16		
	(0.06)	(0.06)		
Within 50 Miles of Subsidy	0.06	0.04		
	(0.03)	(0.03)		
Within 100 Miles of Subsidy	0.01	-0.01		
	(0.02)	(0.02)		
Respondent has BA	0.05	0.02	0.08	0.05
	(0.02)	(0.02)	(0.02)	(0.02)
Well-informed about State/Local Issues	0.06	0.06	0.13	0.10
	(0.02)	(0.02)	(0.02)	(0.02)
Job Creation is Top Issue	-0.01	-0.00	0.12	0.13
	(0.02)	(0.02)	(0.02)	(0.02)
County Unemployment Rate	0.00	0.01	0.01	0.02
	(0.01)	(0.01)	(0.01)	(0.01)
Correctly Identified Subsidized Firm			0.16	0.13
			(0.03)	(0.03)
Observations	4,300	3,786	4,300	3,786
R-squared	0.25	0.26	0.06	0.08
Income and Age Brackets		×		×
Dependent Variable Mean	0.25	0.25	0.57	0.58

Notes: This table shows the correlation between responses to two survey questions and the respondent characteristics. In Specifications (1) and (2) the dependent variable is a dummy variable equal to 1 if the respondent correctly identifies the name of the subsidized firm (Question 3). In Specifications (3) and (4) the dependent variable is a dummy variable equal to 1 if the respondent answers Question 8 affirmatively: "Yes, but only the residents that get jobs at [firm name] are better off" or "Yes, on net, residents are better off." Regressions include state fixed effects and survey weights. Specifications (2) and (4) include controls for respondent age and income.

Table E.2: The Location of Subsidy-Giving within a State

	All Counties		Top Profit		Top Industry	
	(1)	(2)	(3)	(4)	(5)	(6)
County Economic and Demographic Vars:						
Unemployment Rate	0.001	0.001	0.026	0.026	-0.004	-0.003
	(0.001)	(0.001)	(0.015)	(0.015)	(0.010)	(0.010)
log(Industry Wage)	0.029	0.029	0.451	0.450	0.113	0.112
	(0.004)	(0.004)	(0.057)	(0.057)	(0.058)	(0.059)
log(Average Housing Price)	-0.005	-0.005	-0.287	-0.286	0.104	0.103
	(0.002)	(0.002)	(0.080)	(0.080)	(0.054)	(0.054)
log(Personal Income Per Capita)	0.027	0.027	0.118	0.114	0.333	0.330
	(0.008)	(0.008)	(0.104)	(0.105)	(0.109)	(0.110)
Share Black	0.101	0.100	0.408	0.422	0.509	0.513
	(0.024)	(0.024)	(0.255)	(0.257)	(0.265)	(0.266)
Share Hispanic	0.040	0.040	0.062	0.076	0.410	0.407
	(0.008)	(0.008)	(0.204)	(0.207)	(0.201)	(0.203)
Share With College Degree	0.104	0.106	-1.239	-1.225	-1.063	-1.063
	(0.033)	(0.033)	(0.302)	(0.306)	(0.423)	(0.425)
log(Population)	0.013	0.013	0.168	0.168	0.177	0.177
	(0.002)	(0.002)	(0.019)	(0.019)	(0.018)	(0.018)
County Political Vars:						
% Turnout in Last Election	0.022	-0.014	0.123	0.069	0.296	0.461
	(0.022)	(0.036)	(0.390)	(0.507)	(0.372)	(0.645)
× Gov Can Run		0.047		0.082		-0.209
		(0.040)		(0.608)		(0.715)
Same Party Legislator	-0.001	-0.001	-0.018	-0.031	-0.016	-0.008
	(0.002)	(0.004)	(0.042)	(0.082)	(0.043)	(0.087)
× Gov Can Run		0.000		0.020		-0.010
		(0.005)		(0.094)		(0.096)
% Same Party Vote in Last Election	-0.007	-0.009	0.009	-0.111	-0.256	-0.360
	(0.012)	(0.030)	(0.171)	(0.321)	(0.183)	(0.433)
× Gov Can Run		0.002		0.160		0.136
		(0.032)		(0.368)		(0.470)
R-squared	0.06	0.06	0.39	0.39	0.41	0.41
Subsidy Deal FE	×	×	×	×	×	×
Observations	17,494	17,494	848	848	848	848

