

# Market Structure and Political Influence in the Auto Retail Industry

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## Abstract

We study the relationship between market structure and lobbying in the automobile retail industry. The size distribution of an industry can affect lobbying—lobbying is a public good, and larger firms will internalize more of the benefits of lobbying activity. We create a new data set of lobbying at the state level and exploit variation in the misalignment of local political and product markets to identify the public goods effect of market structure on lobbying. A first finding is that the majority of lobbying in the industry occurs via trade associations. These are industry groups that coordinate firms and could potentially solve the collective action problem in lobbying. To the contrary, we find that mergers of large auto retailers increase lobbying and lead to favorable outcomes for the industry, in the form of lower sales taxes on new car purchases.

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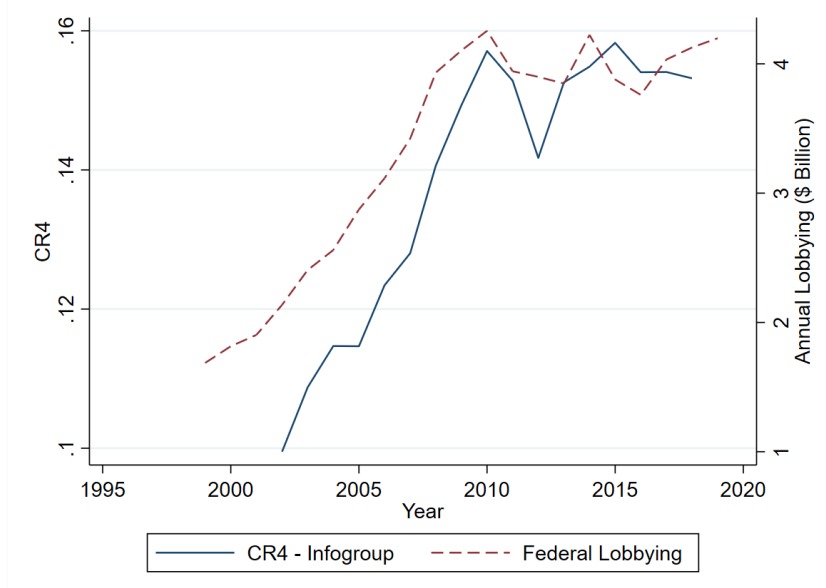
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# 1 Introduction

What is the relationship between industry structure and political influence? In the aggregate, the increases in industry concentration and lobbying spending over the past two decades are remarkably in sync (Figure 1). This correlation has led to concern in the popular press over the increasing size of firms and their growing political influence, with headlines decrying “Big Companies Are Starting to Swallow the World” and “How Corporate Lobbyists Conquered American Democracy”.<sup>1</sup> An extensive literature explores the ways that corporations and special interest groups influence the political process, highlighting lobbying as one of the main channels (Grossman and Helpman, 1994; Olson, 1965). Past work has also shown that larger firms lobby more (Bombardini, 2008) and that lobbying offers large returns (Kang, 2016). However, disentangling the causal effect of market structure on lobbying is difficult. To the extent that lobbying is a public good, firms in industries characterized by many, small firms might underinvest in lobbying. On the other hand, firms that successfully lobby regulators might be able to grow more, leading to a more concentrated industry structure.

Figure 1: A Rise in Concentration and Lobbying in the US



**Note:** CR4 is a weighted average of the concentration ratio of the largest four firms across all industries in the US.

In order to identify the causal relationship between concentration and spending, we investigate one retail trade industry: new car dealers. The automobile retail industry is economically important, making up about 8% of retail employment and 15% of sales tax revenue. This industry is a particularly

<sup>1</sup>See <https://www.nytimes.com/2020/09/30/business/big-companies-are-starting-to-swallow-the-world.html> (The New York Times, September 2020) and <https://www.theatlantic.com/business/archive/2015/04/how-corporate-lobbyists-conquered-american-democracy> (The Atlantic, April 2015), respectively.

good fit for studying our research question for three reasons. First, auto dealers have significant political interests. Indeed, auto dealers are notorious for their alleged influence in local policy, such as their role in bolstering franchise laws that restrict entry (Lafontaine and Scott Morton, 2010). A second advantage of studying the auto industry is that product markets are geographically segmented (Murry, 2017; Yavorsky, Honka and Chen, 2021). We can therefore leverage the misalignment of local political and product markets in conjunction with granular data on dealership locations and ownership to identify the causal relationship of interest. A final advantage of this micro approach it is that it allows us to focus on lobbying as a collective action problem. Industry structure might affect lobbying through two separate mechanisms: first, an industry with fewer, larger firms might suffer less from the public goods problem (Olson, 1965), and second, a large firm in a concentrated industry might lobby to protect its existing market share. This latter mechanism is unlikely to drive lobbying by auto dealerships because standard measures of industry concentration fall far below the levels that typically draw regulatory attention.

Our focus on local product and political markets requires data on lobbying at the local level. We define the political market as the state because many policies that concern automobile dealerships are decided at the state level, including franchise laws, fees for new car purchases, electric vehicle tax incentives, and sales taxes. We construct a novel dataset on lobbying clients and compensation based on public administrative data from 26 states. This is a new data set; the literature has mostly focused on lobbying at the federal level. We find that there is substantial lobbying at the state level that is understudied. In the last five years of our data, the top 20 industries spent about \$1.6 billion per year in only 13 states. For comparison, annual federal lobbying over the same period totaled about \$4 billion per year. The auto retail industry ranks 72nd in our sample, with about \$200,000 in annual lobbying for the average state.

A second finding is that auto dealership lobbying typically occurs through trade associations. Trade associations not only engage in lobbying, but they also coordinate other activities such as marketing and campaign donations. Each state has its own new car dealer association, and some large states such as California and New York are home to multiple associations. The ascendancy of trade associations at the local level mirrors patterns that Bombardini and Trebbi (2012) document in the federal lobbying data. The dominance of these associations suggests that auto dealers may have found a way to resolve the public goods problem and act in their collective interest. To this end, we assemble data on trade association revenues, dues, and expenses spanning 2005-2020 from publicly available tax filings (Form 990s).

Our analysis of industry structure and lobbying begins with an event study approach, focusing

on large acquisitions in the sample of states for which we have lobbying data. We find that larger mergers are associated with an increase in lobbying over a five year horizon. One concern is that this pattern could be driven by a change in the business environment that simultaneously increases the returns to scale and returns to lobbying. We therefore use an observation from the theory behind the collective action challenge: a merger should help resolve the collective action problem of lobbying only if the merging parties operate in the same political markets. Mergers between auto retailers that operate on either side of a political border should realize relatively smaller gains from internalizing the benefits of lobbying the state regulator.

To operationalize this intuition, we construct a state-level measure of “congruence” between each state’s political and product markets. The data confirm that, in more congruent states, mergers meaningfully increase the in-state dealership share of the acquiring firm. In more congruent states, we also find that mergers lead to larger increases in lobbying expenditures. Consistent with theory, mergers have a larger effect when the acquired retailer operates in a product market that does not border another state.

Finally, we provide preliminary evidence on a policy over which auto dealers lobby: the sales tax on new car purchases. We find, in the cross section, that a one standard deviation increase in congruence is associated with a 6% decrease in the sales tax. This suggests that industry structure not only meaningfully increases lobbying, but that it affects real outcomes. In ongoing work, we show how auto dealers organize to prevent entry, in the form of blocking Tesla from selling cars directly to consumers.

The concurrent rise in market concentration and federal lobbying expenditures over the past 20 years makes this a particularly propitious time to re-examine the link between market structure and political influence. Kim (2017) documents that federal lobbying spending has more than doubled in the last 20 years, from under \$2 billion in 2000 to over \$4 billion in 2018. At the same time, De Loecker, Eeckhout and Unger (2020) document a substantial increase in market power in the U.S. between 1980 and 2016. Their findings, along with work by others such as Autor, Dorn, Katz, Patterson and Van Reenan (2020), have sparked an ongoing discussion of whether, and how, increasing markups matter (Berry, Gaynor and Scott Morton, 2019; Ganapati, 2021).

This study contributes to a complementary literature studying the consequences of rising concentration in political rather than product markets. On the theoretical side, Callander, Foarta and Sugaya (2021) develop a model to capture the circularity between market power and political power. The model highlights that a competitive advantage begets political power, but the feedback loop is bounded. This relationship may not be so pronounced in an industry, such as auto retail, where the

majority of players (large and small) lobby together via the trade association. On the empirical side, two recent papers use federal lobbying data to study political influence across industries. Huneus and Kim (2021) focus on the relationship between lobbying and firm size. They calibrate a model with endogenous lobbying and find that lobbying increases a firm’s value added at the expense of aggregate productivity. Cowgill, Prat and Valletti (2022) exploit the timing of large mergers to study the link between lobbying and concentration. They estimate a 30% increase in lobbying expenditures post-merger.

We take a micro approach and investigate one industry, which allows us to exploit variation between the local product and political markets, and to add regulatory outcomes of interest. We also provide new evidence on the role of trade associations, which are prevalent across industries of all sizes and sectors. This contributes to the work of Bombardini and Trebbi (2012) and Pecorino (2001), but is certainly a rich avenue for future research. While most of the media attention on concentration and politics focuses on the tech industry and firms like Facebook or Amazon, our work highlights that industries like auto retail, for which standard measures of concentration are low, can still have sizable political influence.

## 2 Background and Data

### 2.1 Auto Retail in the U.S.

There are over 16,000 new car dealerships in the U.S.. Combined, these dealerships employ about 1.1 million workers at an average annual wage of just under \$80,000 (National Automobile Dealers Association, 2022).<sup>2</sup> The industry accounts for about \$24 billion in state and federal income taxes and \$104 billion in state sales tax. In other words, auto dealers make up 8.5% of retail employment at a relatively higher wage than other retail jobs. Moreover, new car sales make up between 10-20% of sales tax revenue, depending on the state.

Given its relatively large contribution to the state economy, it is perhaps unsurprising that the auto retail industry is influential in state politics.<sup>3</sup> Modern regulations for new car dealerships date to the 1956 Automobile Dealers’ Day in Court Act, which was aimed at protecting small dealerships from large manufacturers. A spate of local regulations accompanied this federal policy, many of which persist today. As an example, franchise laws in many states contain radius requirements,

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<sup>2</sup>According to the National Automobile Dealers Association, which is the trade group at the federal level, the number of jobs created by dealerships is 2.2 million – 1.1 million direct jobs and 1.2 million indirect and induced jobs.

<sup>3</sup>Further, the owners of auto dealerships are prevalent at the top of the income distribution (Smith, Yagan, Zidar and Zwick, 2019).

whereby manufacturers must prove that an additional dealership will not steal business from existing dealers before opening a new dealership within a specified radius. Franchise laws also typically bar manufacturers from running showrooms that sell directly to consumers, a statute that Tesla has sought to overturn with its direct-to-consumer business model. Franchise laws thus comprise a key lobbying issue for new auto dealers hoping to preserve barriers to entry. These franchise laws feature on the webpages of auto dealer trade associations that enumerate key political issues for their constituents.<sup>4</sup>

Outside of franchise laws, issues of interest for dealers include sales taxes and fees, employment and labor laws, incentives for electric vehicles, and consumer finance regulations.<sup>5</sup> The breadth of issues surrounding car dealers motivate our choice of this industry for study. The returns to lobbying here are plausibly large, but evidence on causality is thin (Lafontaine and Scott Morton, 2010).

