

The Political Economy of Subsidy-Giving

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Abstract

Subsidy-giving is popular with politicians and voters, despite uncertainty over the economic benefit any given subsidy generates. In this paper I quantify the political benefit of subsidy-giving by combining hand-collected subsidy data, county level election returns, and an original survey of voters. While subsidy-giving generates votes for incumbent governors, the effect is not due to job creation. Instead, it is the salience of subsidy deals that drives electoral rewards. Subsidy-giving receives 20% more local news coverage than other job creation policies. Electoral accountability creates a distortion, leading incumbents to favor the more salient policy to other, more cost-effective, strategies.

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1 Introduction

Incumbent politicians have many advantages over their challengers, including the ability to affect policy in order to get re-elected. However, elections should discipline incumbents into enacting policies that promote the interest of voters (Barro, 1973). Given imperfect information about policy, electoral accountability can also lead to distortions—politicians will favor policies that are more salient, or more popular with voters, instead of the policy that is necessarily in the best interest of voters (Canes-Wrone, Herron and Shotts, 2001; Coate and Morris, 1995). I provide empirical evidence of this distortion using detailed data on a specific policy: subsidy-giving to firms.

Subsidy-giving is the dominant economic development strategy in the U.S.; over 75% of state and local development spending goes to tax credits, tax breaks and subsidies to attract or retain businesses (Bartik, 2019). A principal rationale for these subsidies is to correct for market failures—a government can offer a tax break to compensate the firm for the positive externality it will have in the local labor market. However, the size of these subsidies is often debated. The cost per job created is high, the size of the externality is uncertain, and there are concerns that subsidies are allocated, in part, for political reasons.¹ In fact, the data show that governors who can run for re-election spend 20% more on subsidies than their term-limited counterparts.

In theory, the existence of a political cycle for subsidy-giving is not an immediate cause for concern. If subsidy-giving is a successful job creation policy, re-election should give governors an incentive to act in the interest of voters and put in more effort to create jobs by offering more, or larger, subsidies to attract firms. Alternatively, subsidy-giving may be popular with voters, but not necessarily the most effective policy to improve the local economy and create jobs. In this case, politicians will use subsidies to pander to voters. In order to disentangle these two theories we need to know (1) whether politicians are electorally rewarded for giving subsidies, (2) whether the electoral benefit is driven by job creation, and (3) whether subsidy-giving crowds out other, more cost-effective, job creation policies.

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 show that, although incumbent governors are more likely to increase subsidy spending when they face re-election, they are no more likely to increase spending on other economic development programs with higher benefit-cost ratios. I find that it is the salience of subsidies, not job creation, that drives electoral rewards. I then provide evidence

¹See, for example, the New York Times “A \$2 Billion Question: Did New York and Virginia Overpay for Amazon” in 2018, and “As Companies Seek Tax Deals, Governments Pay High Price” in 2012 (found at <https://www.nytimes.com/2018/11/13/business/economy/amazon-hq2-va-long-island-city-incentives.html> and <https://www.nytimes.com/2012/12/02/us/how-local-taxpayers-bankroll-corporations.html> respectively). Even corporate executives have argued that subsidy-giving is “motivated by politicians who want to claim they have brought new jobs into their state” (Donald J. Hall Jr. of Hallmark quoted in Story (2012)).

that other job creation policies are much less salient to voters.

Estimating the electoral benefit to subsidy-giving is difficult due to two empirical challenges. First, a lack of detailed data on subsidy-giving has prevented researchers from quantifying the role of politics and the efficiency of the policy. Second, estimating the returns to subsidy-giving requires an identification strategy that addresses the fact that subsidies are not randomly allocated.

To overcome the data limitations, I assembled a data set of large discretionary subsidy deals from 2002 to 2017. For each deal, I have details on the firm receiving the subsidy, its location, the size of the incentive, and the alternative site considered. For example, in 2002 Hyundai received a subsidy worth over \$200 million to build their automobile assembly plant in Montgomery County, Alabama. Hyundai promised to create 2,000 jobs at the plant, and had also been considering a site in Kentucky. I pair this subsidy deal data with county-level election returns from Leip (2018) to compare the change in support for incumbent governors in subsidy-winning counties with similar counties in the same state, in a differences-in-differences analysis.

I find that support for the incumbent governor increases by 2.1 percentage points in subsidy-winning counties relative to runner-up counties in the same state (1.7 percentage points at the commuting zone level). This effect translates to an increase of up to 7,000 votes for the incumbent, which can be an economically significant effect in a tight election. In fact, 2002 was an election year in Alabama, and despite the subsidy for Hyundai, Governor Siegelman lost the election by 3,000 votes.

The difference-in-differences empirical strategy allows me to compare subsidy-winning counties to similar 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—if 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 in the *same state*. As an example, take the Hyundai subsidy deal in Montgomery County, Alabama. In 2000, during the same term, Governor Siegelman competed to attract a Nissan plant to a site in Lee County, Alabama. In the end, Nissan decided to build the plant in Mississippi. Therefore, Lee County would be a control county for Montgomery County—both in Alabama. 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.

While using a within-state identification strategy has important advantages, it faces at least two challenges.

First, 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. Second, the subsidy effect may spillover across the state. I design an original survey to test voter knowledge of subsidy deals, which allows me to rule out these possibilities. I survey voters in five states with recent 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. The survey evidence that shows that voters generally know very little about the runner-up “status” of their location. Moreover, I find that outside of the subsidized commuting zone, voters know very little about the impending arrival of a subsidized firm, suggesting that other areas in the same state are unlikely to be treated.

Relying on the survey evidence, I will 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. Because governors who run for re-election are willing to pay more for firms than their term-limited counterparts, a back of the envelope calculation implies a cost per vote of at least \$700.² This is at least twice as large as estimates in the literature (Bombardini and Trebbi, 2011; Levitt, 1994). However, the literature focuses on cost per vote of campaign spending, and in this case the governor gains votes by spending state funds, not their own funds.

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 votes for the incumbent. 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 arrival of the firm, but they learn of that impending arrival through local news coverage (77% of survey respondents report learning about the subsidy via local news or social media). 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 vote share 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. These

²This cost per vote calculation uses the *additional* subsidy spending of career concerned governors, not the total subsidy cost.

results suggest that the mechanism by which subsidy-giving increases incumbent vote share is the anticipated economic effect rather than any realized improvement in economic outcomes.^{3,4} Further, the number of jobs promised at the subsidized plant has no effect on the vote share.

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. In the same year, the *Charleston Daily Mail* highlights the benefit of winning a Shell plant with the story: “Construction of Shell plant in Marcellus Shale will bring hundreds of direct, indirect jobs.” These articles tend to focus on the expected benefit of the firm arrival, the job creation, instead of the potential costs. This is consistent with the survey, which finds that voters are twice as likely to know the jobs promised than the size of the fiscal incentive.

The extensive media coverage of the benefits, but not the costs, of these deals can cause them to be more politically beneficial than other types of economic development strategies. In fact, using data on the news coverage of each subsidy deal, I find that deals with very little news coverage have no effect on incumbent vote share. Moreover, a sentiment analysis of news article text shows that deals with more positive coverage have larger vote share effects—going from “neutral” coverage to one of the most positively covered deals in the sample is associated with an additional 0.4 percentage point (17%) increase in vote share. The sentiment analysis and a comparison of the words mentioning costs and benefits in each article aligns with the survey results; voters learn about subsidy deals from the local news, which is generally positive about the deal, and is more likely to mention the benefit of attracting the firm than the cost. Subsidy-giving is a prime instrument for opportunistic incumbents; the potential benefits to voters are clear but the costs are not.

Lastly, I discuss the implications of my results on other policy decisions of the governor. I compare subsidy-giving with a set of other economic development policies: job creation and investment tax credits, research and development tax credits, job training subsidies, and small business subsidies. I also compare it with spending on education: college funding, college financial aid and K-12 funding. I find that while incumbent governors are more likely to increase subsidy spending before elections, they are no more likely to

³I 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 month passing decreases the probability of knowing a news story by 3-4 percentage points.

⁴One 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. 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. See Appendix Figure E.1.

increase spending on other job creation or education policies. In fact, there is a negative correlation between the benefit-cost ratio and the probability the governor enacts the policy in the term leading to their election.⁵

I compare the salience of subsidy-giving with the other economic development policies, by collecting data on the local news coverage of tax credit and job training programs. I find that subsidy-giving receives much more media attention: a \$60 million subsidy deal has 12 unique local news articles, while a \$60 million tax credit program for job creation has only 2. Moreover, the sentiment of the non-subsidy coverage is slightly less positive than the subsidy coverage. This is further evidence that the political benefit of subsidy-giving, which can occur in the absence of any direct economic benefits, may distort the policy choice of governors with career concerns. The positive coverage of large subsidy deals creates an incentive for the governor to prefer subsidy-giving to less salient, but more cost-effective, job creation efforts.

Related Literature

I find that the electoral reward from subsidy-giving creates an incentive for career-concerned politicians to offer larger subsidies to attract firms. This is consistent with a long literature on political budget cycles (for a review, see Alesina, Roubini and Cohen, 1997; Eslava, 2006). The models of Rogoff and Sibert (1988) and Rogoff (1990) produce opportunistic budget cycles in a setting with rational voters. When the voter has imperfect information on the competence of a politician, they learn about it from policy choices. Therefore, if voters view government expenditures (or subsidy-giving) as a signal of competence, incumbents have an incentive to spend more in the lead up to an election.

Multiple studies exploiting term limits show that incumbents are more likely to implement electorally rewarding policies, such as cutting wasteful spending or lowering taxes, in the run up to elections (Besley and Case, 1995; Poterba, 1994; Foremny and Riedel, 2014; Alesina and Paradisi, 2017). Subsidy-giving is different than these policies, as the benefits are very concentrated, while the costs are diffuse.

There is a reason that subsidy-giving may be a particularly attractive instrument for opportunistic incumbents—most of the spending comes in the form of *future* forgone tax revenue. Therefore, even informed voters will not observe budget deficits before the election. If voters are less informed about costs, as I show is the case, they will also not predict future deficits. The structure of the subsidy deal, and the targeted, relatively small scale nature of it, make this cycle almost impossible to observe at the aggregate (state) level budget data.⁶ This explains why political budget cycles in the U.S. context were not found in prior work.

Not only does subsidy-giving exhibit a political cycle; theoretical and qualitative research has also shown that politicians may have an incentive to pander with subsidy policy. Biglaiser and Mezzetti (1997) develop a

⁵I take the benefit-cost ratio of each policy from Bartik (2019).

⁶Drazen and Eslava (2010) also find evidence of electoral manipulation via targeted spending in Colombia, where local officials change the *composition* of total expenditures.

model to show that politicians' willingness to pay for a firm will be greater than voters' willingness to pay if there is an electoral benefit. Jensen and Malesky (2018) provide 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 literature by *quantifying* the electoral benefit of subsidy-giving, and providing evidence for the mechanism by which subsidy-giving confers these benefits.⁷

I find that it is the salience of subsidy-giving that generates political benefits for incumbents. This is consistent with recent work on the electoral benefit of public spending, albeit in two very different settings (Huet-Vaughn, 2019; Marx, 2018). In this paper, subsidy-giving is salient because of the local media coverage. Much of the literature on media and politics suggests that media play an important role in keeping politicians accountable (Besley and Burgess, 2002; Strömberg, 2004; Ferraz and Finan, 2008; Snyder and Strömberg, 2010). However, all of the evidence on the mechanism in this setting suggests that what matters most for voters is the media coverage, not the actual economic impact of the subsidy deal. The news coverage of subsidy-giving is almost uniformly positive, and articles repeat the projected indirect job creation and revenue projections from the governor's press release. This uncritical analysis of local economic policy may be due to the cost of producing local news and the trend towards less local news provision, and deserves further investigation (Angelucci, Cagé and Sinkinson, 2023; Djourelouva, Durante and Martin, 2021).⁸

The relative salience of subsidy-giving will also be important. Voters have imperfect information about policies, and therefore policies that garner more (positive) media attention may be more popular with politicians. I find that subsidy-giving receives 5 times more news coverage than other job creation policies, conditional on size. This difference in media attention can help explain that no other job creation strategies exhibit the same political cycle as subsidy-giving. Therefore, not only do politicians pander with subsidy policy, but political incentives can distort policy away from higher benefit efforts. This is consistent with the theoretical results in models of political competition with imperfect information (Canes-Wrone, Herron and Shotts, 2001; Coate and Morris, 1995).