Notes: This table shows the correlation between subsidy-giving and location characteristics. The first two columns compare the subsidized county with all other counties in the state. The second two columns compare the subsidized county with counties that are predicted to have the highest profit for the firm, as calculated in Slattery (2020). The last two columns compare the subsidized county with the counties with the highest industry concentration in the subsidized firm's industry. In each specification the dependent variable is one if the subsidy deal is for that county, and the fixed effects are at the subsidy deal level. Economic and demographic variables are described in Table 5, turnout and vote share are from Leip (2018), and information on local legislators is from Klarner (2018).

Table E.3: Advertising in Subsidized Counties

	Outcome: log(Ad Spending)				Outcome: log(Number of Ads)			
Control:	All DMAs		Runner-ups		All DMAs		Runner-ups	
Subsidy Deal Winner	0.62	-0.23	-0.11	0.05	0.49	-0.16	0.13	-0.02
	(0.24)	(0.13)	(0.39)	(0.19)	(0.14)	(0.10)	(0.17)	(0.11)
R-squared	0.59	0.90	0.68	0.96	0.57	0.83	0.75	0.93
Observations	135	135	43	43	213	213	78	78
State × Year FE	×	×	×	×	×	×	×	×
Demographic Controls		×		×		×		×

Notes: This table shows the ad frequency and spending in subsidized counties. The specification includes state and year fixed effects, and the demographic and economic variables listed in Table 5. Data on state election advertising from Goldstein and Rivlin (2005); Goldstein, Niebler, Neiheisel and Holleque (2011); Fowler and Ridout (2017).

Table E.4: Turnout Results

	Control: Runner-ups					
	County			Commuting Zone		
	(1)	(2)	(3)	(4)	(5)	(6)
Winner × Post	-0.29	-0.29	-0.31	-0.28	-0.31	-0.32
	(0.40)	(0.40)	(0.40)	(0.42)	(0.42)	(0.42)
R-squared	0.96	0.96	0.97	0.96	0.96	0.97
Mean Turnout	29.73	29.73	29.73	29.46	29.46	29.46
Area, Year FE	×	×	×	×	×	×
Unemployment		×			×	
All Demographic Controls			×			×
Observations	542	542	540	404	404	404

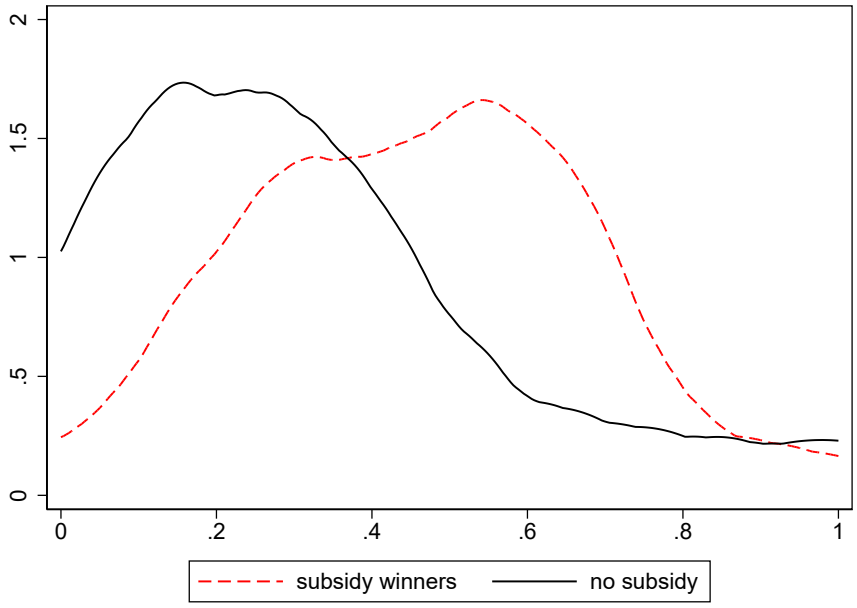
Notes: This table reports the estimates of the effect of subsidy-winning on changes in turnout (corresponding to Equation **??**). Columns (1)-(3) are the county-level estimates, and Columns (4)- (6) are the commuting zone. The control group are the runner-up counties or commuting zones in the same state and election cycle. Mean turnout in the gubernatorial election is just under 30%.