Another feature of auto retail that is crucial to our study is the geographic segmentation of product markets. As an example, Yavorsky, Honka and Chen (2021) report that the median distance from consumer’s home to selling dealership is 5.2 miles in Texas, and Murry (2017) reports that it is 8 miles in Virginia. This segmentation provides within-industry cross-sectional variation in market structure and lobbying that is absent at the federal level. The misalignment of these local product markets with state political markets is crucial to our identification strategy. Our strategy similar in spirit to (Ansolabehere, Gerber and Snyder, 2001; Moshary, 2020).

In terms of market structure, the auto retail industry is characterized by many small chains, auto groups that own a handful of dealerships. However, the size of the largest auto dealer groups is growing over time. Figure 2 shows the distribution of the number of dealerships owned by the top 100 dealer groups, ranked by reported revenues (WardsAuto, 2021). The top four dealership groups, AutoNation, Penske, Group 1 and Sonic, each have more than 100 dealerships across the country. The majority of auto retailers consist of single or dual establishment firms. Even within the top 100 dealers, size varies substantially. As an example, the auto groups ranked 50-100 own an average of 11 dealerships.<sup>6</sup>

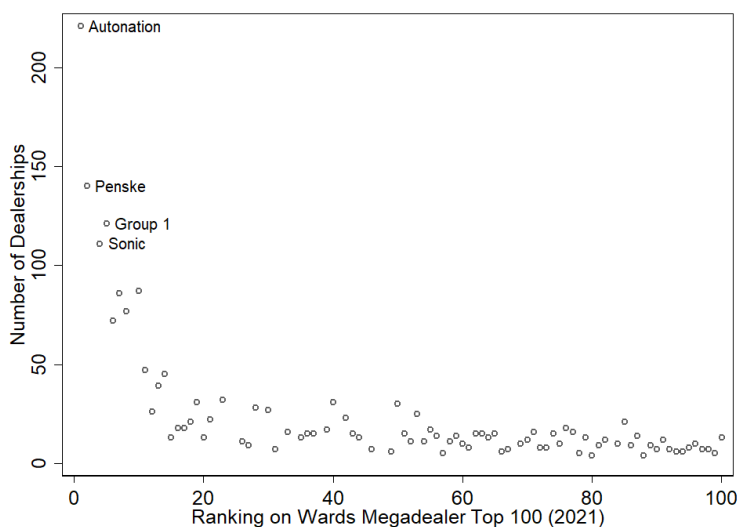
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<sup>4</sup>See Appendix Figure D.2.

<sup>5</sup>In the NY lobbying data clients are required to list the issues they lobby on. The New York State Auto Dealer Association lists “FRANCHISE REFORM, SALES TAX, WARRANTY EXPIRATION, SALES CONTRACTS, AIRBAGS, FUEL LABELS, LEMON LAW, RECALLS, MOTOR VEHICLE REPAIR SHOPS” in one filing and “GREENHOUSE GAS EMISSIONS, REPAIR SHOPS, USED OIL FILTERS, USED AIR BAGS, RIGHT TO REPAIR ACT, FRANCHISE PROGRAMS, AUTOMOBILE BROKER, LIENS, CERTIFICATE OF TITLE, LEMON LAW” in another.

<sup>6</sup>Appendix Figure D.1 shows that the top dealers groups do not differ much in terms of (reported) revenue, when we normalize revenue by total number of dealerships.

Figure 2: Top 100 Auto Dealer Groups: Number of Dealerships



**Notes:** A list of the top 100 auto dealer groups are published by WardsAuto (2021) each year, using self reported revenues data, in the “Megadealer 100.” This figure shows the number of dealerships and ranking.

## 2.2 Data on Political Spending

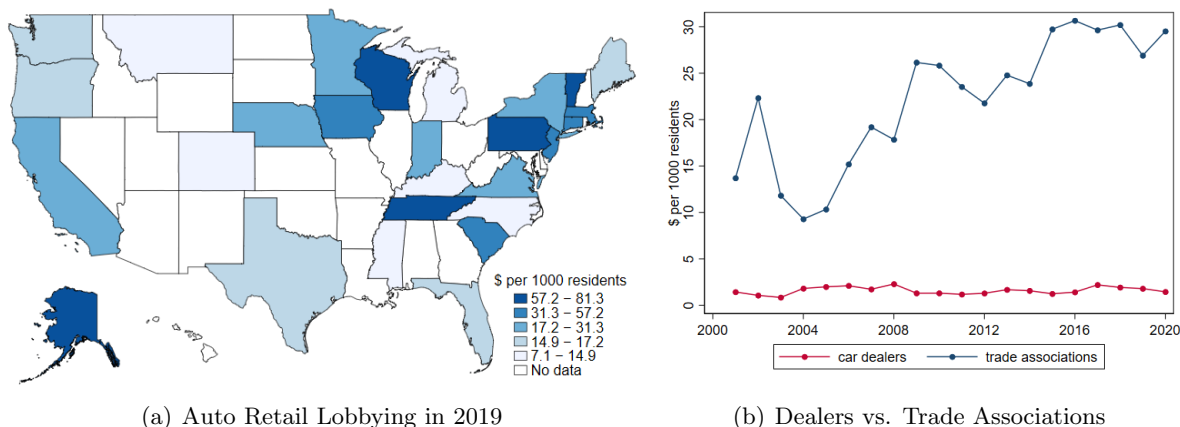
We construct a new data set of state-level lobbying from state-maintained administrative records. We focus on 26 states that mandate reporting on lobbying clients and compensation, for which we observe expenditures by client, state, and year.<sup>7</sup> To give a sense for the magnitude of state lobbying, Appendix Figure B.2(a) plots total federal and state lobbying per capita from 2000-2019. State lobbying is substantial, on average expenditures are about 50% of federal lobbying. There is considerable variation across states. In New York lobbying per capita is at the same level as the federal lobbying, if not higher (Appendix Figure B.2(b)).

Automobile dealers are ranked 72nd in industry lobbying (of 308 industries).<sup>8</sup> Figure 3(a) shows auto dealer lobbying per capita in 2019. Expenditures do not follow a clear geographic pattern; as an example, adjacent states Wisconsin and Michigan have relatively high and low levels of per capita lobbying. It is also clear that auto dealer associations play an important role in lobbying. Figure 3(b) shows that trade associations spent more than all car dealers combined every year between 2000 and 2019. Trade associations make up 90% of total auto dealer lobbying over the sample period. In many states we do not observe any lobbying expenditures by individual dealer groups; in these states, all spending is attributed to the trade association.

<sup>7</sup>Appendix Figure B.1(a) displays a map of the states with data, and Figure B.1(b) displays availability over time.

<sup>8</sup>See Appendix Table B.1. This is similar to their federal ranking of 79 (Appendix Table A.1). Appendix Figure B.3 shows that state and federal auto dealer lobbying per capita is remarkably similar over the sample – growing five-fold between 2001 and 2018.

Figure 3: Per Capita Auto Retail Lobbying



**Notes:** The figure on the left shows per capita auto dealer lobbying by state, and the figure on the right shows the sample average broken out by individual auto groups and auto dealer trade associations. Note here that the sample of states is growing over time. Data on lobbying collected by the authors.

We find that ADA dominance in the political arena extends to campaign contributions. Appendix Table B.4 lists the top ten contributors to state legislature races between 2011 and 2020. Nine are ADAs in large states, and one is a large firm that owns a distribution company. The ADAs make up about 60% of total contribution dollars. In Appendix Section B.1 we compare the relative magnitude of lobbying and campaign contributions. Lobbying spending dominates contribution spending; ADAs spend almost 10 times more on lobbying than on contributions to state level campaigns. Therefore, we focus on lobbying as the political influence level.

### 2.3 Data on Automobile Dealer Associations (ADAs)

In order to understand how market structure would affect lobbying in this setting where most firms coordinate political spending, we need to understand how trade associations raise money and make decisions about issues and lobbying. This is a tall order, given that trade associations do not publish meeting minutes or annual reports. However, we are able to learn important facts from their webpages and the Form 990s they submit to the IRS to maintain non-profit status.

All 50 states have at least one trade association, and larger states tend to have a state level associations and multiple local groups.<sup>9</sup> The trade associations mostly predate the franchise laws that govern the dealer-manufacturer relationship at the state level, in fact they were instrumental in getting these laws passed.<sup>10,11</sup> The stated mission of the ADA is to “improve” or “promote”

<sup>9</sup>For example, Texas has a total of 7 ADAs, while California and New York both have 5.

<sup>10</sup>See Lafontaine and Scott Morton (2010) for more on the auto dealer franchise laws.

<sup>11</sup>The average year that a state ADA was founded was 1934, but new groups are still introduced, the most recent being the North Texas ADA in 2010. The Niagara Frontier Automobile Dealers Association is the oldest that we know



the auto industry in the area. For example, from Texas: “TADA is committed to promoting and maintaining a competitive auto industry in Texas while protecting the communities our members serve.” Besides lobbying, the trade associations organize conferences and member education programs, provide guidance on state regulations, and assist with other small business issues, such as employee insurance plans.

To understand the composition of ADAs, we collect data on membership directly from their websites (where available). Appendix Table D.1 reports the number of members in each ADA relative to the total count of auto dealers in the corresponding state. For the sample with membership data, we estimate that over 80% of dealers are members of their state ADA. This membership typically includes the largest dealer groups. For example, AutoNation is a member of the AADA (Arizona) and IADA (Illinois), where it owns ten and six dealerships respectively. They are also represented on the board of directors. For example, Penske has the largest number of dealerships in CA as of 2019 (38 dealerships). The owner of a Penske dealership, Mark Maxwell, is the president of the Silicon Valley Auto Dealers Association.<sup>12</sup>

The board of directors is important because it makes decisions for the ADA. Member dealers vote for the board of directors, but, as far as we can tell, the directors make decisions without further voting from the members. This is laid out explicitly in the Texas Automobile Dealer Association’s form 990: “Members may elect one or more members of the governing body. Decisions of the governing body are not subject to member approval.” The board can be fairly large, with representatives from each region. In Pennsylvania the board can have up to 45 members.<sup>13</sup> Given the size of the board, and potential diversity of legislative issues, coordinating on lobbying spending and target issues might still be difficult.

The primary way that most trade associations raise revenue is through member dues.<sup>14</sup> We have data on total revenue, member dues, and expenses for each trade association that we observe lobbying in the state lobbying data. Total dues collected is tightly correlated to market size; Figure 4 shows the binned scatter plot of dues collected vs number of dealerships in the state. A 10% increase in

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of, and was founded in 1903.