Lastly, this paper relates to a growing literature that measures the costs and benefits to subsidy competition. While this paper focuses on one potential cost (due to political incentives), there is much more work to be done to understand the benefits to subsidy-giving. There are jobs created at the new establishment, but the indirect

⁷Kim (2020) studies the political payoffs from subsidy competition in the context of the Kansas City border war, using a bounding strategy to quantify the dollar amount of the potential payoff. Aobdia, Koester and Petacchi (2021) study the link between subsidized firms and campaign contributions, and find that subsidized firms are more likely to contribute to state politicians. I find no evidence of a link between campaign contributions and subsidy-giving (Appendix D). However, the difference in subsidy samples may be important here. Given recent findings on the non-contribution tools firms have to exert influence (Bertrand, Bombardini, Fisman and Trebbi, 2020), this is a rich area for further work.

⁸Alternatively, local newspapers may collude with incumbents and produce favorable news for that reason. Past work has not found much evidence to support this hypothesis (Gentzkow, Shapiro and Sinkinson, 2011; Gentzkow, Shapiro, Petek and Sinkinson, 2015).

job creation, which is a focus of much of the positive press, is highly variable (Slattery and Zidar, 2020). There are potentially positive wage effects for local workers and productivity benefits to incumbent plants, but the evidence is mixed and the positive effects may be concentrated in certain types of firms and projects (Greenstone, Hornbeck and Moretti, 2010; Setzler and Tintelnot, 2021; Patrick, 2016; Garin and Rothbaum, 2022). The benefit from offering subsidies to retain plants may be sizable, given the literature on the effects of plant closings on economic and social outcomes (Autor, Dorn and Hanson, 2013, 2019).

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 (Niese, 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-long negotiations between Alabama and the car manufacturer. Hyundai had started with a longer list of potential locations, and after further 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 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 reportedly 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.⁹

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 multi-page special report about the firm’s decision (Figure 1 and Appendix Figure I.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 a discussion of 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 a windfall for farmers with land at the proposed site.

Figure 1: Local News Coverage of the Hyundai Deal



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). Image Source: Newspapers.com.

⁹Governor 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 coverage continued the next day (Appendix Figure I.1), with another front page story: “Alabama hustles for Hyundai,” followed by multiple pages with more details on the incentives, the types of jobs Hyundai planned to create, 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.

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 the governor 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 I.2). Governor Siegelman is pictured multiple times and is the only Alabama representative on the stage with the President and Chairman of Hyundai.

When there are discretionary incentives involved, i.e. tax credits or other funds that a typical firm in the state would not expect to receive because it is not part of the tax code or the economic development regime, 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 for business attraction—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.¹⁰ 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, and can hold meetings with the executives and even visit them at their headquarters.

2.2 Subsidy Competition and the Election

This section started with a description of how Hyundai contacted Alabama, but also Kentucky, Mississippi, and Ohio, to let the governors 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

¹⁰These type of funds are usually called “Deal Closing Funds,” but the name and structure can vary across states.

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.¹¹

Therefore, the governor's problem is to determine their willingness to pay for winning Hyundai to the proposed site. Suppose the net benefit to the state is B . I 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.¹² 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? This is similar to the conflict in the early literature on opportunistic political cycles, which was resolved when Rogoff and Sibert (1988) and Rogoff (1990) developed models with rational voters with imperfect information. Similarly, 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.¹³ Both of these factors would allow for governors to offer incentives larger than expected benefits and still garner electoral support. Here, it is likely that the politician and the voter agree on the benefits of the policy, but have differing information on the cost (Ashworth, 2012; Canes-Wrone, Herron and Shotts, 2001). This results in the politician overpaying for a policy that is popular, against the interest of the voters.

I will take the rest of the paper to estimate this electoral effect, E . I first introduce my estimation strategy using the Hyundai example.

¹¹ See Slattery (2022) for more details on using the English Auction to approximate a subsidy competition.

¹² 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.

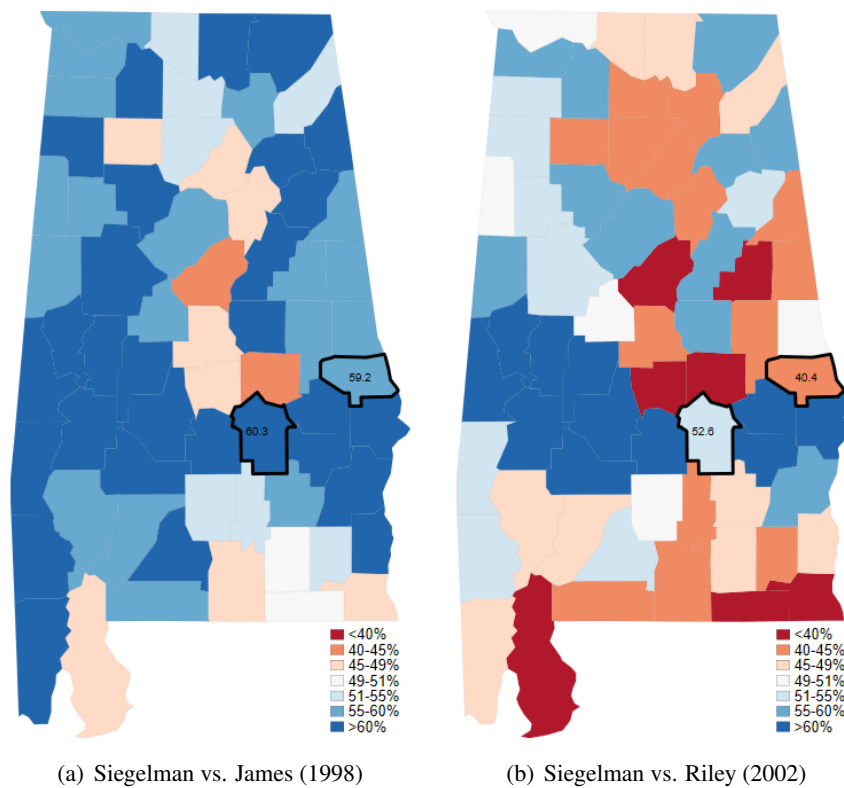
¹³ Therein, subsidy-giving resembles the collective action problem—the benefits are concentrated but the costs diffuse (Olson, 1965).

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.

My analysis will compare 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 the election results for Don Siegelman in 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 bordered 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).¹⁴

Figure 2: Two Elections for Don Siegelman



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. My empirical strategy is to 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).

¹⁴Siegelman was initially declared the winner, but the call was overturned after a recount in a single county that reassigned thousands of votes to Riley (Sharp, 2020). This event happened in Magnolia Springs, in Baldwin County, 3 hours southwest of Montgomery.

Figure 2 also provides 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.¹⁵ The labels show the vote shares for Siegelman in these counties. 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”.¹⁶ I confirm this with the survey.¹⁷ In Section 4 I will take this analysis to all the subsidy deals in the data. First, I introduce the subsidy data.

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 firms, labs for scientific research firms, and warehouses and distribution centers for companies like Amazon and Fedex.

¹⁵Nissan planned to create 4,000 jobs and invest \$950 million at the plant in Mississippi. The automobile manufacturer received a reported \$295 million in incentives from the state, but later accounts report a larger subsidy size.

¹⁶In 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.

¹⁷I will also note that the entire region north of Lee county was more likely to support Bob Riley. This is because Lee and the counties above were part of Riley’s congressional district.

Table 1: Term Limits and Subsidy Giving

	log(subsidy (\$M))				1(subsidy in state s , year t)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Jobs promised (1,000)	0.20*** (0.04)	0.19*** (0.03)	0.19*** (0.04)	0.21*** (0.04)			
Investment planned (\$B)		0.05** (0.02)	0.05*** (0.02)	0.05*** (0.01)			
Unemployment rate (%)			0.06** (0.02)	0.03 (0.02)	0.04* (0.02)	0.04* (0.02)	0.03 (0.02)
Governor can run for re-election			0.24* (0.11)	0.23* (0.11)		0.06 (0.04)	0.08* (0.04)
Observations	387	387	387	387	768	768	768
R-squared	0.09	0.18	0.20	0.29	0.33	0.33	0.34
Additional Controls				×			×

Notes: This table shows the correlation between subsidy-giving and the governor’s career concerns. Columns (1) - (4) present analysis at the subsidy deal level, where the dependent variable is the log subsidy value. The correlate of interest is whether or nor the governor is eligible to run in the next election. Deal characteristics include the number of jobs promised and investment planned by the firm. Column (4) also includes the number of bidders in the subsidy competition, the party of the governor, and county level controls (average wages, personal income per capita, population, % urban, % with college degree). Columns (5) - (7) present analysis at the state-year level, where the dependent variable is 1 if there was any subsidy in state s and year t . These regressions include state and year FE. Column (7) also includes state level controls (GDP, corporate tax, income tax, sales tax, right-to-work, manufacturing employment and population, income per capita, housing prices, and an indicator for whether the governor and state legislature share the same party). Sources listed in the data appendix.

Governors who can run for re-election spend more on subsidies, all else equal. In fact, Table 1 shows that being able to run for re-election is correlated with a 20% increase in subsidy size—the same increase one would expect from 1,000 additional jobs at the subsidized establishment. Governors who can run for re-election are also 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.

3.2 Data on Elections of Incumbent Governors

I link the subsidy-giving behavior of governors to election outcomes from the “Election Atlas” (Leip, 2018). This includes county level votes for each candidate in gubernatorial elections from 1998 to 2018.¹⁸

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.¹⁹ The table shows that incumbent governors

¹⁸I also use data on state legislature elections in Appendix C.4 (Klamer, 2018).

¹⁹That is not to say necessarily that they did not compete, but they were not in the final two competitors for the firm.

win re-election by a wide margin. On average, incumbents win with a vote share of about 56.3% (the “Current Vote Share” 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 winning incumbents and their 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.²⁰ 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 group governors. There are many unobservable factors to governor type that would confound a strategy that compares subsidy-winners to the rest of the sample.²¹ In Appendix C.3 I compare state level vote shares across incumbent races and find a weakly positive correlation between subsidy-giving and support for the incumbent.²² However, by taking the analysis to the county level, I can more confidently estimate the causal effect of subsidy-giving on incumbent support.

Table 2: Incumbent Elections and Subsidy-Giving

Incumbent	N	Vote Share (%)		Economic Vars (%)		Election Advertising	
		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, the vote share for the incumbent in their previous (“last”), and current election (when they run as an incumbent).

²⁰See Figure I.3 for the distribution of “job creation” advertising across subsidy-giving and non-subsidy-giving incumbents.

²¹For 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.

²²My state level results suggest a 1 percentage point increase in votes share. This translates to roughly 17,000 votes at the median. When I aggregate the commuting-level results to the state I calculate an increase in about 15,000 votes (Section 5).

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 to the manufacturing subsidy deals in my data set. Appendix B provides more information on the survey and Table B.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:

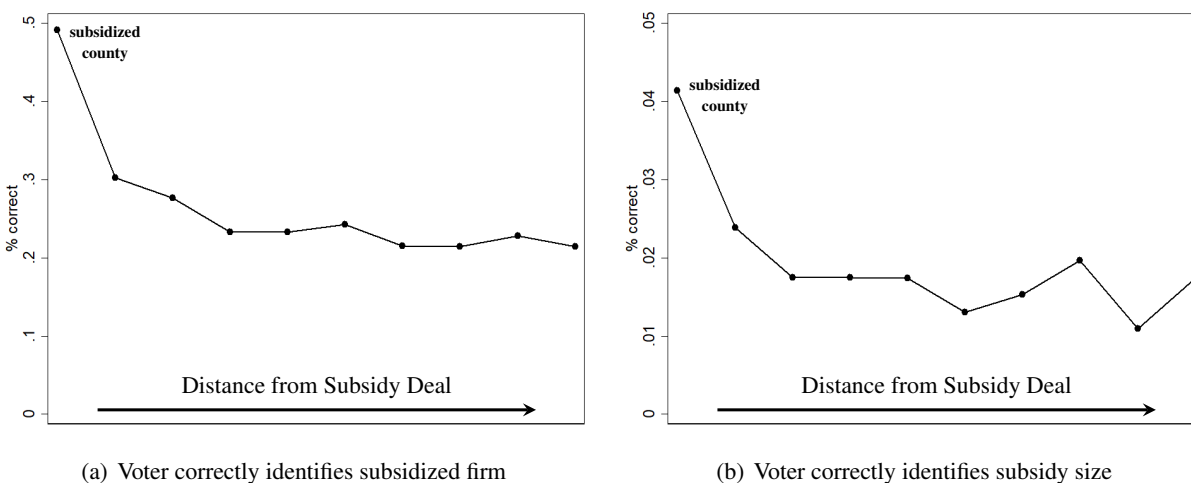
1. Voters only know basic details about the subsidy deal if they live in the subsidized or neighboring counties. Figure 3(a) shows that about 50% of survey respondents in the subsidized county can correctly identify the name of the firm that is opening a plant in their location. This falls to just over 20% when the respondent lives outside of the subsidized location.²³
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 B.1).
3. Voters learn about subsidy deals from the local news. 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 (Table 9).
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]

²³The question about the firm name gives 4 choices of names and the option to respond "I am not sure." The respondents receive an incentive (in YouGov points), for responding correctly to the basic questions about the subsidy deal. Therefore, a 20% correct response rate could be the result of guessing between the 4 options, in order to try to receive the incentive.

to locate a [plant type] plant in [location] makes local residents better off?” affirmatively. Only 17% responded, “No, this does not make residents better off”, while the remaining 26% were undecided.²⁴

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 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.