Table E.5: Subsidy-Giving and News Coverage

	County Aggregate			Most Recent Deal		
	(1)	(2)	(3)	(4)	(5)	(6)
Winner × # of articles	0.00			0.01		
	(0.01)			(0.01)		
Winner × log(# of articles)		0.57			0.67	
		(0.20)			(0.20)	
Winner × less than 5 articles			-0.08			-1.24
			(1.48)			(1.46)
× 5-10 articles			4.14			4.25
			(1.16)			(1.08)
× 11-24 articles			3.20			2.82
			(1.05)			(1.22)
× 25-45 articles			2.61			2.79
			(1.02)			(0.99)
× more than 45 articles			0.29			1.07
			(1.14)			(1.16)
R-squared	0.82	0.83	0.84	0.82	0.83	0.84
Observations	272	272	272	272	272	272

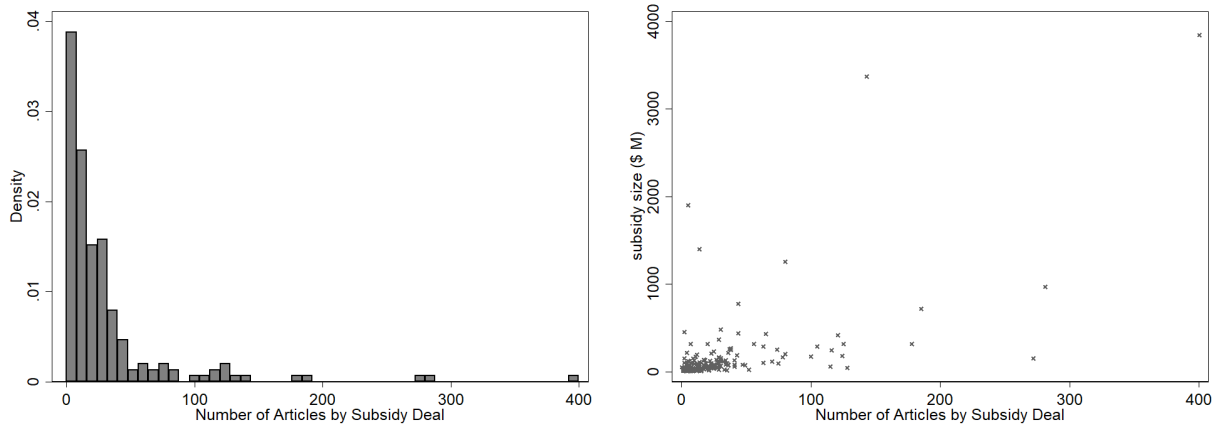
Notes:This table investigates the relationship between news coverage of a subsidy deal and support for the incumbent. The specification mimics specifications (7) through (9) in Table 7: it uses the runner-up counties as a control, includes state × year FE, and all demographic controls. The difference is that instead of reporting the estimates of the effect of subsidy-winning on within county changes in vote share, it uses a continuous variable for a 'subsidy deal win', based on the level of news coverage of the subsidy deal. Columns (1) and (4) use the raw number of articles, Columns (2) and (5) use the log(number of articles + 1), and Columns (3) and (6) bin the number of articles into quintiles. Columns (1)-(3) aggregate all articles about subsidy deals in the county for a given election period (in 20% of county-election pairs there have been more than one subsidy since the last election), while Columsn (4)-(6) use only the most recent subsidy deal in the county. Data on news coverage collected by the author using ProQuest (2021). See Appendix Figure E.6 for descriptive statistics on the number of articles by subsidy deal.