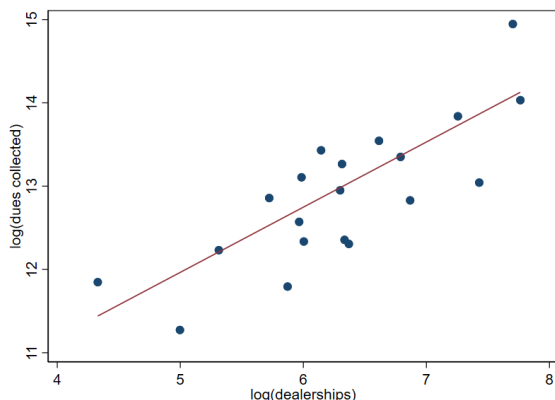
<sup>12</sup>As another example, the top three parent companies in Alaska are Lithia, Kendall, and Continental. The board of directors of AKADA includes Marten Martensen, President, from Continental Auto Group, Tim Toth, from Kendall, and Dennis Trent, from Lithia.

<sup>13</sup>From the Pennsylvania Automotive Association: “The board is comprised of 15 to 45 directors who must be a principal or hold an ownership interest in a “franchised member.” Five “directors at large” are the president of the greater Pittsburgh ADA, the president of the ADA of greater Philadelphia, the two NADA directors representing eastern and western Pennsylvania, and the chair. ... The remainder of the board is elected by a majority vote cast by the franchised members whose dealerships are located in their respective areas as designated by the executive committee of the board.”

<sup>14</sup>Trade associations also collect revenues from auto shows, member education programs, and conferences/conventions. That being said, they also incur expenses from these other activities.

number of dealerships is associated with a 7.8% increase in total dues collected. The average ADA in our sample collected \$490,000 in dues in 2019 and had a total revenue of \$1.43 million.<sup>15</sup>

Figure 4: State Dealerships and ADA Member Dues (2019)



**Notes:** This is a binned scatter plot of  $\log(\text{ADA member dues collection } \$)$  and  $\log(\text{number of dealerships})$ , at the state level, in 2019. The number of dealerships in the state comes from the Infogroup Historical Business database. The member dues are collected by the authors from Form 990s. If the state has multiple ADAs we take the sum.

One mechanism for ADA political spending increasing post-merger is that the merger increases coordination within the trade association, and the merging parties now vote together or are able to influence the agenda-setting of the group. Another is that the ADA is able to raise more dues for political spending, either by increasing member dues or attracting more dealerships to join.<sup>16</sup> If smaller dealerships are more likely to free ride, increasing member dues but also increasing side payments in the form of other member benefits may be one way to finance an increase in lobbying. Lastly, members can always contribute above and beyond the required dues. Many ADAs give special recognition for additional contributions. Therefore, a member dealer can make additional contributions to the ADA, earmarked for lobbying efforts.

## 2.4 Data on Market Structure

We match the lobbying data by client name to Infogroup data on auto dealership locations and ownership. We validate the Infogroup data using administrative data provided by the Departments of Motor Vehicles in Texas, Connecticut, and Florida. The Infogroup data allows us to identify

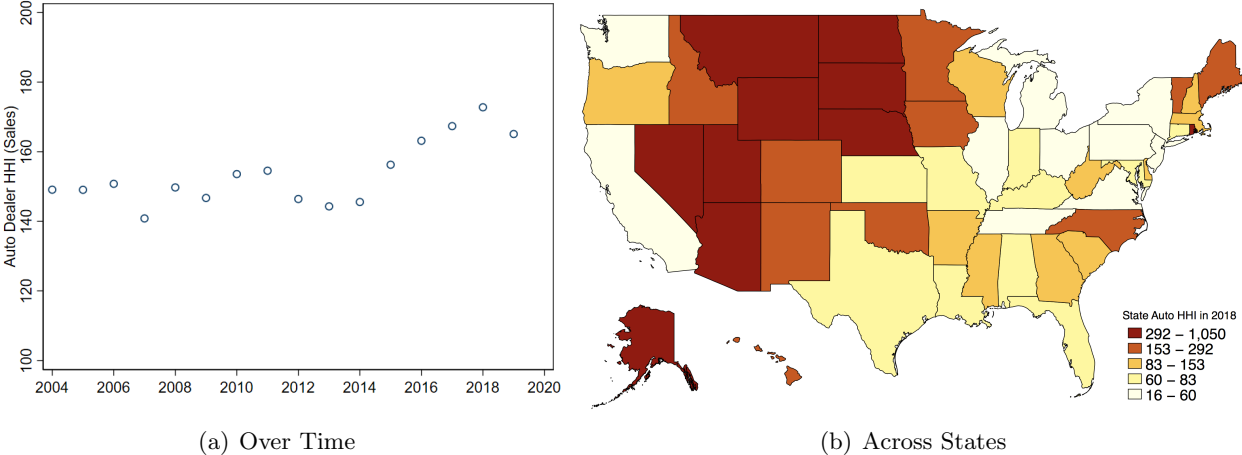
<sup>15</sup>This excludes a couple of ADAs that collect the majority of their revenue from auto shows, or title registration.

<sup>16</sup>There is certainly variation across states in the dues schedule. TADA received \$2.8M in membership dues in 2019. At 1,400 members this would work out to approximately \$2,000 per member. For PAA, collected dues of \$875,000 and have 877 members, for about \$1,000 per member.<sup>17</sup> We have the dues schedule for 11 ADAs (Figure D.3(b)). Average dues for a dealership that sells 500 cars is \$915, ranging from \$250 in Louisiana to over \$1200 in Idaho, California, and Kentucky. This increases to \$350 in LA, and over \$1500 in Wisconsin and California once a dealership sells 750 cars.

mergers and construct measures of market structure and concentration at the state level, such as the number of retail branches, parent companies, HHI, and CR4. The Infogroup data reveals that ownership is diffuse in the new car industry, well below levels that trigger regulatory scrutiny. Figure 5 shows concentration, measured by state level HHI, across the United States.

We focus on state level HHI because we are interested in concentration in the political market, which, for our purposes, is at the state level. The HHI will certainly be higher at the product market, as the industry is characterized by many small local chains. This disconnect between product and political market will help us to identify the effect of market structure on political activity.

Figure 5: Concentration at the State Level



**Notes:** State level HHI calculated using sales data from the Infogroup Historical Business data set. See Figure D.5 for measures of market structure using dealership counts and multi-establishment owners.

## 2.5 Theoretical Framework

This section presents a simple model of lobbying over sales tax rates to illustrate the way that mergers can affect lobbying. Consider two auto dealers, A and B, that compete in a single product market for new cars. The market is fragmented so that the firms are located on opposite sides of a state border, states  $i \in \{1, 2\}$ . Let  $q_{ij}$  denote the residual demand for firm  $j$  from state  $i$ . We assume that total industry lobbying  $L = \sum_j l_j$  reduces sales taxes with the following specification:  $\tau(L) = \frac{1}{1+L}$ . We can solve for the optimal lobbying of firms A and B:

$$\pi_j = p_j \left( q_{1j} \cdot \frac{L_1}{1 + L_1} + q_{2j} \cdot \frac{L_2}{1 + L_2} \right) - (q_{1j} + q_{2j})C - l_{1j} - l_{2j}$$

$$\text{FOC: } l_{1j}^* = \sqrt{r_{1j}} - 1 - l_{1k}$$

$$l_{2j}^* = \sqrt{r_{2j}} - 1 - l_{2k}$$

In the symmetric and asymmetric Nash equilibria, equilibrium industry lobbying in each state is a function of revenue,  $L_i^D = \sqrt{\max\{r_{ij}, r_{ik}\}} - 1$ . First, we see that if the two firms merge, then the joint firm's optimal lobbying is  $L_i^M = \sqrt{r_i^m} - 1$ . That is, so long as the monopolist earns higher revenue than the duopolist on a per-firm basis, then merging increases industry lobbying. We will test whether this prediction of the model holds in the state lobbying data.

Second, we note that the increase in lobbying is proportional to

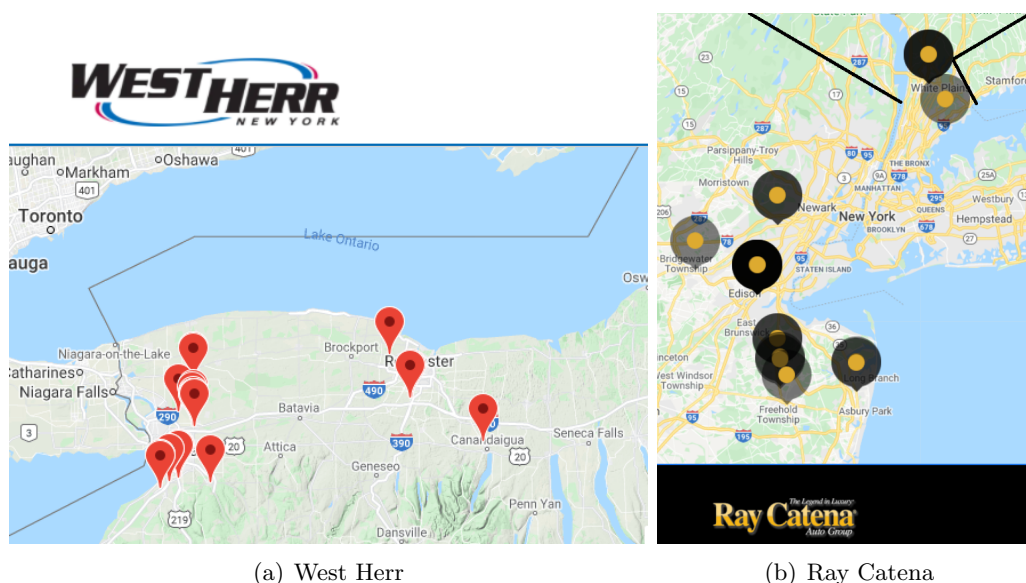
$$\frac{L_1^M}{L_1^D} = \frac{\sqrt{r_1^m} - 1}{\sqrt{\max\{r_{1j}, r_{1k}\}} - 1}, \quad (1)$$

which shows how asymmetries across the border matter for lobbying: Equation 1 decreases in the asymmetry in revenues in market 1. If only firm A sold cars to consumers in market 1, then a merger with firm B would not lead to an increase in lobbying in state 1. If anything, we would expect a decline in state lobbying if the monopolist increased prices, thus reducing revenues.

The price and size effect of the merger is all baked into the revenue term,  $r$ . We can call this the revenue effect. In short, if dealers A and B merge within a political market we would expect to see the effects of both the public good and revenue effect. If A and B merge across political markets they do not solve the public goods problem, and equilibrium lobbying only is affected by the revenue effect.

This simple model illustrates how the misalignment of state and product market borders generates differences in equilibrium levels of lobbying holding demand and cost functions fixed. Figure 6 provides real-world example of two auto groups, one in a cohesive product market (West Herr, panel a) and one in a fragmented market (Ray Catena, panel b). West Herr operates several dealerships in in upstate New York, and likely faces limited demand from buyers across the border in Canada. In contrast, Ray Catena dealerships are clustered in the New York Tri-State area, straddling New York, New Jersey, and Connecticut. To give a sense for the variation in the congruence of political and product markets across the country, Figure 11(a) highlights CBSAs (core-based statistical areas, determined by the Census) that straddle two or more states. We will leverage this variation in our empirical analyses.

Figure 6: (Mis)Alignment of Product and Political Markets



**Notes:** This figure shows the dealer network for two auto dealer groups, West Herr and Ray Catena. The screenshots are sourced from the dealer webpages (<https://www.westherr.com/locations/> and <https://www.raycatena.com/dealerships/>).