Figure 3: Voter Knowledge of Subsidy by Distance from Deal



Notes: This figure shows how voter knowledge of the details of a recent subsidy deal decays with geographic distance from the deal. Distance is measured in deciles, in order to normalize across state geographies. 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 B.

4 Empirical Strategy and Results

In order to estimate the effect of subsidy-giving on voter support for the incumbent governor I use a difference-in-differences estimation strategy and compare counties that receive subsidy deals with similar counties within

²⁴Appendix Table G.2 shows correlates between respondent and location characteristics with support for subsidy-giving.

the same state. 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 changes in vote share. For incumbent governor (g), county (c), state (s), and election year (t):

$$\Delta\% \text{ vote}_{gcs} = \alpha + \beta \text{win}_{gcs[t-1,t]} + \gamma X_{gcs} + \eta_{st} + \varepsilon_{gcs}, \quad (1)$$

where $\text{win}_{gcs[t-1,t]} = 1$ if governor g won a subsidy deal for county c since last election ($t - 1$). This specification compares within county changes in vote share, while holding the state and election fixed with a state by year fixed effect, η_{st} . The economic and demographic controls from Table 5 are included, as X_{gcs} . 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 compares levels in the pre and post elections instead of collapsing to changes. Here the outcome is the county level vote share for a governor, g , who will be the incumbent in the post period. Again, $\text{win}_{gcs[t-1,t]} = 1$ if the county wins a subsidy between the two elections:

$$\% \text{ vote}_{gcs} = \alpha + \beta \text{win}_{gcs[t-1,t]} \times \text{Post}_t + \phi \text{Post}_t + \gamma X_{gcs} + \eta_{gcs} + \xi_{st} + \varepsilon_{gcs}, \quad (2)$$

where there are two election periods, $\{t - 1, t\}$, and $\text{Post}_t = 1$ if it is the governor’s second election. I include county-governor fixed effects, η , and state-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. 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. Although I am unable to compare pre-trends for the outcome of interest, I can compare presidential vote share by party. Appendix Figure C.1 shows the presidential vote share for subsidy-winning and runner-up counties, throughout the sample period. This shows that the subsidy winning and subsidy runner-up counties have very similar trends while the non-winning and non-runner-up counties, that I do not use as a control, diverge post 2012. Two other identification concerns, the endogeneity of firm location and the choice of control group, are discussed at length following the results.

4.1 Voting Results

Table 3 shows the results for both specifications, at different levels of aggregation. Columns (1) - (3) report the results at the country level and 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 neighboring counties are

considered treated, while the runner-up county and each of its neighboring counties 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 includes the county or commuting zone unemployment rate as a control (Columns (2), (5), (8)), and the last uses all of the demographic and economic variables from Table 5 as controls (Columns (3), (6), and (9)). The top panel shows the results from Equation 1, where the dependent variable is the change in county vote share for the incumbent governor. The bottom panel presents the result from Equation 2, the more traditional difference-in-differences specification. The results from the two approaches are almost identical, with the difference-in-differences approach allowing for slightly higher precision when controlling for time varying local demographics.

Table 3: 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)
Adj. R-squared	0.76	0.76	0.77	0.85	0.85	0.85	0.83	0.83	0.84
State × Year FE	×	×	×	×	×	×	×	×	×
Unemployment		×			×			×	
All Demographic Controls			×			×			×
Observations	271	271	270	202	202	202	1,390	1,390	1,368
Diff-in-Diff Estimate:									
Subsidy Deal Winner × Post	2.16**	2.22***	2.07**	1.47*	1.59*	1.70**	0.74*	0.82**	0.80**
	(0.66)	(0.66)	(0.65)	(0.61)	(0.61)	(0.59)	(0.29)	(0.29)	(0.29)
Adj. R-squared	0.94	0.94	0.94	0.94	0.94	0.95	0.95	0.95	0.95
County/CZ, State-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-giving on incumbent vote share. Columns (1) - (3) use runner-up counties in the same state as controls for the subsidy-winning county, while Columns (4) - (6) do 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 its neighbors are considered treated, while the runner-up county and each of its neighbors are used as controls. Each specification in the top panel (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 bottom panel corresponds to Equation 2. These specifications include both county/CZ-governor and state-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 the previous election.

The results show that subsidy-giving increases support for the incumbent. The increase in incumbent vote share is 2.1-2.2 percentage points higher in subsidy-winning counties, depending on the specification. A 2 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 (413,000 for commuting zones). This means that the 2.1 percentage point increase in vote share translates to about 3,400 votes at the mean. At the commuting zone level, which encompasses spillovers to surrounding counties, a 1.7 increase in vote share translates to about 7,000 votes at the mean.^{25,26} Incumbent governors in the sample give subsidies in 2 commuting zones on average, for a total of 14,000 votes. A sway of 14,000 votes would change the election outcomes in 7% of the elections in the sample.

Using a Coarsened Exact Matching procedure, I use county observables to create a control group. Table 6 shows that the results are robust to these alternative control groups. I can also estimate the spillover effect by comparing the neighboring counties of the subsidy winner with the neighboring counties of the control—the spillover is about one third of the effect in the winning location (Appendix Table C.3). This motivates the use of the commuting zone level results when calculating the aggregate effect.

4.2 Identification

Subsidy location

Governors may be willing to pay more for subsidies in counties where they need more votes. In Appendix Table A.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 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 within this sample of large firms receiving subsidies, it does not seem that governors are able to manipulate where the firm locates within the state.

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. The firms have a multi-step site selection process, which typically involves hiring a consulting team to put together a list of potential sites. The consultants will do the research to narrow the list to a few of the most appropriate or attractive locations for the firm, and once the team has this shortlist, the firm will contact the chosen states about the sites. 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.^{27,28} To the extent that there is still worry that

²⁵The results are not driven by turnout (see Appendix Table C.2).

²⁶The average winning county has 4 neighboring counties, therefore the analysis using the winning counties and neighbors gives a similar estimate, at 6,400 votes.

²⁷To read more about site selection see the discussion in Slattery (2022), or trade publications such as siterelection.com.

²⁸Governors may be more likely to intervene in location decisions for smaller firms receiving subsidies, as these firms are making

a state can affect a firm’s shortlist, through advocacy to site selection consultants and promotion, the runner-up locations in the state are a good control, because these locations also would be affected.

The identification strategy assumes that the county specific approval of the governor is not increasing in 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 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 C.1).

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 (the control group). The control group consists of any runner-up county that was competing for a firm during the same election cycle as the winning county. Table 4 shows that the runner-up deals have similar sized incentive amounts, job promises, and investment planned.²⁹

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-up counties 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.

I use the runner-up locations for two reasons. First, just like the treated locations, runner-up locations are selected on being profitable. So, to the extent that there are some common unobservables in what makes a location attractive to 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.³⁰ Second, I know the

location choices within a single state. Those types of smaller deals are not included in the sample.

²⁹I had to drop 14 subsidy deals (9%) for which there is not an appropriate runner-up in the same state and election cycle.

³⁰In fact, Table 5 shows that winning counties are very different than the average county in a state on almost every variable.

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.

Table 5: Descriptive Statistics

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

Notes: This table compares the characteristics of subsidy-winning counties with other counties in the state. The “runner-up” counties are the counties that were reported to be in close competition for winning a firm, but did not win the subsidy competition. For means, standard deviations are reported in parentheses. For differences, t-stats are reported in parentheses. Sources listed in the data appendix.

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, given a suitable control group for the runner-ups. Here, I implement a coarsened exact matching (CEM) technique. I use the characteristics of winning counties in order to match on within-state and year county characteristics. I then use these predicted control counties to both test the robustness of the main results and to test if there is differential vote share in the runner-ups.

Table 6 presents the results. First, columns (1), (3), and (5) use the CEM control groups to estimate the effect of winning a subsidy on county level support for the incumbent. Estimates range from 1.8 to 2.1 ppt, similar to the results using the runner-ups as controls (2.2ppt, Table 3).³¹ The rows below the results show the characteristics used for the CEM control group, the number of winning counties that were able to be matched, and the number of runner-up counties that were still included as controls. Then I use the same control counties to test the effect of being a runner-up county on support for the incumbent (columns (2), (4) and (6)). Here, no winning counties are included, and runner-ups are compared with the other matched controls. There is no vote share effect in the runner-up county.

Table 6: Coarsened Exact Matching: Robustness and Placebo Test

	(1)	(2)	(3)	(4)	(5)	(6)
Change in Vote Share:						
Subsidy Winner	1.83*** (0.43)		2.08*** (0.42)		2.01*** (0.43)	
Runner-up		0.27 (0.42)		-0.59 (0.41)		-0.39 (0.46)
Adj. R-squared	0.80	0.80	0.81	0.81	0.81	0.81
CEM Control	Income		+ Population		+ % Urban	
Winners	139		124		122	
Runner-ups	90	90	58	58	51	51
Observations	3,664	3,524	1,730	1,605	1,416	1,291

Notes: This table estimates Equation 1 with a matched control group. The control counties are selected using a coarsened exact matching technique. The characteristics used to match the controls are per-capita income (column (1,2)), income and population (column (3,4)), and income, population, and percent urban population (column (5,6)). This table reports the estimates of the effect of being a subsidy winner county (columns (1,3,5)) and of being a runner-up (2,4,6). In the estimates of the effect of being a runner-up, the winning county is excluded, and the control counties are the same matched counties selected by the CEM approach.

³¹The characteristics used to match the controls are per-capita income (1), income and population (3), and income, population, and percent urban population (5). Table 5 shows that winning and runner-up counties are very similar on these characteristics, while the average county is smaller, poorer, and more rural. I trade-off between finding more accurate matches (more controls), and finding matches for a greater share of the sample.

5 The Aggregate Effect

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 realized by all voters, 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.³² However, the survey shows that voters in non-subsidized counties know very little about any details of the subsidy deal.³³

Alternatively, it 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.³⁴ A vast literature on quid-pro-quo in politics, 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 discuss two related hypotheses relating to a campaign finance channel, and I find no evidence of either.³⁵ Another potential mechanism is advertising—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 very real 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, I will use the estimates from the commuting zone level analysis. The aggregate effect, when using the commuting zone as the treatment level, is just over 7,000 votes (1.7ppt).

³²On the contrary, Jensen and Malesky (2018) find that voters in runner-up counties may be more likely to support the governor, with a survey experiment that asks about a hypothetical subsidy deal.

³³Conditional 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).

³⁴I cannot causally identify a ‘state level’ effect, but I do find a positive effect between subsidy-giving and state-level vote share in Appendix C.3. If there is an effect outside of the subsidized county, this should bias my results downward.

³⁵In Slattery, Tazhitdinova and Robinson (2022) we exploit exogenous variation created by the 2010 *Citizens United* Supreme Court case to identify the relationship between subsidy-giving and campaign spending. We find that the ability of corporations to spend more in state elections has no effect on subsidy-giving. Next, 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.

Table 7: Calculating the Aggregate Effect

Geography	Δ Vote Share (ppt)	Average Turnout	Votes Gained
County	2.07	160,000	3,312
Commuting Zone	1.70	413,000	7,021

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.