Figure E.5: Advertising Data: Incumbent Subsidy-Winners



Notes: This figure shows the difference in the content of incumbent governors advertisement, by whether or not they won a subsidy deal during their term. The x axis shows the percent of ads that the incumbent governor runs that mention job creation. The data on political advertisements are from the Wisconsin Advertising Project and the Wesleyan Media Project (Fowler and Ridout, 2017; Goldstein and Rivlin, 2005; Goldstein, Niebler, Neiheisel and Holleque, 2011).

Figure E.6: News Coverage by Subsidy Deal



(a) Distribution of Coverage

(b) Coverage vs. Subsidy Size

Notes: The figure on the left shows the distribution of the number of articles found about each subsidy deal. The figure on the right shows the relationship between the number of articles on the subsidy size and the size of the subsidy deal, in $M. Data on news coverage collected by the author using ProQuest (2021).

F Subsidy Timing

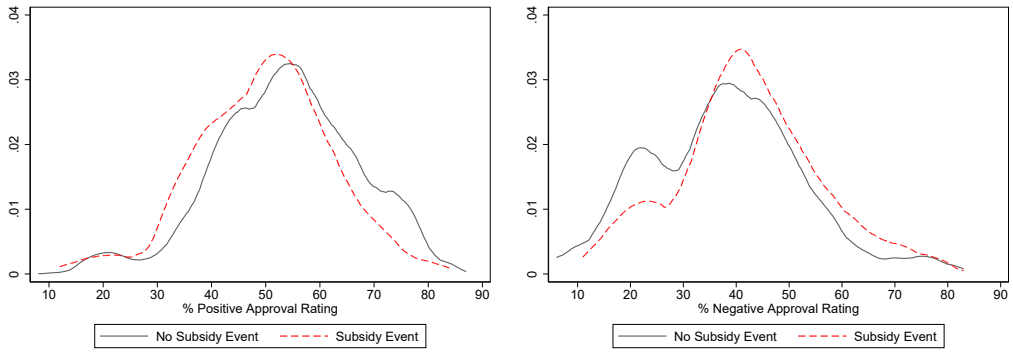
The voting results highlighted the importance of subsidy timing, as subsidies announced in election years had the largest effect on incumbent support in the subsidized locale. However, Table 7 shows that governors are not more likely to give subsidies in election years than in any other year during the term. Table 1 showed that the probability of subsidy-giving increases when the unemployment rate is higher, and in this section I will show that the probability of subsidy-giving increases when governor approval ratings fall.

Data on approval ratings are from the U.S. Official's Job Approval (JARs) Database Beyle, Niemi and Sigelman (2002). This database has all approval ratings at the state level for state governors, U.S. senators, and U.S. presidents from the mid-1900s to 2010. It has the dates each survey went out into the field, the dates the survey returned, the sample size and type, and the percent positive and percent negative response.

The "U.S. Officials Job Approval Ratings" is available through 2010, so I can only do this analysis for the first half of the sample (Beyle, Niemi and Sigelman, 2002). By governor and poll, I aggregate the results to the month level, as I have data on the month of the subsidy announcement for each firm. First, in Figure F.1, the raw data shows subsidy events are more common in lower positive approval or higher negative approval rating periods. Then, Table F.1 shows the correlations in regression form, with governor and month fixed effects. A one standard deviation increase in the positive approval rating is correlated with an almost 14 percent decrease in the probability of subsidy-giving in that month. Again, because governors have little control over when firms arrive interested in locating in the state, I interpret these results as suggestive evidence that governors put in more effort and are more aggressive in subsidy competitions when they have lower approval ratings.

Figure F.2 shows that approval ratings are highly correlated with unemployment rates. Governors have higher approval ratings when the economy is doing better (and unemployment is low). Therefore, the fact that subsidy-giving and approval ratings are correlated is consistent with the result in Section 3, showing the correlation between unemployment rates and subsidy-giving. I cannot say whether it is the fact that governors want to create more jobs and get the economy back on track, or want to improve their approval rating, that leads them to put more effort into subsidy competitions in these periods, as the two forces go hand in hand.