### 2.5.1 Considering Trade Associations

We note that the simple model presented above omits trade associations, which account for the lion's share of lobbying expenditures. One possibility is that trade associations successfully resolve the collective action problem, so that equilibrium lobbying is invariant to political boundaries.<sup>18</sup> This possibility adds further motivation to our empirical exercise; the theory offers ambiguous predictions about whether market structure matters given the presence of organizations that can coordinate political activity in a way that is prohibited for coordinating other firm activities, such as pricing or wage-setting.

Our investigation into the internal organization of the trade associations in Section 2.3 hints that there may still be coordination gains arising from a merger. First, larger dealer groups may be more likely to be on the board of directors and have more agenda setting power, determining how the ADA's resources are distributed between activities (lobbying, political contributions, conferences, marketing, etc). Second, as the board of directors is often large, having more aligned directors may also lead to more agreement about the agenda and resources. The board of directors can also decide to increase dues, increasing available resources for the ADA to lobby with. Third, dealers that would benefit more from lobbying can contribute directly to increase the available lobbying funds.

<sup>18</sup>For more on the role of trade associations in industry lobbying see Bombardini and Trebbi (2012) and Pecorino (2001).

Therefore, in this industry where political spending is dominated by trade associations, it is an open question whether and to what extent a merger would mitigate the public goods problem and lead to an increase in lobbying.

### 3 Analysis

#### 3.1 Event Study Analysis

Our main analysis considers how lobbying activities change in response to mergers of large auto groups. One might be concerned about three incentives for lobbying before and after acquisitions. First, there is coordination in the political market. Here, a merged firm is going to internalize more of the lobbying benefit, as we highlighted in the toy model. Second, there is coordination in the product market. If a merged firm can raise prices this will change their incentive to lobby over regulation. Third, there may be lobbying over the merger *per se*. We think this third channel is unlikely given the low concentration in auto retail—these mergers are not under regulatory scrutiny.

Our baseline analysis is going to measure the effect of the merger as a whole—so we will have the effect of the coordination in both the political and the product market. We then compare mergers that occur in more versus less politically congruent product markets, in order to isolate the political channel.

The first step in this analysis is identifying a set of mergers. We detail the sample construction below.

#### Defining Events

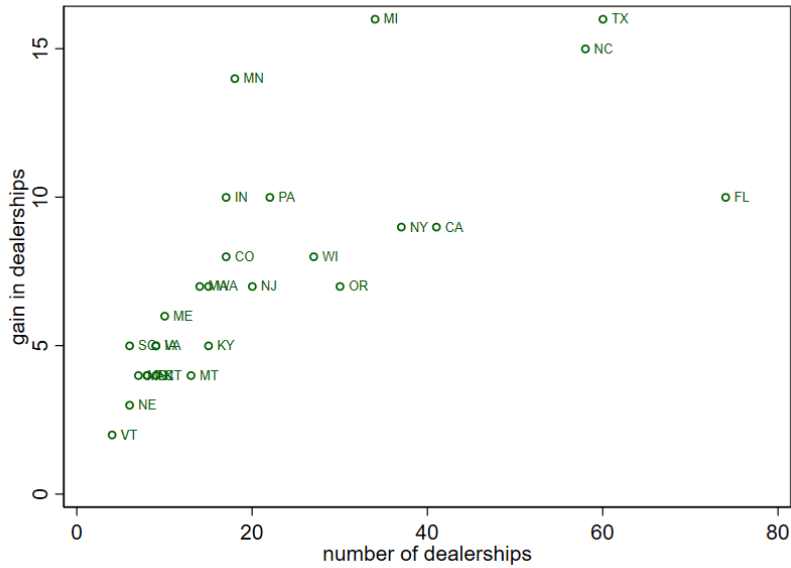
The auto retail industry is characterized by many small acquisitions rather than a few large merger events. Even the largest publicly traded firms will release press releases about the acquisition of a single dealership. However, because most of the auto groups are privately held we cannot rely on press releases or annual reports to define events. Instead, for each state where we have lobbying data, we define an “event” to be the largest year-to-year dealership increase. Because the acquisition takes some time to show up in the Infogroup data, we assign the event year as the year before the increase is observed in Infogroup.<sup>19,20</sup>

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<sup>19</sup>We know this from hand-checking Infogroup “events” with press releases for the publicly traded firms.

<sup>20</sup>If multiple dealer-years with the same size increase, we take the first one that occurs as the event in the baseline. For robustness we also run the analysis but use the last event in each state’s sample instead of the first, this does not change our results. See Appendix Figure D.5 for the distribution of establishments with multi-establishment and multi-state parents, across the sample period.

Figure 7: Sample Events



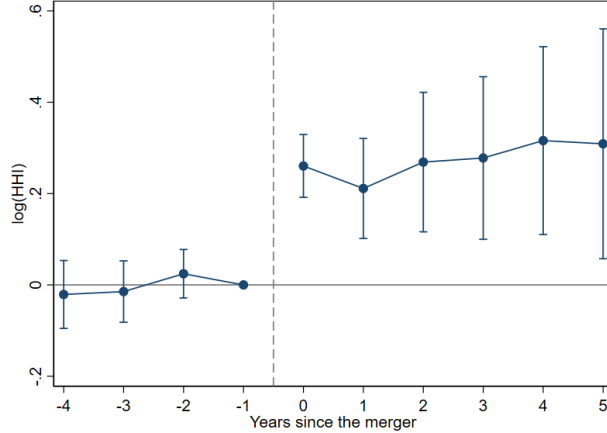
**Notes:** This figure shows the distribution of the size of the event and the number of dealerships that the acquiring parent has in the state after the event is realized. Ownership structure constructed using the Infogroup Historical Business database.

Figure 7 shows the distribution of the size of the event and the number of dealerships that group owns in the state at the time of the event. The average event in the sample comprises an acquisition of 7.5 dealerships (the median is 7).<sup>21</sup> The average year-to-year dealership change for a parent company is 0. Appendix Figure D.6 shows the distribution of changes, compared with the event changes.

The parent firms in these acquisition events include some of the usual suspects: AutoNation is the acquiring party in 6 states and Lithia in 4. However, there are also smaller chains that primarily operate in one or two states, for example the Cochran group in PA, or the Zimbrick group in Wisconsin, that acquired 10 and 8 dealerships respectively in their events. The sample events are followed by a 20% increase in state-level HHI (Figure 8), suggesting they reflect a meaningful change in state-level market structure. On average, state HHI, as measured by number of dealerships, increases from 70 to 85 post-merger.

<sup>21</sup>We have 27 events, for the 27 states with lobbying data. However, the event for 4 states occurs before we have lobbying data. Therefore, for those states we do not have pre and post period lobbying, and they serve as controls.

Figure 8: State-Level HHI by Event Time



**Notes:** These figures show the point estimates and confidence intervals for the estimates of  $\beta_j$ , from Equation 2, using  $\log(\text{HHI})$  as an outcome instead of lobbying. This is the standard two-way fixed effects event study, with standard errors clustered at the state level. We measure HHI using the number of dealerships a parent auto group owns in the state. The average HHI in the lobbying sample is 70.

## Baseline Results

As a baseline, we estimate a standard panel event-study where the events are the largest acquisitions in the state over the sample period. The specification is as follows:

$$y_{st} = \alpha + \sum_{j=2}^J \beta_j \mathbb{1}[t = \text{Event}_s - j]_{st} + \sum_{k=1}^K \gamma_k \mathbb{1}[t = \text{Event}_s + k]_{st} + \mu_s + \lambda_t + \epsilon_{st}. \quad (2)$$

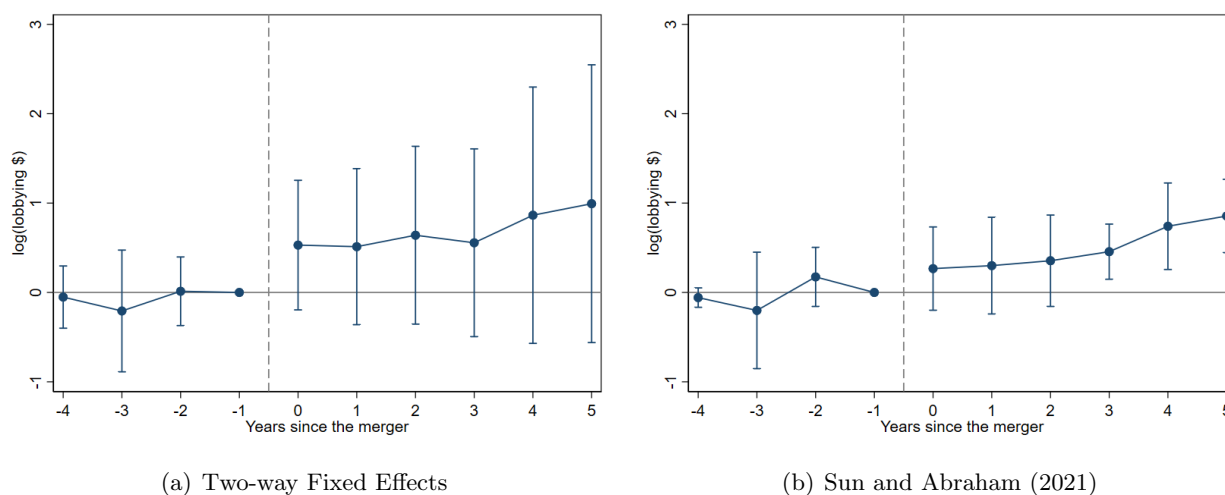
The primary outcome of interest,  $y_{st}$  is  $\log(\text{lobbying})$  in state  $s$  and time  $t$ . Lobbying is the sum of the trade association in that state plus any lobbying by the acquiring or acquired party in the event. This accounts for over 90% of all auto retail lobbying over the sample, which is not surprising, given the trade associations make up 95% of the expenditures. Average annual lobbying is \$215,000 per state and the median is \$124,000 but this ranges from \$7,000 to \$1,800,000 depending on the state and year.<sup>22</sup> State and time fixed effects are included as  $\mu_s$  and  $\lambda_t$ , and the lags and leads are binary variables indicating that the state is a given number of periods away from the event in that time period.

Figure 9(a) shows the baseline results. Lobbying increases by about 50% in the event year, and continues to increase. The average effect in the post-merger period is 0.68.

<sup>22</sup>When a state is not observed lobbying in a year we impute the level as \$500, which is the minimum reportable threshold for lobbying activity in most states.



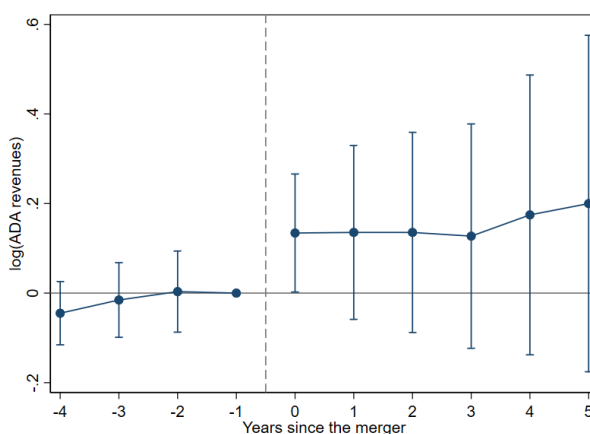
Figure 9: Baseline Results: Lobbying Pre and Post Merger



**Notes:** The figure on the left show the point estimates and confidence intervals for the estimates of  $\beta_j$ , from Equation 2. The outcome of interest is trade association and merging parties lobbying expenditures. For the majority of the sample only the trade association lobbies. The figure on the right uses the Sun and Abraham (2021) event study methodology.