Cost per vote

Under the assumption that the vote share effect of subsidy-giving is isolated to the winning commuting zones, I 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 7 shows that the commuting zone level effect is approximately 7,000 additional votes for the incumbent. The additional 7,000 votes in 2 commuting zones translates to 14,042 additional votes in the state.³⁶

Next, we need to calculate the additional costs. The average incumbent in the sample offers 2.9 subsidies. Table 1 suggests that incumbent governors are willing to pay about \$37 million more for subsidy deals when they are eligible to run for re-election.³⁷ 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. Therefore, 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 that 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:

$$\text{Cost per vote} = \frac{2.9 \text{ subsidies} \times (\$37,000,000 \times 10\%)}{14,042 \text{ votes}} = \$764.$$

The additional subsidy spending translates to over \$700 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 that an additional vote costs \$145, while Levitt (1994) estimates a cost per vote between \$130 and \$390. Note that, unlike campaign spending, 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 over \$7,000 per vote.

³⁶Note that this is consistent with the state level analysis, which suggested a vote share effect of 1.06, translating to 17,000 votes in a median turnout state (Appendix C.3).

³⁷This is based on the average subsidy size in the sample (\$164 million). It is also consistent with estimates from Slattery (2022).

6 Mechanisms and Implications for Policy Choice

6.1 Mechanisms

Why do local voters like subsidies? I investigate two hypotheses. The first 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 when they learn about the subsidy deal and recognize 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 more recent media coverage.

Table 8 shows the results by the date the subsidy deal was announced. The baseline result, or “all years,” corresponds to Specification (3) in Table 3. 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.³⁸ This is not driven

Table 8: Vote Change Results by Date of Subsidy Deal

	1st Year	2nd Year	3rd Year	Election Year	All Years
Subsidy Winner \times Post	2.17 (1.26)	1.83* (0.90)	1.80 (0.91)	3.63* (1.41)	2.07** (0.65)
Adj. R-squared	0.95	0.97	0.96	0.91	0.94
Observations	124	200	226	196	540
Subsidy Wins	20	35	39	36	133
Difference from “All Years” baseline:					
χ^2	0.02	0.23	0.32	5.06	
Prob $>$ χ^2	0.88	0.63	0.57	0.02	

Notes: This table presents results for the effect of subsidy-giving on vote share (Equation 2), by the year of the subsidy deal announcement. The baseline results (“All Years”, Column 5) correspond to Specification (3) in Table 3, which is the county-level diff-in-diff that 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.

³⁸This 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, and not because the spending stimulated economic growth in the local area.

by differences in the types of firms or projects that get subsidies (Appendix Section E). Therefore, subsidy deals that were announced in earlier years are likely equally as salient to voters, but memory decay leads the most recent subsidy deals to have the largest effect (Angelucci and Prat, 2020).

More evidence against the “direct effect” of subsidy-giving comes from an analysis of the jobs promised and jobs created. Table 10 shows that the number of jobs promised at the subsidized establishment is not correlated with the size of the vote share effect. Appendix Table F.1 shows that there is no discernible employment effect in subsidy-winning places by the time of the election.

6.1.1 Subsidy-Giving and News Coverage

There are many reasons to believe that news coverage is the main way that voters learn about subsidy deals. 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. Lastly, voters in the survey report learning about the subsidy from local news (Table 9).

I collect data on news coverage on each subsidy deal from ProQuest (ProQuest, 2021). At the time of data collection, ProQuest allowed users to search for past newspaper articles in over 700 newspapers across the United States.³⁹ 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 G.1 shows that the data are highly skewed; half of the sample of subsidy deals have 15 or fewer articles in the database, but there are 13 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. The first row of Table 10 shows the result.

Table 9: 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
<hr/>	
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 B.

³⁹See Appendix G.1 for more on the data source and coverage, and a comparison with NewsBank (2023).

Table 10: News Coverage, Sentiment, and Heterogeneous Effects

	Δ Vote Share	S.D.	Obs.	Adj. R ²
<i>Media Coverage:</i>				
Subsidy Deal Winner \times Articles	0.04	(0.12)	270	0.75
Subsidy Deal Winner \times Sentiment	2.41***	(0.63)	270	0.77
<i>Deal Characteristics:</i>				
Manufacturing Subsidy Deal Winner	2.59**	(0.83)	196	0.73
Services Subsidy Deal Winner	1.47	(0.92)	103	0.85
Subsidy Deal Winner \times Jobs (1,000)	0.55	(0.41)	270	0.75

Notes: This table shows the heterogeneous effects of the subsidy win by the media coverage of the subsidy deal and the characteristics of the deal. The specification corresponds to Equation 1, the outcome variable is the change in vote share for the incumbent, and the equation is estimated at the county level. Demographic controls and state and year fixed effects are included in each specification, as described in Table 3. Appendix Table C.4 shows heterogeneity by location characteristic.

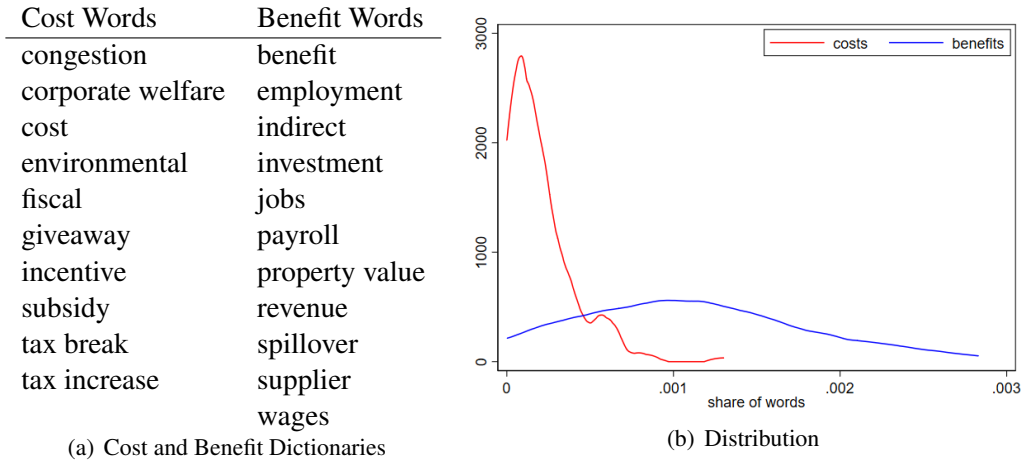
On average, there is no relationship between news coverage and vote share. However, Appendix Figure G.2 shows that the relationship between news coverage and the vote share effect of the subsidy deal has an inverted-U shape—both deals with no news coverage and a large amount of news coverage have no effect on incumbent vote share. I hypothesize that the deals with the most news coverage are more likely to have some controversy or 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 news.

I calculate the sentiment of each article in the data set and take the average at the subsidy deal level. A subsidy deal with neutral news coverage receives a sentiment score of 1, while the control counties or winning counties with no news coverage receive a 0. Appendix Figure G.3 shows a negative relationship between the sentiment score and the number of articles written – the deals with more coverage have, on average, less positive news coverage. I confirm this with a simple exercise that counts the number of words mentioning subsidy “costs” in each news article. This is also positively correlated with the number of articles. Sentiment and number of articles are not correlated with other location characteristics that might be related to the media environment, such as population, income, and education (Appendix Table G.2).

Table 10 shows that there is a positive relationship between news sentiment and vote share. A subsidy deal with neutral news coverage is associated with a 2.41 percentage point increase in vote share. The subsidy deals with the most positive news coverage in the sample have scores of 1.16. This is associated with a 2.80 percentage point increase in vote share, an over 20% increase from the baseline effect of 2.26. Table 10 also shows the heterogeneous effects by the deal type. Note that the vote share effect is larger when the subsidy is for a manufacturing firm, but is not correlated with the jobs promised at the subsidized establishment. Appendix Table C.4 shows there are no differences in vote share effect by the location characteristics: housing prices, housing supply, unemployment rate, and party of the governor do not correlate with the vote share effect.

The sentiment analysis and a comparison of the words mentioning costs and benefits in each article aligns with the survey results—voters learn about subsidy deals from the local news, which is generally positive about the deal, and is much more likely to mention the benefit of attracting the firm than the cost (Figure 4). Therefore subsidy-giving is an useful instrument for career-concerned incumbents, as the benefits are clear to voters but the costs are not. With the remainder of the paper I will discuss the implications of this for policy choice across job creation strategies.

Figure 4: News Coverage of Subsidy Costs and Benefits



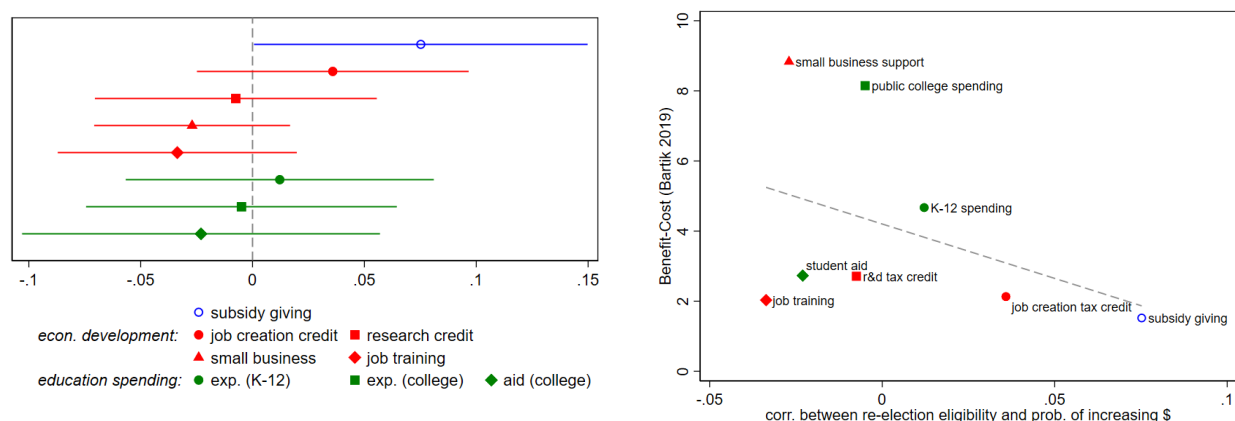
Notes: The table on the left shows the words I use to categorize costs and benefits. The figure on the right shows, at the subsidy deal level, the distribution of how often a cost or benefit word is mentioned, as calculated by share of total words. The benefit words are 7 times more likely to be mentioned than cost words. In fact, over 10% of deals have no mention of cost words.

6.2 Policy Choice

If subsidy-giving is an effective job creation policy, re-election should give governors an incentive to act in the voters’ interest and put in more effort to create jobs by offering more, or larger, subsidies to attract firms. Moreover, if subsidy-giving is just one of many effective job creation policies in the governor’s toolkit, re-election should give the governor an incentive to put in more effort to create jobs using this variety of policies.

I compare subsidy-giving with a set of other economic development policies: job creation tax credits, research and development tax credits, job training subsidies, and small business subsidies. I also compare it with spending on education: college funding, college financial aid, and K-12 funding. 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 and subsidy-giving. The dependent variable equals one when there is a large change in spending. I use the 75th percentile of changes in each of the instruments, which, on average, is about a 5-15% increase in total spending, depending on the policy.

Figure 5: 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 and the controls from Table 1. The point estimate for “subsidy giving” corresponds to Column (7) in Table 1. The other 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 Bartik (2019) benefit-cost numbers.

The results are shown on the left panel of Figure 5. Strikingly, there is a political cycle for subsidy-giving but not for other policies. A governor who can run for re-election is 7.5 percentage points more likely to give subsidies than their term-limited counterparts (and also offer larger subsidies, Table 1). 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 than subsidy-giving (Bartik, 2019).

I use the estimates on benefit-cost from Bartik (2019) to compare the cost-effectiveness of subsidy-giving with these other policies.⁴⁰ The right panel of Figure 5 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.⁴¹ This is even true if you look at policies that are the most similar to subsidy-giving (targeted at job creation and similar sized firms can benefit from them): job creation tax credits, R&D tax credits, and job training. The correlation between the benefit-cost ratio and the probability of increasing spending when running for re-election, for these 3 policies and subsidy-giving, is -0.63.⁴²

⁴⁰The 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.