Figure F.1: Approval Ratings and Subsidy-Giving



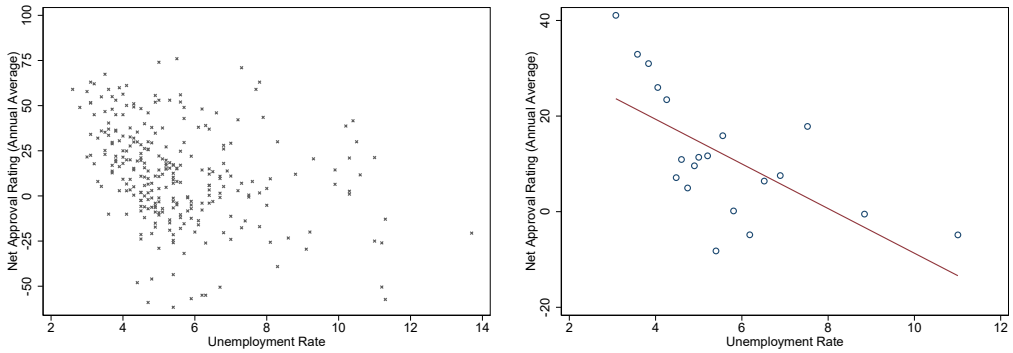
Notes: This figure shows the distribution of positive and negative approval ratings for governors in subsidy-giving and non subsidy-giving months. Months with a subsidy event are more likely to have a higher negative approval rating, and, relatedly, less likely to have a higher positive approval rating. Data on the job approval rating is from Beyle, Niemi and Sigelman (2002) and data on subsidy timing was collected by the author.

Table F.1: Subsidy-Giving and Approval Ratings

	Dep. Var: Subsidy-Giving Dummy		
	(1)	(2)	(3)
Positive Approval Rating (%)	-0.0025	-0.0019	-0.0018
	(0.0012)	(0.0007)	(0.0007)
% Δ Pr(Sub-Giving) with 1 SD ⇑ in Rating:	-10.8	-14.6	-13.9
Negative Approval Rating (%)	0.0019	0.0015	0.0013
	(0.0010)	(0.0005)	(0.0005)
% Δ Pr(Sub-Giving) with 1 SD ⇑ in Rating:	8.5	12.2	10.5
Net Approval Rating (%)	-0.0011	-0.0009	-0.0008
	(0.0006)	(0.0003)	(0.0003)
% Δ Pr(Sub-Giving) with 1 SD ⇑ in Rating:	-9.7	-13.7	-12.2
Observations	1,226	2,120	2,120
Dep. Var. Mean	0.130	0.074	0.074
Governor FE	×	×	×
Balanced Sample		×	×
Month FE			×

Notes: This table shows the correlation between subsidy-giving and governor approval ratings. Data is at the month-governor level, and the dependent variable equals 1 if the governor announced a subsidy deal in that month. The top panel shows the correlation between subsidy-giving and positive approval ratings, the middle panel uses negative approval ratings, and the third pannel uses the net approval rating. Each specification has governor fixed effects, specifications (2) and (3) fill in missing months approval data with the previous, non-missing, month, and specification (3) adds month fixed effects. Data on the job approval rating is from Beyle, Niemi and Sigelman (2002) and data on subsidy timing was collected by the author.

Figure F.2: State Unemployment Rate and Governor Approval Ratings



Notes: These two figures show the correlation between the state unemployment rate and the governor's approval rating. The y-axis is the net approval rating for the governor, which is the average over the 12 months. The x-axis is the annual unemployment rate in the state. The figure on the left shows the raw scatter plot while the figure on the right shows the binned scatter plot. Data on the job approval rating is from Beyle, Niemi and Sigelman (2002) and data on unemployment rates is from Bureau of Labor Statistics (1990-2017).