A concern is that if we have staggered roll-out and dynamic or heterogeneous treatment effects, comparing late mergers to early mergers will bias our estimates of  $\gamma$  and  $\beta$ . Figure 9(b) shows results using the Sun and Abraham (2021) methods in order to avoid the problematic type of comparisons flagged by Goodman-Bacon (2021). The results are consistent, with tighter confidence intervals. Our sample size is small, but the results suggest a 50-65% increase in lobbying in the post-merger period. For the average state, this amounts to over \$120,000, roughly the cost of hiring one additional lobbyist.

Figure 10: Financing: Trade Association Revenues Pre and Post Merger



**Notes:** This figure shows the point estimates and confidence intervals for the estimates of  $\beta_j$ , from Equation 2. The outcome of interest is log(trade association revenues) instead of log(lobbying).

Figure 10 shows that the trade associations revenue also increases post-merger, though the estimates are noisy. In the aggregate this is a statistically significant increase of 11% (a coefficient of 0.11

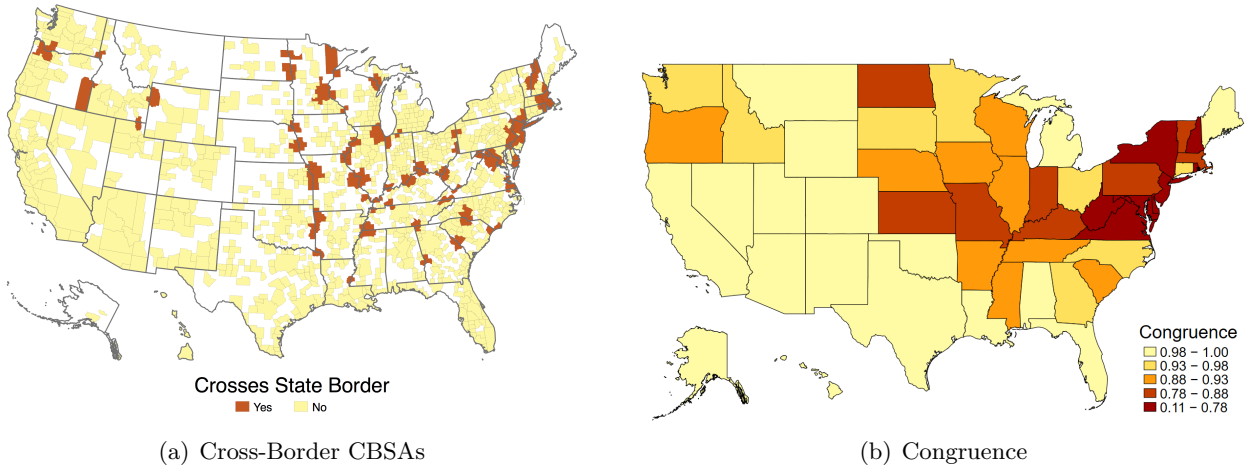
with a standard error of 0.06). Given the average revenues of the ADAs in our sample, this amounts to an increase of about \$157,000. This suggests that the trade associations are raising revenue as the market structure in the state changes, and the increase in revenue is consistent with the increase in lobbying post-merger.

### 3.2 Event Study $\times$ Congruence

The toy model predicts that mergers that occur within a state will lead to larger increases in lobbying than those that occur across states, all else equal. This is because the within-state merger will help to internalize the public good feature of lobbying, while the cross-state merger will not. Therefore, we would like to compare acquisitions within and across states. We operationalize this in two ways: first, we construct a state-level measure of *congruence* between political and product markets; and second, we construct a measure of whether the acquired establishments are located in markets that cross a border.

Our first measure, state congruence, is a weighted average across product markets (CBSAs) of the share of in-state consumers in that CBSA. Let  $m$  denote product market and  $s$  denote state  $s$ , then congruence is  $f_{st} = \sum_{m \in s} s_{m \in s} \times w_{ms}$  where  $s_{m \in s}$  is the share of consumers in market  $m$  that reside in state  $s$  and  $w_{ms}$  is the share of the population in state  $s$  that reside in market  $m$ . Intuitively, this measure captures the probability that a firm acquiring an additional dealership at random within product market is in the same state (political market). If all product markets are contained within the state then  $f_{st} = 1$ . Figure 11(b) shows the geographic distribution of state congruence.

Figure 11: Building Congruence Instrument: Product Markets & State Borders



**Notes:** The map on the left shows the CBSAs that cross state borders in orange, and the CBSAs that do not share a border in yellow. The map on the right shows the congruence measure for each state. A darker red denotes a lower congruence, while light yellow states are entirely congruent (have no cross-border CBSAs).

We explore heterogeneity by the congruence of the state. A merger in a more congruent state should involve a more meaningful change in the in-state dealership share of the acquiring firm and therefore have a larger effect on lobbying. Column (2) shows that the data bears out this prediction. In the sample of events average congruence is high, at 0.90, with a standard deviation of 0.12. A state at the 10th percentile of congruence, New York (0.77), is expected to increase lobbying by 40% post-merger. A state at the 90th percentile of congruence, Texas (1.00), is expected to increase lobbying by 93% post-merger. More simply, when we use a dummy for the state having a congruence greater than 0.90, as shown in Column (3), we can see that all of the effect is driven by the most congruent states.<sup>23</sup>

Table 1: Heterogeneous Effects

	(1)	(2)	(3)	(4)
Post	0.66**	-1.31	0.06	0.74*
	(0.31)	(1.22)	(0.50)	(0.36)
Post × Congruence		2.24+		
		(1.39)		
Post × Congruence Dummy			0.86+	
			(0.57)	
Post × Border Exposure				-0.73
				(0.75)
Observations	188	188	188	188
R-squared	0.79	0.79	0.80	0.79

**Notes:** This table shows the results for the event study analysis, where Post =1 for the event year and all years after. The sample is restricted to 4 years before and after the event. States where we only observe lobbying post event (VA, IA, WA, AK, MS) are included as controls. The outcome variable is log(lobbying \$). State and year fixed effects included in each specification. Standard errors clustered by state.

We also investigate the effect of acquisitions that occur along a state border. Dealerships that are acquired in a product market that shares a border with another state likely have a customer base that includes out-of-state individuals. This reduces the return to lobbying in the home state because many policy changes in the home state will not apply to all of the customers (e.g., sales tax policies). Essentially, this acquisition does not solve the public goods problem to the same extent of a similar merger in a product market entirely contained within the state. We create a “border exposure” measure which ranges from 0 to 1— a value of 1 would represent an acquisition where all of the dealerships acquired are located in border CBSAs.<sup>24</sup> Column (4) shows the results. We find that the sign is as predicted; the more acquired dealerships that are along the border the smaller the lobbying effect.

<sup>23</sup>This is not driven by acquisitions of large parents. Figure D.7(b) and (c) show that congruence is not strongly correlated with parent size or share in-state.

<sup>24</sup>See Figure 11(a) for the map of border CBSAs.

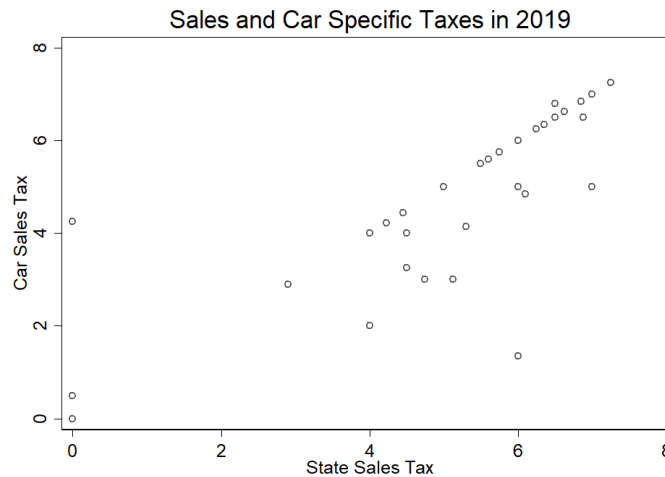
## 4 Concentration and State Policy

Our analysis indicates that mergers in the auto retail industry lead to increases in lobbying expenditures. By revealed preference, the increase in lobbying must bring value to auto dealers, but its implications for other market participants is unclear and depends, in part, on the extent to which lobbying affects policy. We study one potential policy outcome of interest in the auto retail industry: sales taxes and exemptions for new car purchases.

### 4.1 Data on Taxes

We have data on standard state sales taxes from 2013 to 2019 from the Tax Foundation and data on motor vehicle tax rates from 2013 to 2019 from “F&I Tools”.<sup>25</sup> This data does not include any local sales taxes. Figure 12 shows that in the majority of states the sales tax on a new vehicle purchase is the same as the normal sales tax, with the exception of 11 states that have some type of exemption for auto purchases, and 3 states that have an additional tax for autos.<sup>26</sup> The average car sales tax in 2019 is 4.8% and the average standard sales tax is 5.1%.

Figure 12: Sales and Car Taxes Across States



**Notes:** This figure shows the state level sales tax and the state level car specific sales tax, in 2019. For the majority of states, the two tax rates are equivalent. However, for many states the sales tax on new car purchases is lower than the general sales tax.

<sup>25</sup>See <https://www.factorywarrantylist.com/car-tax-by-state.html>.

<sup>26</sup>We do not yet have data on property taxes on automobiles, which are levied in some states.

## 4.2 Preliminary Results

Policy change is slow, and tax rates do not change often, so given our short panel on taxes we rely on cross-sectional variation to link the car tax and concentration. We estimate the following equation:

$$\text{car tax}_{st} = \alpha + \gamma f_{st} + \rho X_{st} + \mu_t + \epsilon_{st},$$

where  $f_{st}$  is our measure of congruence. The specification includes year fixed effects, and controls for state population, standard sales tax, and whether or not the state has any sales tax. Table 2 shows the correlation between state congruence and the car tax. A one standard deviation in congruence (0.14) leads to a 0.3 percentage point (6%) decrease in the car sales tax.

Table 2: Congruence and Car Taxes

	Car Tax	Car Tax	Car - Sales Tax
Congruence	-1.525 (1.676)	-2.210 <sup>+</sup> (1.254)	-2.202 <sup>+</sup> (1.214)
<i>Controls :</i>			
Log Pop	Yes	Yes	Yes
Year	Yes	Yes	Yes
No Sales Tax Indicator	No	Yes	Yes
Sales Tax	No	Yes	No
Obs	350	350	350

**Notes:** This table shows the correlation between state taxes on new car purchases and state level congruence.

## 5 Conclusion

There is an ongoing debate on the relationship between market structure and political influence. Do large firms wield undue political power? While most of the media attention on concentration and politics focuses on the tech industry and firms like Facebook or Amazon, we find that mergers in the auto retail industry, an industry with HHIs far below the interest of most regulators, still have a meaningful effect on political activities. We find this effect is largest for mergers that occur in states where political and product markets are aligned, which we refer to as *congruent* markets. Moreover, we find that more congruent markets are associated with more favorable outcomes for the industry in the form of lower sales taxes on new car purchases.