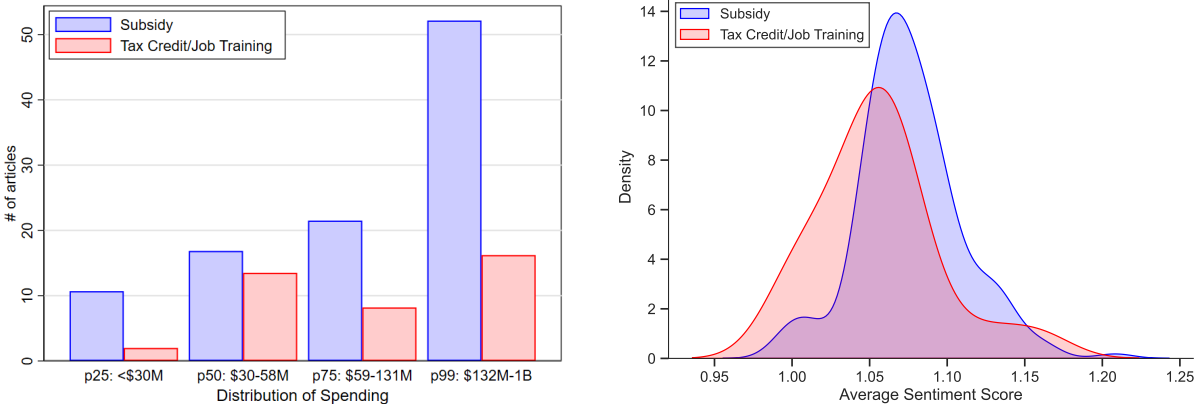
⁴¹It is not exactly a 1 to 1 mapping of policies that Bartik (2019) analyzes and policies that I have data on. I use his estimate for “Community college workforce education” for state higher education spending, his estimate for “Public school spending increases” for state K-12 spending, “Place-based 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” for economic development spending focused on small businesses, “Up-front incentives” for the job creation tax credit, “High-Tech Incentives” for the R&D tax credit, and “Average Incentives” for subsidy-giving. Bartik (2023) calculates the benefit-cost ratio for two different subsidy case studies, and the ratio ranges from .8 to 1.5, so it is possible that 1.5 is on the higher side.

⁴²There is likely a high degree of heterogeneity for the benefit of subsidy deals—in some cases the arrival of a firm can transform the local economy, and for others the firm shuts the plant down a few years after opening. Therefore we cannot say that subsidy-giving is always a strictly lower benefit-cost policy than other strategies, but much more research is needed on the local economic benefits.

Further, subsidy-giving is more salient than these other job creation policies. I collect news articles on the introduction of new job creation and investment tax credits, research and development tax credits, and job training subsidy programs. The dates of program introductions are assembled from changes in the incentive sizes from Bartik (2023) and the online appendix of Wilson (2009) and Chirinko and Wilson (Forthcoming), and then verified with each states’ legislation. I also collect data on the size of the programs (in dollars) from state budget and tax expenditure reports, in order to facilitate an apples to apples comparison with the subsidy deals.⁴³ The resulting data set has 31 enactments or major changes in job creation economic development programs, from 2000-2015, across 18 states.⁴⁴

Figure 6 shows the comparison in news coverage and sentiment. The left panel shows that, even conditional on the size of the program, local newspapers write more articles about the subsidy deals. In fact, the average size of these programs is very similar to the subsidies—the median subsidy deal in the sample is \$59 million and the median tax credit/job training program enacted is \$56 million. Despite the similar size, the tax credit and training programs receive a fraction of the news coverage. Subsidy deals in the sample have 21 articles per \$100M in spending at the median (36 at the mean), while tax credit programs have 3 articles per \$100M in spending (16 at the mean). This is driven by many zeros for the tax credit programs: 38% of the programs are not mentioned in any articles in local newspapers. On the right, Figure 6 shows that the distribution of sentiment for subsidy-giving events is slightly higher. Therefore, not only are there more articles written about subsidy deals, the articles are more positive.

Figure 6: News Coverage of Subsidy-Giving and Tax Credit Programs



Notes: The figure on the left shows the average number of articles written about subsidy deals and tax credit enactments, over the distribution of program size. The distribution of spending is taken with the spending for both types of programs. The figure on the right shows the distribution of sentiment of the articles written for each event. A sentiment score of 1 can be interpreted as neutral. The distribution is taken at the “event” level, so each subsidy or tax credit event has an average score over the number of articles written about it in the local news. The data on tax credit and subsidy size is collected by the author, data on number of articles about each event is from ProQuest (2021) and NewsBank (2023).

⁴³See Appendix G for more details on data construction.
⁴⁴Fifteen of these states also have subsidy winning events in the main data set.

These results, though purely descriptive, highlight an important trade-off in policy choice. The salience of subsidy-giving can lead politicians to favor subsidy-giving over less “newsworthy”, but potentially more cost-effective, job creation strategies. Electoral accountability causes politicians to work harder to create jobs, but they prefer to focus on job creation strategies that voters will learn about.

7 Conclusion

There is a political cycle to subsidy-giving—governors who can run for re-election spend 20% more on subsidies than their term-limited counterparts and are 8% more likely to give a subsidy. This is rational; there is a political benefit to subsidy-giving. In this paper I show that support for the incumbent governor increases by 2 percentage points in subsidy-winning counties. In fact, the average incumbent can gain up to 7,000 votes per subsidy deal.

The effect of subsidy-giving on vote share 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. The timing 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. Moreover, subsidy deals that promise more jobs do not have larger vote share effects. Lastly, subsidized counties do not experience more employment growth than control counties in the same state.

The disconnect between job creation and political benefit motivates further investigation into the mechanism. I aggregate the news coverage of each subsidy deal and analyze the text in order to understand the role of the media in encouraging subsidy-giving. The coverage is almost uniformly positive, and the potential benefits of the subsidy deal are much more likely to be mentioned than the costs. Deals with no news coverage do not experience any vote share effect, and the vote share effect increases in the positive sentiment of the news coverage.

I then provide suggestive evidence that career concerned governors prefer subsidy-giving to other job creation policies that have higher benefit-cost ratios, but less news coverage. Subsidy deals receive 20% more coverage than policies like job creation tax credits or job training grants. Although electoral accountability can discipline politicians, distortions arise in settings with imperfect information—voters are more likely to learn about a subsidy deal than another job creation policy. This makes subsidy-giving a very attractive policy for politicians, even if it is not the most cost effective way to create jobs.

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Appendix for Online Publication

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.⁴⁵

Table A.1: Terms of Subsidy Deals

Industry (NAICS)	# of Deals	Subsidy (\$ M)		Jobs Promised		Invest (\$ M)		Cost per Job (\$)	
		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.

⁴⁵I describe the data collection process in detail, and provide descriptive statistics for both the state-level and firm-level data sets in Slattery (2022) and Slattery and Zidar (2020).

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

	All Counties		Top Profit		Top Industry	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>County Economic and Demographic Vars:</i>						
Unemployment Rate	0.001 (0.001)	0.001 (0.001)	0.026 (0.015)	0.026 (0.015)	-0.004 (0.010)	-0.004 (0.010)
Share Black	0.101*** (0.024)	0.100*** (0.024)	0.402 (0.256)	0.416 (0.257)	0.481 (0.265)	0.484 (0.266)
Share Hispanic	0.040*** (0.008)	0.040*** (0.008)	0.062 (0.200)	0.078 (0.204)	0.405* (0.197)	0.404* (0.199)
Share With College Degree	0.104** (0.033)	0.106** (0.033)	-1.233*** (0.300)	-1.219*** (0.305)	-1.027* (0.419)	-1.027* (0.420)
log(Industry Wage)	0.029*** (0.004)	0.029*** (0.004)	0.452*** (0.057)	0.451*** (0.057)	0.117* (0.058)	0.116* (0.059)
log(Average Housing Price)	-0.005** (0.002)	-0.005** (0.002)	-0.287*** (0.080)	-0.285*** (0.080)	0.094 (0.053)	0.094 (0.053)
log(Personal Income Per Capita)	0.027*** (0.008)	0.027*** (0.008)	0.117 (0.105)	0.113 (0.106)	0.320** (0.108)	0.319** (0.109)
log(Population)	0.013*** (0.002)	0.013*** (0.002)	0.168*** (0.019)	0.169*** (0.019)	0.180*** (0.018)	0.180*** (0.018)
<i>County Political Vars:</i>						
% Turnout in Last Election	0.022 (0.022)	-0.014 (0.036)	0.123 (0.390)	0.069 (0.507)	0.296 (0.372)	0.461 (0.645)
× Gov Can Run		0.047 (0.040)		0.082 (0.608)		-0.209 (0.715)
Same Party Legislator	-0.001 (0.002)	-0.001 (0.004)	-0.018 (0.042)	-0.031 (0.082)	-0.016 (0.043)	-0.008 (0.087)
× Gov Can Run		0.000 (0.005)		0.020 (0.094)		-0.010 (0.096)
% Same Party Vote in Last Election	-0.007 (0.012)	-0.009 (0.030)	0.009 (0.171)	-0.111 (0.321)	-0.256 (0.183)	-0.360 (0.433)
× Gov Can Run		0.002 (0.032)		0.160 (0.368)		0.136 (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 (2022). 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 A.2 shows the correlation between subsidy-giving and location characteristics. Subsidy-winning counties are larger and wealthier than the average county in the state, with higher wages. When compared with other counties that are predicted to have high profits or places that have a large industry presence the subsidy winning places are still larger, but have less educated populations. None of the political variables are statistically significant – subsidy winning places are no more likely to have higher turn-out, have a legislator in the same party as the governor, or have differentially supported the incumbent.

B Survey

I surveyed 4,300 voters across 5 states in late June 2021, with the help of the survey contract firm YouGov. Each state’s survey asks the respondents questions about one recently announced subsidy deal. The five states, sample size in each state, and the characteristics of the recent subsidy deal in each state are described in Table B.1. The survey questions are listed in Section B.2. 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. I choose these 5 subsidy deals by searching GoodJobsFirst.com Subsidy Tracker for recently announced subsidies, because the time period of the survey is outside the time period of my subsidy data collection. I arrive at a list of about 20 deals, and then I subset to manufacturing deals where I can find reliable information on the size of the investment, jobs promised, and subsidy promised. I also restrict to deals that are new firm entry, instead of retention.

YouGov has a panel of 1.8 million U.S. residents that agree to participate in YouGov web surveys. The sample selected for this survey are representative of the U.S. population by age, race, gender, and education. 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 B.2 shows the demographics by state and Table B.3 shows the correlation between survey responses and some other respondent characteristics.

Table B.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. Section B.2 lists the survey questions.

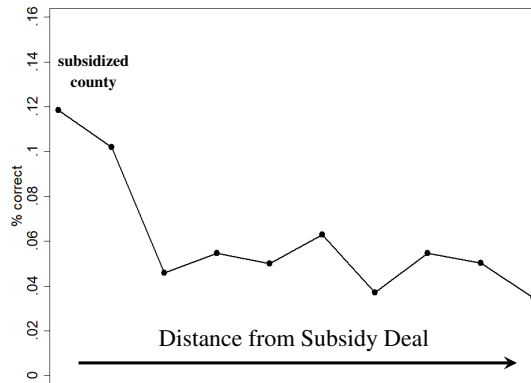
B.1 Descriptives

Table B.2: Survey Respondent Demographics

State	Georgia	Kentucky	New York	Texas	Wisconsin
Age	47.71	49.08	48.43	46.70	49.97
High school	0.30	0.36	0.31	0.32	0.33
College (BA)	0.30	0.24	0.37	0.30	0.32
Female	0.53	0.52	0.53	0.52	0.52
White	0.59	0.90	0.63	0.51	0.87
Black	0.32	0.06	0.14	0.13	0.06
Hispanic	0.04	0.02	0.14	0.30	0.04
Married	0.43	0.49	0.40	0.44	0.48
Family Income (\$1,000)	64.05	56.24	71.45	64.36	60.68
Full-Time Employed	0.36	0.34	0.34	0.35	0.37
Retired	0.19	0.23	0.22	0.19	0.24
Voted for Trump in 2020	0.39	0.50	0.32	0.40	0.44
Voted for Biden in 2020	0.42	0.30	0.54	0.36	0.44
Didn't Vote in 2020	0.18	0.19	0.14	0.23	0.11

Notes: This table presents the demographics of the survey respondents, by state. Income is reported in buckets and has the highest non-response rate (11%). I use the midpoint of those buckets. The sample is nationally representative by age, race, gender, and education, for U.S. adult residents.

Figure B.1: 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. 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. The figure shows the unconditional share of correct responses.

Table B.3: Correlation between Survey Responses and Respondent Characteristics

	Q3: Identify Subsidized Firm		Q8: Positive about Subsidy	
	(1)	(2)	(3)	(4)
Subsidized County	0.24*** (0.04)	0.26*** (0.05)		
Within 25 Miles of Subsidy	0.16** (0.06)	0.16** (0.06)		
Within 50 Miles of Subsidy	0.06* (0.03)	0.04 (0.03)		
Within 100 Miles of Subsidy	0.01 (0.02)	-0.01 (0.02)		
Respondent has BA	0.05** (0.02)	0.02 (0.02)	0.08*** (0.02)	0.05* (0.02)
Well-informed about State and Local Issues	0.06*** (0.02)	0.06** (0.02)	0.13*** (0.02)	0.10*** (0.02)
County Unemployment Rate	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)	0.02 (0.01)
Job Creation is Top Issue	-0.01 (0.02)	-0.00 (0.02)	0.12*** (0.02)	0.13*** (0.02)
Correctly Identified Subsidized Firm			0.16*** (0.03)	0.13*** (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 Columns (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). Columns (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. Columns (2) and (4) include controls for respondent age and income.

B.2 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.

C 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 using cross state variation, and then at the district level in state legislature races. Then, I calculate the persuasion rate implied by the baseline vote share results.

C.1 Robustness

Table C.1 shows that there is not more advertising in subsidy deal winning counties, and Table C.2 shows that the voting results are not driven by turnout. Table C.3 shows the spillover effect: the effect in the counties that neighbor the treated county. Table C.4 shows heterogeneous effects by location characteristic. There are no differential effects by governor party, or the economic characteristic of the location, as measured by unemployment, housing price, or housing supply.

Table C.1: Advertising in Subsidized Counties

<i>Control:</i>	Outcome: log(Ad Spending)				Outcome: log(Number of Ads)			
	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 C.2: Turnout Results

	County			Commuting Zone		
	(1)	(2)	(3)	(4)	(5)	(6)
Winner × Post	-0.01	-0.03	-0.03	-0.28	-0.26	-0.36
	(0.28)	(0.28)	(0.28)	(0.22)	(0.22)	(0.22)
Adj. R-squared	0.97	0.97	0.97	0.98	0.98	0.98
Mean Turnout	29.73	29.73	29.73	29.46	29.46	29.46
Area, State-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 2). 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 this sample of gubernatorial elections is just under 30%.

Table C.3: Spillover Analysis: Effect on Neighboring counties

	(1)	(2)	(3)
Winner \times Post	0.62	0.71*	0.69*
	(0.32)	(0.32)	(0.32)
Adj. R-squared	0.95	0.95	0.95
County, State-Year FE	\times	\times	\times
Unemployment		\times	
All Demographic Controls			\times
Observations	2,184	2,184	2,142

Notes: This table replicates the difference-in-differences analysis in Table 3, but takes the neighboring counties to be treated, excluding the winning and runner-up counties. Analysis is at the county level. Therefore, it compares the neighbors to the treated county with the neighbors of the runner-up county, in order to measure the “spillover” of the treatment effect. The results show that the spillover is about 1/3 of the treatment effect in the winning county.

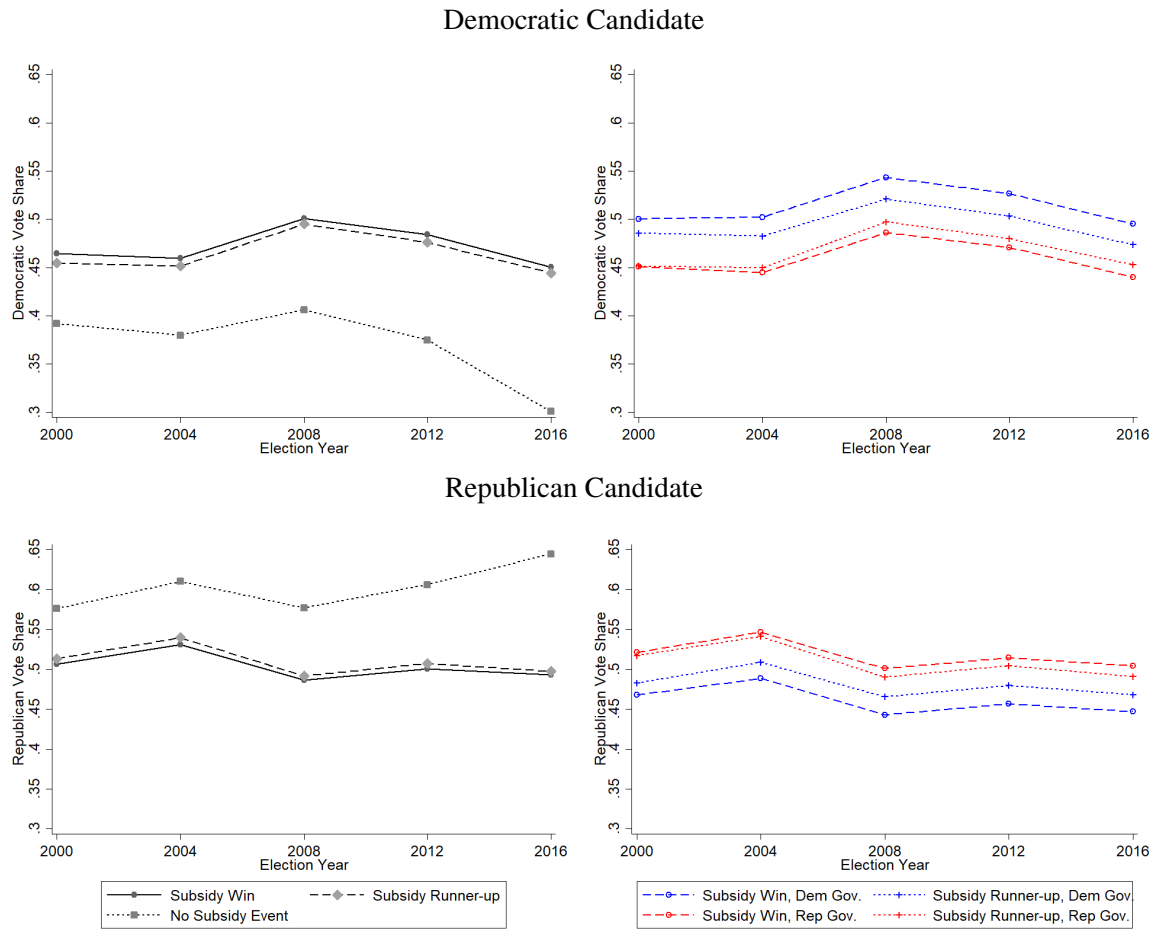
Table C.4: Heterogeneity by Location Characteristic

	Change in Vote Share			
	(1)	(2)	(3)	(4)
Subsidy Deal Winner	3.39**	4.22*	12.06	2.06*
	(1.17)	(1.76)	(6.55)	(0.82)
\times Republican	-1.69			
	(1.43)			
\times Unemployment		-0.26		
		(0.22)		
\times Housing Prices			-1.97	
			(1.31)	
\times Housing Supply				0.27
				(0.80)
Observations	270	270	270	184
Adj. R-squared	0.77	0.77	0.77	0.78

Notes: This table shows the heterogeneous effects of the subsidy win by the characteristics of the winning location. The specification corresponds to Equation 1, the outcome variable is the change in vote share for the incumbent, and the equation is estimated at the county level. Demographic controls and state and year fixed effects are included in each specification, as described in Table 3.

C.2 Presidential Pre-trends

Figure C.1: Presidential Vote Share “Pre-Trends”



Notes: These 4 figures show the presidential vote share for winning and runner-up counties. The top two figures show the vote share for the Democratic candidate, while the bottom two figures show 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.

C.3 State Level Governor Results

Table C.5 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:

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

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 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.

Table C.5: Subsidy-Giving and State-Level Vote Share

	All Incumbent Elections		
	(1)	(2)	(3)
Subsidy Deal Winner	2.19 (2.06)	1.06 (2.16)	1.41 (2.32)
<i>State Characteristics:</i>			
State Unemployment (%)	-0.53 (0.86)	-0.60 (0.89)	0.41 (1.03)
% Vote in Previous Election			
Corporate Tax Rate (%)		-0.41 (0.44)	-0.47 (0.52)
Top Personal Income Tax Rate (%)		-0.04 (0.33)	-0.02 (0.32)
% Revenue Collected from Prop. Tax		-0.16 (0.12)	-0.07 (0.14)
Change in State Manuf. Employment (%)		0.08 (0.09)	0.03 (0.11)
<i>Election Characteristics:</i>			
log(# TV Ads in Race)			-1.77* (0.73)
# of Challengers in Race			-0.55 (0.70)
R-squared	0.14	0.20	0.27
Observations	122	122	101

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. 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.

A vote share effect of 1.06 translates to 17,000 votes in a median turnout state. Note that this is consistent with the commuting zone level analysis, which suggests a total vote gain of 14,000 for an incumbent who wins two subsidy deals, which is the average over the sample (Table 7).

C.4 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.⁴⁶ 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 C.6: State Legislature Vote Share Results

	State Senate			State House		
	(1)	(2)	(3)	(4)	(5)	(6)
Change in Vote Share:						
District Subsidy Win	1.65 (0.94)	-0.16 (1.29)		0.50 (0.60)	0.30 (0.74)	
District Subsidy Win × Same Party		3.14* (1.53)			0.72 (0.76)	
State Subsidy Win × Same Party			2.30** (0.72)			-0.04 (0.30)
Observations	694	694	3,041	2,419	2,419	14,308
R-squared	0.29	0.29	0.15	0.15	0.16	0.08
Diff-in-Diff Estimate:						
District Subsidy Win × Post	0.83 (0.65)	-0.79 (1.14)		0.53 (0.36)	-0.34 (0.61)	
District Subsidy × Same Party × Post		3.07* (1.45)			1.38 (0.77)	
State Subsidy × Same Party × Post			0.53 (0.67)			-0.10 (0.28)
R-squared	0.92	0.92	0.91	0.96	0.96	0.96
Vote Share Mean	65.42 (14.89)		61.07 (14.76)	57.10 (22.20)		51.13 (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.” Columns (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 Columns (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 Columns (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. Columns (1) - (6) on the top panel 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).

⁴⁶The sample for state legislative election returns ends in 2016, and is from Klarner (2018).

Table C.6 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 legislators in 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.

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.

C.5 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 1.7 percentage point increase in vote share in the commuting zone (Table 3). 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 the control group as y_0 .⁴⁷

$$f = 100 \times \frac{0.017}{0.285} \frac{1}{0.455} = 13.1\%$$

This persuasion rate is similar to the effect of news media on vote share in DellaVigna and Kaplan (2007) (11.6%).

⁴⁷Alternatively, one could use the 53.9% vote share of subsidy winning counties in the *previous* election (Table 5):

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 Slattery, Tazhitdinova and Robinson (2022) we 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.

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. Columns (1) - (3) use individual campaign contributions as the dependent variable, while Columns (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 \times Post	10.57 (15.46)	11.24 (15.24)	9.31 (16.20)	1.97 (11.83)	2.44 (11.67)	1.74 (12.23)
County Unemp. Control		\times			\times	
All Demographic Controls			\times			\times
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. Columns (1) - (3) use individual campaign contributions as the dependent variable, while Columns (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). The average amount of campaign contributions to governors, at the county level, is \$226,200 for individual contributions, and \$144,600 for corporate.

E Are Election Year Subsidy Deals Different?

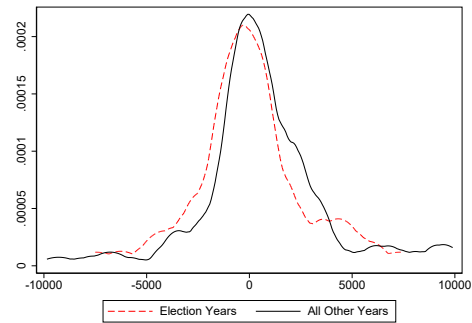
One explanation for the larger effect of election year subsidy deals is that they are different from non-election year subsidy deals. The firms subsidized in election years may be promising more jobs, planning a larger investment, or is predicted to have a greater spillover effect. The governor just tries harder to attract higher quality firms in the election year.

Table E.1(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 about 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 E.1: Are Election Year Deals Different?

Can Run	Election Year	N	Subsidy (\$M)		Jobs Promised		Investment (\$M)	
			Mean	Med.	Mean	Med.	Mean	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). 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 estimation.

F Job Creation

Table F.1 shows the effect of winning a subsidy on job creation, at the time of the incumbent’s election. There is no employment effect. This is likely due to timing—the firm has not had sufficient time to build the plant and hire all of the workers. This corroborates the results on the mechanism. It is the salience of the subsidy deal, not the direct effect of job creation, that is driving the vote share effect.