In ongoing work we study another policy of interest to the auto dealers—Tesla’s ability to sell directly to consumers in that state. This seems to be one of the most pressing issues in recent years. There is certainly significant variation in Tesla’s success across states: only twelve states allow unrestricted direct-to-consumer sales as of 2022, and the dates of the law changes that allowed this

entry range from 2013 to 2020. We see that auto dealer political spending increases as soon as Tesla attempts to enter a state, and remains high after entry (successful or not). This reflects the fact that even after Tesla successfully opens a store in a state there is an active dispute over further store openings or other types of restrictions.<sup>27</sup> Auto dealer associations seem to be using their significant political influence to erect, or maintain, barriers to entry.

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<sup>27</sup>To get a sense of this contentious policy space, consider New Jersey. In 2013 Tesla receives 2 licenses to open dealerships in NJ, only to be banned in 2014. Then, in 2015, Governor Christie reverses the ban and allows 4 stores. In 2018 the legislature proposes a bill to increase the number of Tesla dealerships allowed, which fails. In 2019 the trade association (NJADA) sues Tesla.

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## A Federal Lobbying

We complement our study of the automobile market by establishing a few facts about lobbying at the national level. In this section we will go through the data sources we use for the national level analysis, and then present some evidence using this data. First, we show a weak positive correlation between lobbying and concentration across industries. Second, we show that industries that become more concentrated between 2002-2017 see increases in lobbying expenditures. We find that a 10 percentage point increase in the industry concentration ratio is associated with a 14% increase in lobbying expenditures. This correlation is strongest in the retail and wholesale trade industries, where a 10 percentage point increase in industry concentration is associated with a 38% increase in lobbying expenditures.

### A.1 Data

We have data on federal level lobbying from 2000 to 2018 from LobbyView (Kim, 2017). Kim (2017) cleans reports filed under the Lobbying Disclosure Act of 1995, creating a data set that includes each client’s primary NAICS code and total lobbying expenses, by quarter. Table A.1 shows the top 10 lobbying industries at the federal level, and their total expenditures over the sample, as well as their average expenditures per year. The automobile retail industry is ranked 79th of over 300 industries, spending about \$5.4 million per year.<sup>28</sup> This is less than the mean annual industry lobbying, but substantially larger than the median (Table A.2).

Table A.1: Federal Lobbying by Industry

<i>NAICS</i>	<i>Code</i>	<i>Lobbying (\$M)</i>	
		<i>Total</i>	<i>Mean</i>
1 Business, Professional, Labor, Political, and Similar Organizations	8139	5,978.9	298.9
2 Pharmaceutical and Medicine Manufacturing	3254	3,208.7	160.4
3 Depository Credit Intermediation	5221	2,489.2	124.5
4 Insurance Carriers	5241	2,011.9	100.6
5 Electric Power Generation, Transmission and Distribution	2211	1,826.1	91.3
6 Aerospace Product and Parts Manufacturing	3364	1,805.8	90.3
7 Wired and Wireless Telecommunications Carriers	5173	1,077.6	53.9
8 Other Information Services	5191	1,017.1	50.9
9 Petroleum and Coal Products Manufacturing	3241	957.7	47.9
10 Social Advocacy Organizations	8133	957.4	47.9
79 Automobile Dealers	4411	108.0	5.4

<sup>28</sup>Pharmaceuticals, on the other hand, spend north of \$160 million per year, and \$3 billion over the last 20 years. One difficulty with this data set is that many of the trade associations will be affiliated with NAICS code 8139, instead of the industry that they are affiliated with. To the extent that there are trade associations lobbying on the behalf of the pharmaceutical industry, \$3.2 billion will be an underestimate of that industry’s political spending.



Data on industry concentration over the same period come from two sources. The first is the Economic Census. The Economic Census publishes CR4s by NAICS every 5 years, we have 2002 through 2019. The second is the Infogroup Historical Business data set, which is published annually, and we use to compute industry CR4s with the reported sales variable.

There are 285 unique industries (at the 4 digit NAICS level) in the Economic Census, and 75% of these industries are in the Census each year it is published (2002, 2007, 2012 and 2017). There are 311 unique industries in the Infogroup data, and 96% of those industries have establishment and sales data we can use to calculate a CR4 in each year. Table A.2 shows the mean and median industry CR4 over the sample period, as well as the mean annual lobbying by industry.

Table A.2: Industry Concentration and Lobbying

	Mean	Median	SD	N
CR4 (Census)	0.25	0.21	0.18	1,017
CR4 (Infogroup)	0.21	0.13	0.21	4,903
Annual Lobbying (\$M)	7.73	1.10	24.52	5,422
Conditional on Lobbying > 0	9.37	1.77	26.71	4,473

**Notes:** This table shows the distribution of industry CR4 and annual lobbying at the federal level.

## A.2 Analysis

This section describes patterns in the federal lobbying data that motivate the auto case study below. Our ultimate interest is in estimating the causal effect of industry structure on lobbying expenditures:

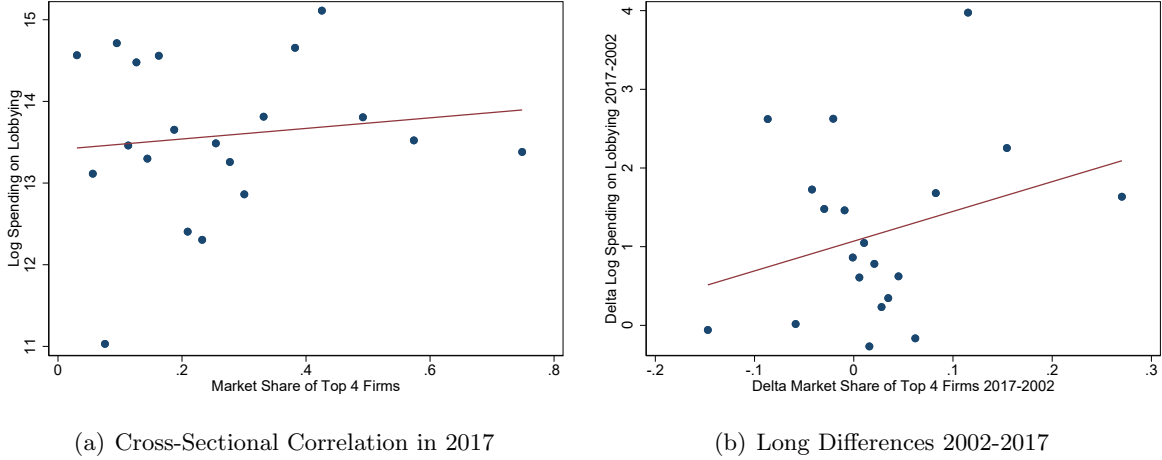
$$L_i = \alpha + \beta S_i + \epsilon_I \quad (3)$$

where  $L_i$  denotes total lobbying expenditures in industry  $i$  and  $S_i$  is a measure of industry structure, such as the number of firms or a concentration ratio.

Figure A.1(a) presents the graphical analogue of this target regression: a binned scatterplot of 2017 log federal lobbying expenditures against the CR4, the concentration ratio of the largest four firms in an industry (where an industry is defined as a 4-digit NAICS code). There is a weak, positive correlation between these two variables, but it is unlikely to reflect the true causal effect of interest. First, industries with higher concentration and higher lobbying may differ systematically (e.g., industries with externalities). One strategy for addressing potential omitted variable bias is to focus on within-industry changes in concentration. We therefore augment specification (1) to accommodate data from 2002-2017 and a set of industry fixed effects, which control for time-invariant factors that might affect both concentration and lobbying. Figure A.1(b) shows the correlation between changes in concentration and changes in lobbying expenditures; the positive correlation becomes more pronounced. Table A.3 presents the regressions that correspond to these figures.

While suggestive, these panel regressions raise two concerns: first, industry fixed effects do not control for omitted factors that vary over time—for instance, changes in international trade could simultaneously affect lobbying and concentration; second, reverse causality remains a concern, that is, the possibility that lobbying itself entrenches large firms. We therefore turn to a study of new car dealerships that allows us to leverage institutional details to mitigate these endogeneity concerns.

Figure A.1: National Industry Concentration and Federal Lobbying



**Notes:** Binned scatter plots based on CR4 data from the 2002 and 2017 economic census and federal lobbying data from Kim (2017) measured at the 4-digit NAICS level.

Table A.3: Concentration and Lobbying within Industry

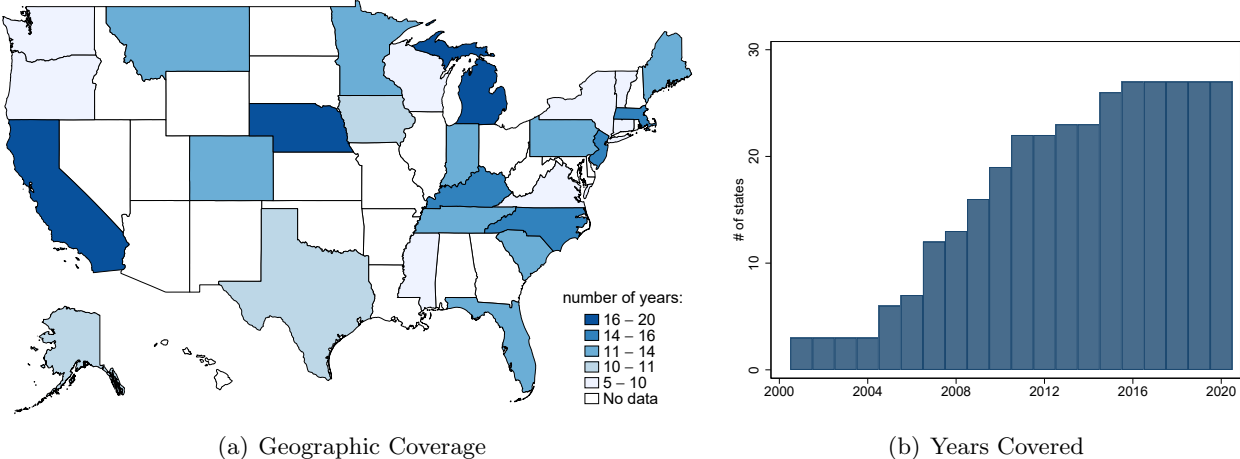
	log(Industry Lobbying \$)				
CR4	-1.67 (1.00)	2.46 (1.78)	1.67 (0.96)	0.33 (0.21)	0.87** (0.33)
R-squared	0.02	0.84	0.84	0.84	0.84
Observations	1,006	984	4,044	6,039	4,011
Year FE	×	×	×	×	×
NAICS FE		×	×	×	×
CR4 Definition	Census	Census	Census	Infogroup	Infogroup
			Interp.		