Table F.1: Subsidy-Giving and Job Creation

	County			Commuting Zone		
	(1)	(2)	(3)	(4)	(5)	(6)
Employment (Logs):						
Subsidy Deal Winner × Post	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)	0.00 (0.01)	0.00 (0.01)	0.00 (0.00)
Employment (Levels):						
Subsidy Deal Winner × Post	-3,280.47 (3,914.60)	-3,415.46 (3,916.94)	-3,189.57 (9,562.94)	4,800.10 (9,944.44)	4,857.26 (9,666.07)	1,567.04 (9,139.85)
Adj. R ²	1.00	1.00	1.00	1.00	1.00	1.00
Area, State-Year FE	×	×	×	×	×	×
Unemployment		×			×	
All Demographic Controls			×			×
Observations	542	542	540	404	404	404

Notes: This table reports the difference-in-differences estimates of the effect of subsidy-winning on job creation (Equation 2, but using employment as the outcome variable). I use both log(employment), in the top panel, and total employment, in the bottom panel. Columns (1) - (3) present the results from county level regressions while Columns (4) - (6) show the commuting zone level results.

G News Data and Sentiment Analysis

G.1 ProQuest and NewsBank

I use two sources to collect data on local news coverage: ProQuest (2021) and NewsBank (2023). At the time of the data collection the ProQuest (2021) title list included 726 newspapers in the United States, in 484 unique cities. In the subsidy-giving period of interest (2000-2018) this is 591 newspapers in 387 unique cities (spanning 49 states and DC).⁴⁸ The analysis of tax credit and job training programs was completed 2 years after the subsidy news analysis. At this point, I had access to NewsBank (2023), which has more newspapers in the sample. At the time of the search, the NewsBank (2023) title list included 974 newspapers in the United States. This is a larger sample than ProQuest (2021), and therefore should bias against me finding more news coverage of subsidy deals. On the contrary, even given the larger sample of newspapers, I find that tax credit and job training programs receive significantly less news coverage.

G.2 Tax Credit and Job Training Program “Events”

I use the Bartik (2023) incentive database and the data on R&D and Job Creation tax credit enactments from Wilson (2009) and Chirinko and Wilson (Forthcoming) to assemble a list of “events” for non-subsidy economic development programs. This includes the enactment and major expansion of job training programs, job creation tax credits, investment tax credits, and research and development tax credits, over the period of interest (2000-2018). The resulting list has 35 enactment events that I can verify with state legislation. I also collect data on the size of these programs, over a 5 year span (subsidy deal amounts are normalized over a 10 year period, but the tax credit programs can have a shorter horizon). A few of these events happen in the same state and same year (i.e. New York enacts the “Excelsior Jobs Program” in 2010, which includes an R&D tax credit, job creation tax credit, and investment tax credit). I will treat this as one event, for the purpose of collecting news coverage.

Table G.1 below shows the name of each program, state, the year of enactment, the type of program, and the budget, to my best estimate. For the news article search, I search the name of the program, in newspapers located in the state of the program enactment, in the window of one year before and one year after the year of enactment. I then read the articles in the list to make sure they are actually discussing the program in interest. A common false positive is that articles about a federal R&D tax credit or federal jobs training program are included.

⁴⁸There are no newspapers in ProQuest (2021) from Alaska during the sample period, but also there are no subsidy deals in Alaska.

Table G.1: Tax Credit and Job Training Programs

Name	State	Year	Type	Budget (\$M)
Economic Development for A Growing Economy	IL	2000	Job Creation Tax Credit	149.6
R&D Tax Credit	MD	2000	R&D Tax Credit	30.0
Investment Tax Credit	MI	2000	Investment Tax Credit	514.9
Technology Jobs and R&D Tax Credit	NM	2000	R&D and Jobs Tax Credit	17.3
Job Training Program	AZ	2001	Job Training Subsidy	75.0
Job Training Grants	IN	2001	Job Training Subsidy	60.0
Invest Nebraska Act	NE	2001	Job Creation Tax Credit	100.0
Expand Empire Zones	NY	2001	Job Creation Tax Credit	514.0
Research Expenses Credit	SC	2001	R&D Tax Credit	39.0
R&D Activities Credit	TX	2001	R&D Tax Credit	.
Hoosier Business Investment Tax Credit	IN	2003	Investment Tax Credit	275.0
R&D Tax Credit	LA	2003	R&D Tax Credit	91.5
Creating New Jobs Tax Credit	NC	2003	Job Creation Tax Credit	37.6
High Wage Jobs Tax Credit	NM	2004	Job Creation Tax Credit	33.3
Credit for Qualified Research Expenses	OH	2004	R&D Tax Credit	57.7
Job Creation Tax Credit	CT	2006	Job Creation Tax Credit	50.0
Quality Jobs Act	MO	2006	Job Creation Tax Credit	244.9
Nebraska Advantage R&D Act	NE	2006	R&D Tax Credit	10.8
FastStart	LA	2008	Job Training Subsidy	31.9
R&D Tax Credit	MI	2008	R&D Tax Credit	157.9
Job Growth Incentive Tax Credit	CO	2009	Job Creation Tax Credit	30.0
Economic Development Credit	WI	2009	Investment Tax Credit	121.3
Jobs Tax Credit	WI	2009	Job Creation Tax Credit	33.8
Excelsior Jobs Program	NY	2010	R&D, Jobs, and Investment Tax Credit	548.0
Quality Jobs Tax Credit	AZ	2011	Job Creation Tax Credit	19.7
R&D Tax Credit	MN	2011	R&D Tax Credit	40.0
R&D Tax Credit	FL	2012	R&D Tax Credit	45.0
Qualified Facility Tax Credit	AZ	2013	Investment Tax Credit	350.0
Fast Forward	WI	2013	Job Training Subsidy	15
Job Creation Fund	MN	2014	Investment and Jobs Tax Credit	54.0
R&D Sales/Use Tax Exemption	TX	2014	R&D Tax Credit	658.0

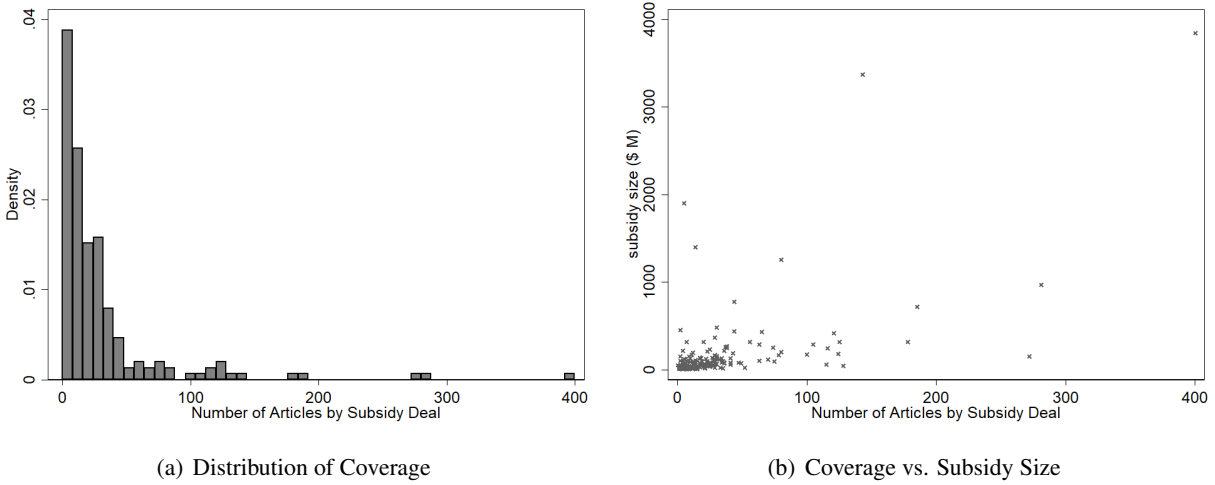
Notes: This is the list of economic development program events that I use to compare to the subsidy deal events. Sources include Bartik (2023); Wilson (2009); Chirinko and Wilson (Forthcoming) and each state's budget and tax expenditure reports. Data construction described in Appendix Section G.2.

G.3 Measuring Sentiment

I follow the methodology of Shapiro, Sudhof and Wilson (2020) to calculate the sentiment of each article. The authors compare the accuracy of many sentiment analysis models using a sample that was evaluated by humans, and find the best results combine existing lexicons. I use the lexicons suggested by their work (Loughran and McDonald, 2011; Hu and Liu, 2004), and their own sentiment-scoring model, which is particularly relevant because it is built to analyze the sentiment of economic news articles. The procedure gives each word or phrase in an article a sentiment score (after accounting for negation), and then takes the average over the article. The average over the set of articles for each deal also controls for word count of the article.

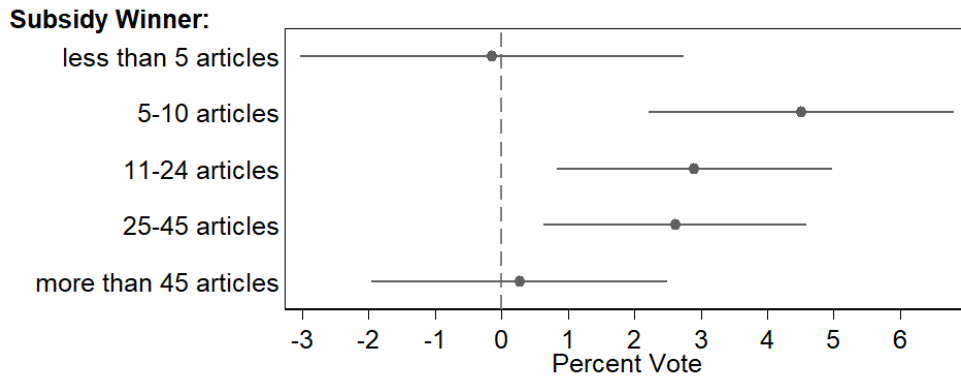
G.4 Descriptive Statistics

Figure G.1: News Coverage by Subsidy Deal



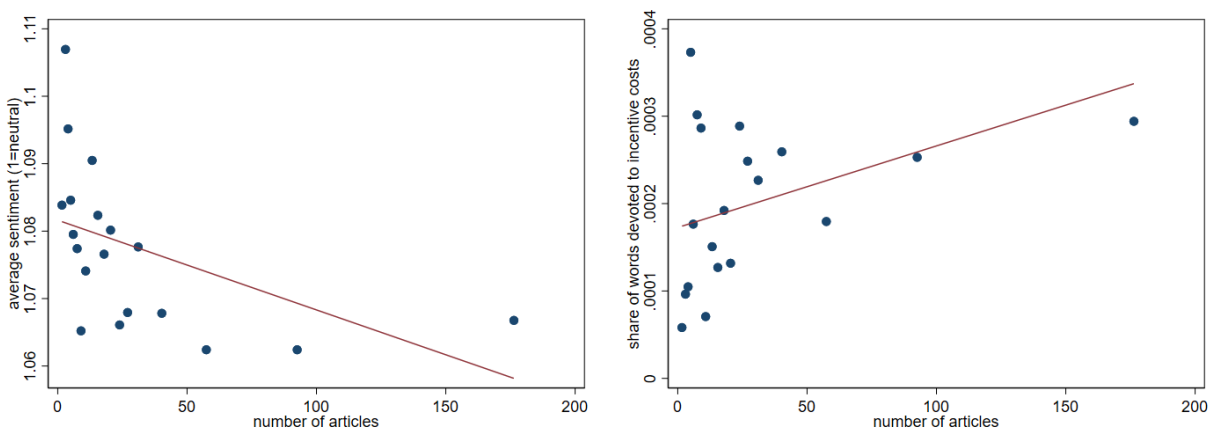
Notes: The figure on the left shows the distribution of the number of articles found about each subsidy deal. The figure on the right shows the relationship between the number of articles on the subsidy size and the size of the subsidy deal, in \$M. Data on news coverage collected by the author using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

Figure G.2: 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 number of news articles about the subsidy deal. The specification follows Equation 1, with treatment bins based on the amount of news coverage instead of the one subsidy win dummy. Data on news coverage collected by the author using ProQuest (2021).

Figure G.3: Sentiment and News Coverage



(a) Average Sentiment Score

(b) Share of Words Devoted to Costs

Notes: These two figures are binned scatter plots showing the relationship between the number of articles written about a subsidy deal and the “sentiment” of those articles, on average. The figure on the left uses the average sentiment score for each deal, which is calculated using the dictionary from Shapiro, Sudhof and Wilson (2020). The figure on the right uses the the number of times the costs of the deal were mentioned, as a share of total words, as the “sentiment” measure. Data on news coverage collected by the author using ProQuest (2021).

Table G.2: News Coverage and Location, Deal Characteristics

	Number of Articles		Average Sentiment	
	(1)	(2)	(3)	(4)
log(Population)	-4.47 (2.86)	-1.85 (1.91)	-0.09 (0.21)	-0.26 (0.20)
log(Per Capita Income)	19.45 (18.31)	7.45 (9.85)	0.72 (1.11)	1.18 (1.07)
% of Population with BA	-0.46 (0.61)	0.57 (0.31)	0.03 (0.05)	-0.00 (0.05)
log(Subsidy Size (\$M))		14.10*** (2.57)		-0.99*** (0.20)
Jobs Promised (1,000)		19.82*** (4.37)		0.07 (0.10)
Observations	190	190	185	185
R-squared	0.02	0.57	0.02	0.13

Notes: This table shows the correlations between the number of articles and sentiment of a subsidy deal with the location characteristics of the subsidized county and the deal characteristics. The number of articles is a count of articles, collected by the author from ProQuest (2021). The average sentiment is the sentiment score of those articles, calculated using the sentiment dictionary from Shapiro, Sudhof and Wilson (2020). The average sentiment is rescaled so that 100 is neutral. Data on the subsidy characteristics is collected by the author, data on population, per-capita income, and the share with a college degree are from Ruggles, Flood, Goeken, Grover, Meyer, Pacas and Sobek (2019) and U.S. Bureau of Economic Analysis (1967-2017).

G.5 Examples

In this section I list example text that is classified as positive or negative in the sentiment analysis. The text is from news articles about the 2002 Hyundai subsidy deal.

Negative articles about Hyundai:

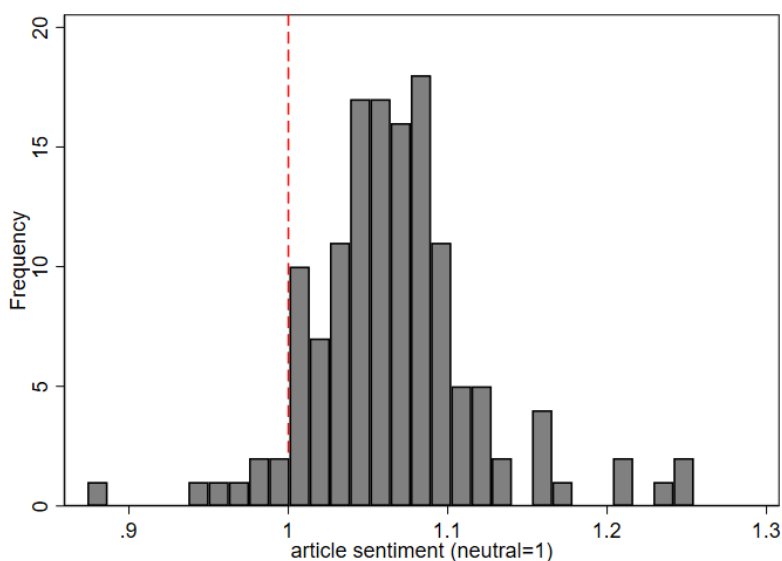
- “Montgomery City Council discusses possible temporary sales tax increase to meet city needs such as Hyundai bond issue”
- “Committee members also questioned a \$7 million contract for Gresham Smith and Partners of Birmingham for architectural and engineering services on a training facility for the Hyundai plant in Montgomery. Dixon questioned why the money should come from the Public School and College Authority, which funds education capital projects. Mabry said the Hyundai training facility is a proper use of that money because it is related to education. Mabry also said the contract does not have to go before the review committee and was sent there by mistake. He said the Public School and College Authority, made up of the governor, the finance director and the superintendent of education, has not yet approved the contract.”
- “Federal environmental officials overruled objections filed by the state of Michigan and approved Alabama’s air permit for the \$1-billion Hyundai plant being built near Montgomery. Michigan officials opposed the permit last week, arguing that Alabama’s lax environmental regulations were unfairly luring automakers to the state. An official with the Environmental Protection Agency said comments about Alabama’s plan were “not significant.” Jesse Baskerville, deputy director of EPA’s air division in Atlanta, said EPA estimates show emissions from the Hyundai plant would not push air pollution in Montgomery County above current legal limits. Patricia Spitzley, a spokeswoman for the Michigan Department of Environmental Quality, said Michigan and other states are frustrated when automakers say they could save money by locating elsewhere. Under the Clean Air Act, companies are required to use the “best available control technology” to prevent air pollution. Regulators are supposed to document how they determined what technology was required. Alabama’s proposed permit for the Hyundai plant does not show that work, Spitzley said.”

Positive articles about Hyundai:

- “Wadsworth said the Hyundai plant would create an economic boom for central Alabama because it will attract diverse industries to the area.”

- “Hyundai supplier will boost economy RAVE: For the choice of Montgomery as a site by Mobis Alabama, the first major supplier for the Hyundai plant to locate here. That’s another 430 jobs, which is certainly good news for the local economy.”
- “We have a stable supply of land, and Montgomery is especially blessed to have a stable economy. Not only do we have our strong local businesses, but we have our state government and the military base that take out a lot of the peaks and valleys of employment. And the announcement of Hyundai just creates additional stability employment wise and job growth wise to an already strong local economy, and that bodes well for people who want to invest in property for years to come. What impact is the influx of Korean families to the tri-county area having on the area housing market since the announcement of the \$1 billion Hyundai plant in south Montgomery? With the opportunity we’ve had to work with some of the Korean families coming in, we’ve seen that—at least initially—most of them are planning to rent, probably until they get the plant built and things stabilize a little bit. Then we’ll probably see a shift to buying and long-term investment in the community. Does the tri-county area have the population base to support the volume of new home construction that is currently going on? Absolutely. We’ve seen new home absorption pick up the pace over the last few years, and if anything, we’re probably approaching a shortage of new homes, subdivisions and lots as we look to 2003. There just aren’t as many new developments coming on line as there were three or four years ago, and there’s a lot of existing developments that have either reached the saturation point and have either sold out or are close to selling out.”

Figure G.4: Within Subsidy Deal Sentiment: Hyundai (2002)



Notes: This figure shows the distribution of sentiment score for the Hyundai subsidy deal in Alabama (2002). Each article mentioning the subsidy deal receives a sentiment score, given the words used in the article. There are 137 articles in the sample. The articles are collected from ProQuest (2021) and the dictionary used to calculate sentiment is from Shapiro, Sudhof and Wilson (2020). Examples of negative and positive sentiment text are given in Appendix Section G.5.

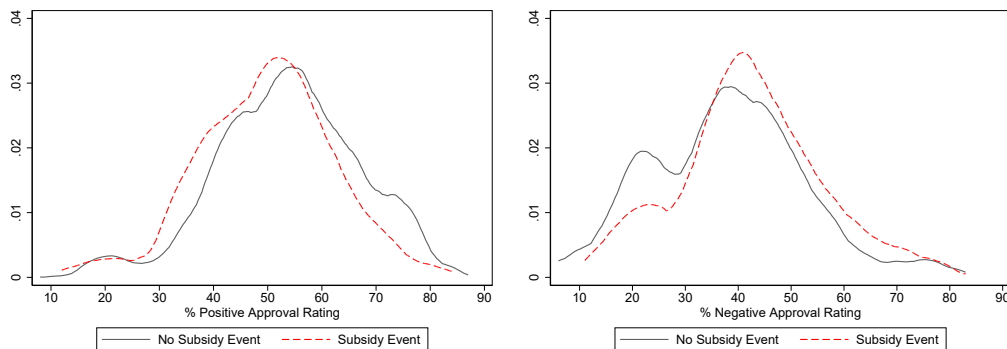
H Subsidy Timing

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 E.1 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 show that the probability of subsidy-giving also 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 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 H.1, the raw data shows subsidy events are more common in lower positive approval or higher negative approval rating periods. Then, Table H.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 H.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).

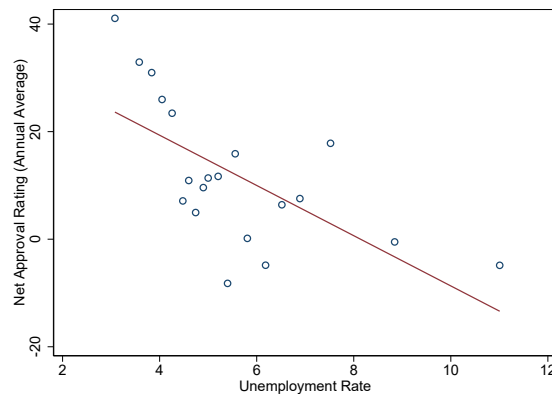
Table H.1: Subsidy-Giving and Approval Ratings

	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 \uparrow 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 \uparrow 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 \uparrow 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 bottom panel uses the net approval rating. Each specification has governor fixed effects, Columns (2) and (3) fill in missing months approval data with the previous, non-missing, month, and Column (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 H.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 H.2: State Unemployment Rate and Governor Approval Ratings



Notes: This figure shows the correlation between the state unemployment rate and the governor’s approval rating with a binned scatter plot. 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. Data on the job approval rating is from Beyle, Niemi and Sigelman (2002) and unemployment rates are from Bureau of Labor Statistics (1990-2017).

I Additional Figures

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



(a) April 2, 2002

(b) April 3, 2002

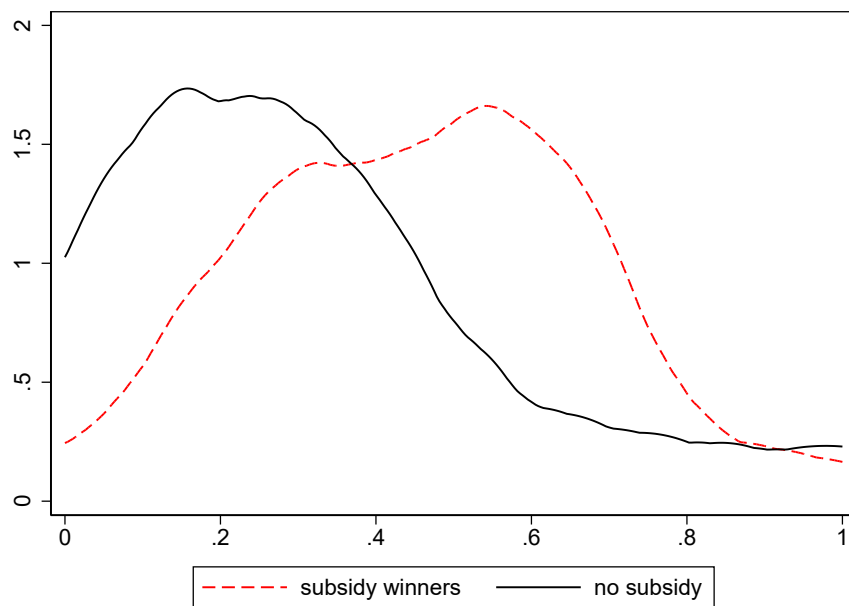
Notes: This figure shows some of the news coverage the *Montgomery Advertiser* published about the subsidy deal for Hyundai. These articles were published the week the deal was announced *Image Source: Newspapers.com*.

Figure I.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. *Image Source*: Newspapers.com.

Figure I.3: 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).

J Data Sources: State and Local Characteristics

State Level:

- Unemployment rate: Bureau of Labor Statistics (Bureau of Labor Statistics, 1990-2017)
- Manufacturing employment: County Business Patterns (County Business Patterns, 1997-2017).
- Campaign Advertisements: Wisconsin and Wesleyan Media Projects (Fowler and Ridout, 2017; Goldstein and Rivlin, 2005; Goldstein, Niebler, Neiheisel and Holleque, 2011)
- GDP, Income per capita: Bureau of Economic Activity (U.S. Bureau of Economic Analysis, 1967-2017)
- Tax rates (Corporate, Income, Sales): Book of States (CSG Book of the States, 1950-2018)
- Right-to-work: National Council of State Legislatures (National Conference of State Legislatures, 2019)
- Education Spending: National Science Foundation (National Science Foundation, 2000-2017)
 - For Figure ?? 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.”

County Level:

- Unemployment rate: Bureau of Labor Statistics (Bureau of Labor Statistics, 1990-2017)
- Population, % Black, % Hispanic, % Urban, % BA, % high school: Census American Community Survey (Ruggles, Flood, Goeken, Grover, Meyer, Pacas and Sobek, 2019)
- Income per capita: Bureau of Economic Activity (U.S. Bureau of Economic Analysis, 1967-2017)
- Housing Prices: Zillow (Zillow, 1996-2020)