**Notes:** This table presents estimates from Equation 3. The CR4 definition row highlights the source of the CR4 data.

# B State Lobbying

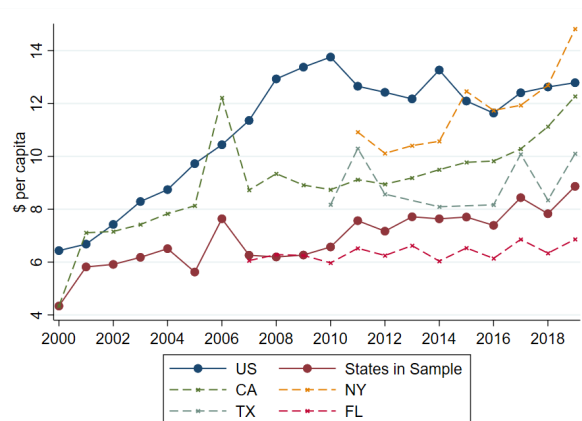
This section provides additional details about the new data set we assembled on state-level lobbying. We download data from public lobbying portals in 27 states. Figure B.1 shows the sample states and years. Lobbying per capita at the state level, for our sample states, tracks trends at the federal level, at a lower magnitude (Figure B.2(a)). Federal lobbying per capita doubles from \$6 to \$13 from 2000 to 2019, state lobbying per capita increases from \$4 to \$8. However, there is substantial heterogeneity across states, per capita levels are higher in some states, such as CA and NY, and lower in others, such as FL (Figure B.2(b)).

Figure B.1: Lobbying Data Sample



**Notes:** The figure on the left shows the sample of states in the lobbying data, and the number of years of data available for each state. The figure on the right shows the number of states in the sample for each year.

Figure B.2: State vs Federal Lobbying Per Capita



**Notes:** The figure shows per capita lobbying in our sample of states compared to the federal lobbying data. The state lobbying is in red and the federal lobbying is in blue. The dashed lines highlight individual states in our dataset.

Industry composition looks different at the state level than the federal. Table B.1 shows the top 10 lobbying industries, and auto dealers. Outside the top spot for “Business, Professional, Labor, Political, and Similar Organization”, this does not track the federal top 10 (Table A.1). At the federal level manufacturing is more prevalent, at the state level it is more non-tradable services.

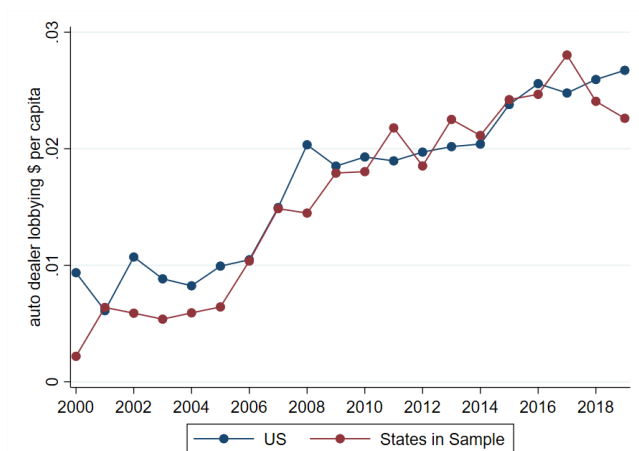
When it comes to the auto retail industry, state and federal per capita lobbying is remarkably in sync (Figure B.3). The majority of states only lobby via the trade association. Even in a large state like NY, we only see 3 non-association firms lobbying, and they are spending considerably less and/or lobbying less frequently (Table B.2).

Table B.1: State Lobbying by Industry

<i>NAICS</i>	<i>Code</i>	<i>Total Lobbying (\$M)</i>
1 Business, Professional, Labor, Political, and Similar Organizations	8139	896.5
2 Legal Services	5411	543.6
3 Agencies, Brokerages, and Other Insurance Related Activities	5242	541.4
4 Offices of Physicians	6211	472.4
5 Management, Scientific, and Technical Consulting Services	5416	437.7
6 Executive, Legislative, and Other General Government Support	9211	379.5
7 Social Advocacy Organizations	8133	328.1
8 Building Equipment Contractors	2382	281.3
9 Elementary and Secondary Schools	6111	273.7
10 Electric Power Generation, Transmission and Distribution	2211	229.5
72 Automobile Dealers	4411	36.7

**Notes:** This table lists the top lobbying industries at the state level, for our sample. This data may be incomplete, we parsimoniously identify automobile dealers and auto dealer associations in the data, but the other industries are identified using a fuzzy matching technique.

Figure B.3: State vs Federal Lobbying Per Capita: Auto Dealers



**Notes:** This figure compares per capita auto dealer lobbying at the state and federal level. Data on state lobbying collected by the authors.

Table B.2: Auto Dealer Lobbying in NY: Total Spending

Name	Total Expenses (\$)	Annual Average (\$)
GREATER NEW YORK AUTOMOBILE DEALERS ASSOCIATION	2,327,537	290,942
AUTOMOBILE DEALERS ASSOCIATION (NYS)	1,010,003	126,250
PLAZA AUTO MALL	217,500	72,500
ATLANTIC AUTO MALL	171,000	34,200
BAY RIDGE AUTOMOTIVE COMPANY (BAY RIDGE FORD)	103,743	51,872
ROCHESTER AUTOMOBILE DEALERS ASSOCIATION	55,784	18,595
NIAGARA FRONTIER AUTOMOBILE DEALERS ASSOCIATION	55,259	18,420

**Notes:** This table shows auto dealer lobbying in the state of New York. Total expenses over the sample, as well as the annual average (conditional on any lobbying) are presented. Some dealers or ADAs do not lobby every year, for example, Rochester and Niagara ADA only lobby 3 years of the 10 year sample.

## B.1 State Lobbying vs. Campaign Contributions

We compare the relative magnitude of different types of political spending at the state level. Table B.3 shows the patterns for Pennsylvania. The trade association in Pennsylvania, PAA, contributed \$1.2 million to the campaigns of state house and senate candidates between 2011 and 2020 (for a total of \$2.4 million from 2000-2020). Over the same period, PAA spent almost \$6 million on lobbying. The top contributors in the auto dealer industry all spend a fraction of PAA. The largest individual spender, Robert Bennett of Bennett Automotive Group, contributed less than 5% of the PAA total (\$58,600) over the same period. Further, none of the individual contributors lobby independently of PAA.

Outside of Pennsylvania, the pattern is similar, with auto dealer associations heading the list of

contributors and comprising 60% of total contributions (Table B.4). Moreover, lobbying spending is much larger, PAA spent about \$60,000 per election cycle but \$650,000 per year on lobbying. This motivates our focus on lobbying as the main political expenditure of interest.

Table B.3: PA Auto Dealers: State Leg Contribs v Lobbying, 2011-2020

Contributor	Contrib (\$)	Lobbying (\$)	Affiliation
PAA	1,206,425	5,980,734	Pennsylvania Automotive Association
Bennett, Robert J	58,600		Bennett Automotive Group
Daub, L Anderson	33,000		Brown-Daub Automobile Dealerships
Rothrock, David B	30,500		Rothrock Motors
Alexander, Blaise	30,000		Blaise Alexander Family Dealerships
Rothrock, Dean A	25,000		Rothrock Motors
Sherwood, Donald L	14,500		Sherwood Chevrolet
Paul, Max	12,900		Ardmore Toyota
Baierl, Lee W	10,000		Baierl Automotive (Lithia)
% of total:	89.1	100.0	

**Notes:** Campaign contributions include state senate and state house/assembly (National Institute on Money in Politics, 2000-2020). Lobbying data collected by the authors.

Table B.4: State Legislature Contributions in the Auto Dealer Industry, 2011-2020

State	Contributor	Contrib (\$)
CA	California New Car Dealers Association	2,588,275
VA	Virginia Auto Dealers Association	1,894,356
TX	Texas Automobile Dealers Association	1,621,250
PA	Pennsylvania Automotive Association	1,206,425
AL	Automobile Dealers Association Of Alabama	1,175,000
TX	Friedkin Business Services/Gulf State Toyota	973,668
NJ	New Jersey Coalition Of Automotive Retailers	930,980
NC	North Carolina Automobile Dealers Association	845,430
WA	Washington State Auto Dealers Association	783,850
IL	Chicago Auto Trade Association	780,250
	top 10 % of total:	39.3
	ADA % of total:	61.8

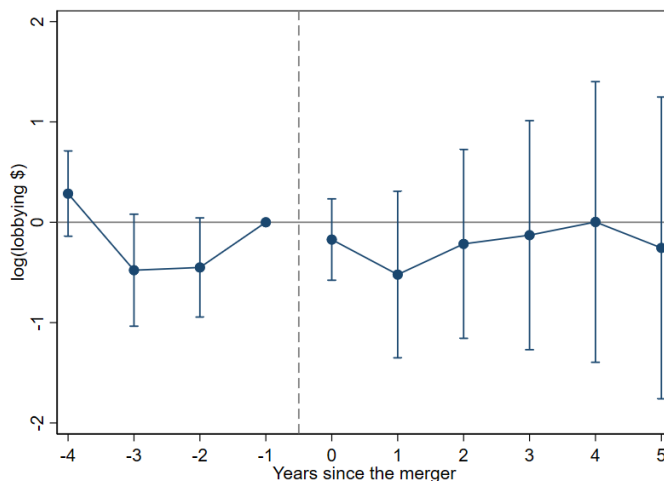
**Notes:** Campaign contributions include state senate and state house/assembly (National Institute on Money in Politics, 2000-2020).

## C Placebo Tests

### C.1 Event Study Dates

As a placebo test, we change the event dates. First we to give each state the date of the expansion of the same parent firm, in another state. For example, AutoNation is the parent company with the largest year-to-year increase in multiple states. This occurs in 2010 for CO, 2012 for FL and CA, 2014 in WA and TN, and 2018 in TX. In the placebo, CO gets 2012, FL gets 2010, TN gets 2012, TX gets 2014, and WA gets 2018. CA also has a lot of Lithia dealerships, so they serve as a placebo for another state that has a Lithia expansion in 2010. This works for multi-state dealerships, but in 13 out of 27 states in this sample, the large expansion happens for a dealership that is only present in their state (or, at least, is not present in any other state for which we have lobbying data). For these, we reassign dates within the group, because we are not able to match on firm name. Figure C.1 shows the placebo results for all of the event study approaches.

Figure C.1: Placebo Test: Changing Dates



**Notes:** This figure shows the point estimates and confidence intervals for the estimates of  $\beta_j$ , from Equation 2. The outcome of interest is  $\log(\text{lobbying})$ , but the event dates are changed, as described in section C.

### C.2 Revenue versus Public Goods Effect

One concern is that the event study captures an effect of increased firm size on lobbying that does not derive from coordination. We test this with our heterogeneous effects analysis in Table 1, comparing events that should have more or less gains from coordination. However, we still have significant variation within the sample on both the size of the acquiring parent and the size of the merger event

(Appendix Figure D.7). Therefore, as a placebo test, we compare the effect of the events in our sample with the largest out-of-state merger event for the same acquiring parent. The largest out-of-state merger event will capture a year where the firm experienced a similar increase in size, as measured by total dealerships, but did not necessarily increase their dealership network in the state of interest.

Table C.1 shows the results. Because of the nature of the exercise we restrict to parent companies with significant presence outside of our event state. This gives us 14 states with 50% of their dealership network outside of our event state.<sup>29</sup> The baseline effect is larger for these states, at 1.01 instead of 0.60. There is no significant effect for the placebo event years. These results provide assurance that the results are not driven solely by an increase in firm size independent of coordination effects.

Table C.1: Placebo Test: Size v Coordination

	Baseline	Placebo
Post	1.01** (0.41)	0.42 (0.45)
Observations	116	116
R-squared	0.70	0.69

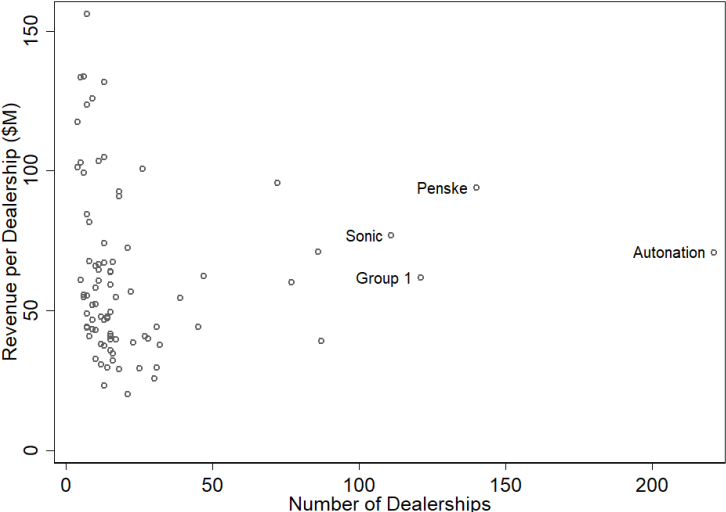
**Notes:** This table shows the results for the event study analysis, where Post =1 for the event year and all years after. The sample is restricted to 5 years before and after the event. The outcome variable is log(lobbying \$). State and year fixed effects included in each specification. Standard errors clustered by state.

<sup>29</sup>See Appendix C for another placebo test that uses the full sample of states.



# D Additional Tables and Figures

Figure D.1: Top 100 Auto Dealer Groups: Revenue per Dealership



**Notes:** A list of the top 100 auto dealer groups are published by WardsAuto (2021) each year, using self reported revenues data, in the “Megadealer 100.” This figure shows the reported revenue over the number of dealerships. The top 4 dealer groups, in terms of both revenue and number of dealerships, are labeled.

Figure D.2: ADA Issues

**Franchise Laws**  
CNCA is committed to protecting the franchise system and California's new car dealers by continuously evaluating and strengthening California franchise laws, ensuring protections against onerous manufacturer requirements.

**Employment & Labor Laws**  
While California new car dealers employ more than 140,000 individuals statewide, it is important that CNCA is actively engaged in the process of regulating California employers and the workplace.

**Zero Emission Vehicles**  
As California sets goals and mandates requiring that consumers shift to Zero Emission Vehicles, CNCA will continue to support the state's efforts aimed at reducing greenhouse gas emissions while also maintaining a healthy economy.

**Autonomous Vehicles**  
As technology continues to evolve and the future of autonomous vehicles becomes clearer, CNCA supports thoughtful and safe public policy as these vehicles are brought to market and sold at California new car dealerships.

**Recalls**  
California's franchised new car dealers are committed to their role in fixing recalled vehicles once they have the parts and procedures from auto manufacturers. Dealers are ready and willing to repair recalled vehicles, they have the expertise and capacity to do so.

**Transportation**  
With more than 40 million Californians on the move every day, many of them in new cars, CNCA has an interest in the rules and regulations that impact consumer's day to day transportation and state infrastructure.

**Sales Tax & Fees**  
California new car dealers collect more sales tax than any other entity in the state. With some of the most complex sales tax and fee structures in the country, CNCA stays engaged in issues related to the state's sales tax.

(a) California

**TADA**  
Texas Automobile Dealers Association

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## The Issues

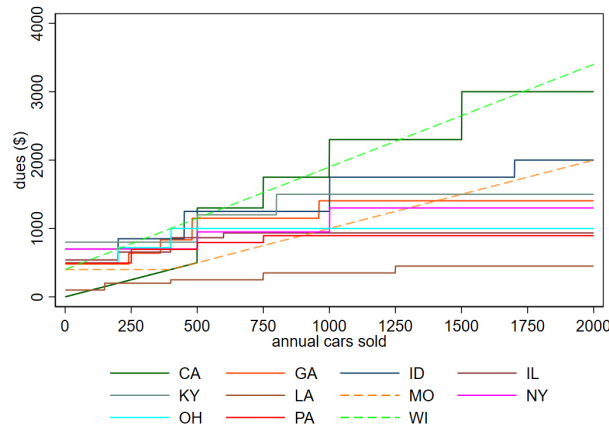
From franchise laws and lemon laws to taxes and consumer financing, the automotive industry is directly impacted by public policies at the national, state and local levels. To learn more about the issues that matter most to TADA and our members, click on the links below.

- [The Value of Franchise Laws in Texas](#)
- [Economic Impact of Motor Vehicle Franchised Dealers](#)
- [The Tesla Issue 101](#)
- [What Does Media Say About Tesla's Requests for Special Exemption](#)
- [Myth vs. Fact: Tesla in Texas](#)
- [Texas Franchised Dealers: Invested in Communities](#)
- [The Price Effects of Intra-Brand Competition in the Automobile Industry](#)
- [Phoenix Center Response to Federal Trade Commission Auto Distribution Workshop](#)
- [State Automobile Franchise Laws: Public or Private Interests?](#)
- [The Issue: Property Rights](#)
- [The Issue: Right of First Refusal](#)
- [NADA's The Regulatory Maze \(Reprinted with permission of the National Automobile Dealers Association\)](#)

(b) Texas

**Notes:** This figure shows the issues of interest to two auto dealer associations, according to their webpages. The pages are found at <https://www.cnca.org/advocacy/> and <https://www.tada.org/Online/Online/Advocacy/Issues.aspx>, respectively.

Figure D.3: Trade Association Dues Schedules




**Notes:** This figure shows the amount of dues owed to join each state’s main trade association. Additional dues are incurred for each dealership in a dealer group, but the additional dealership fee is usually not based on cars sold. Also, additional contributions are encouraged. Data on the dues schedules are directly from the ADA webpages.

Table D.1: Member Coverage in State ADA

State ADA	Member Dealers	Infogroup Dealers	Coverage	Other ADA in State?
AL (ADAA)	295	393	75.1%	
AZ (AADA)	287	367	78.2%	
DE (DATDA)	68	79	86.1%	
IL (IADA)	584	942	62.0%	Chicago
MI (MADA)	614	726	84.6%	Detroit
MN (MADA)	393	407	96.6%	
MS (MADA)	183	246	74.4%	
MO (MADA)	440	495	88.9%	
NM (NMADA)	110	161	68.3%	
PA (PAA)	877	1,205	72.8%	Philly, Pittsburgh
TX (TADA)	1,400	1,939	72.2%	Multiple
Average: 75.4%				
Solo ADAs Only: 82.7%				

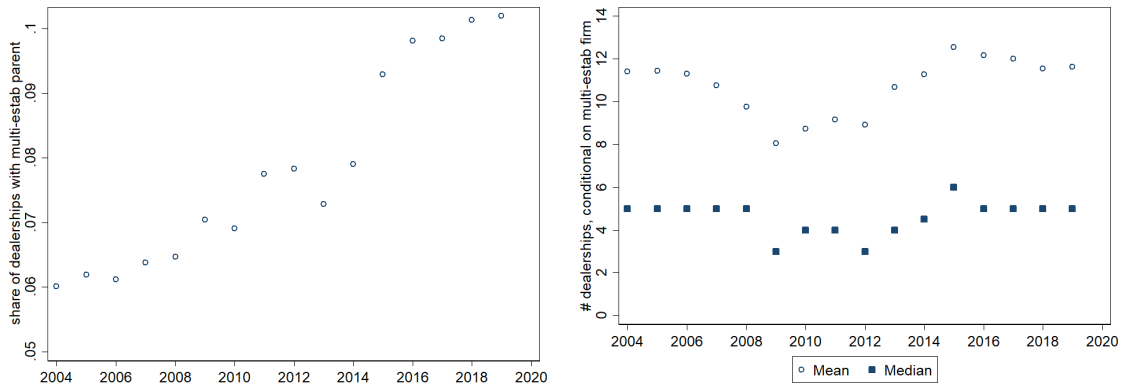
**Notes:** This table shows the number of dealerships that are members of the ADA and the number of dealerships in the state. The number of dealerships in the state are from the Infogroup Historical Business Database, and the number of dealerships in the ADA is from the ADA website.

Figure D.4: PAA Dues Schedule

		Pennsylvania Automotive Association 1925 North Front Street P.O. Box 2955 Harrisburg, PA 17105-2955 1-800-242-3745 www.paa.org	
		<b>MEMBERSHIP APPLICATION</b> <b>NEW CAR, NEW TRUCK, BRANCH STORE</b>	
<b>PRO-RATED DUES SCHEDULE</b>			
<b>NEW CAR - PRIMARY DEALERSHIP</b> NEW UNITS SOLD ANNUALLY		<b>NEW TRUCK - PRIMARY DEALERSHIP</b>	<b>BRANCH LOCATION</b> (each additional point of ownership)
Month Joined	1-250    251-500    501-750    751+	Month Sent in	Fee
October (12 months)	\$495,00    \$695,00    \$795,00    \$895,00	October (12 months)	\$495,00
		October (12 months)	\$450,00

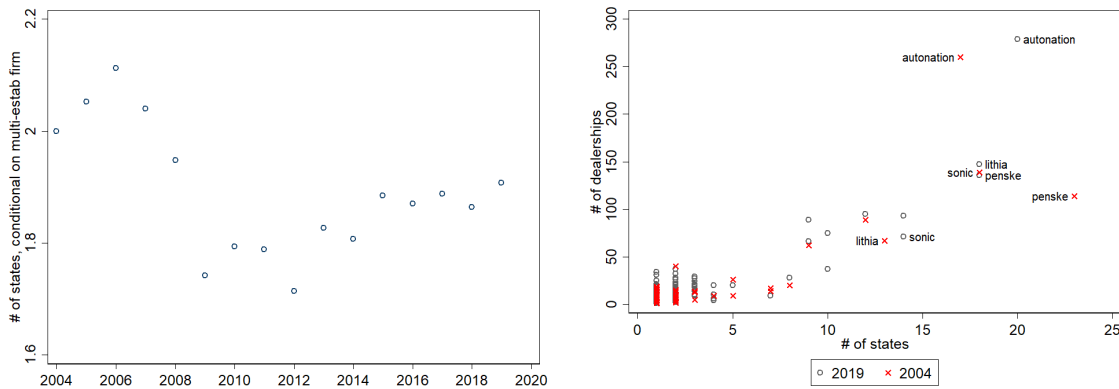
**Notes:** The Pennsylvania Automotive Association dues schedule in 2021. A dealer group owes dues based on the total number of cars sold at their primary dealership, and then \$450 per additional dealership location in the state.

Figure D.5: Descriptive Statistics: Ownership in Auto Retail Industry



(a) Share of Dealerships with Multi-Estab Parent

(b) Number of Dealerships, Conditional on Multi-Establishment Firm

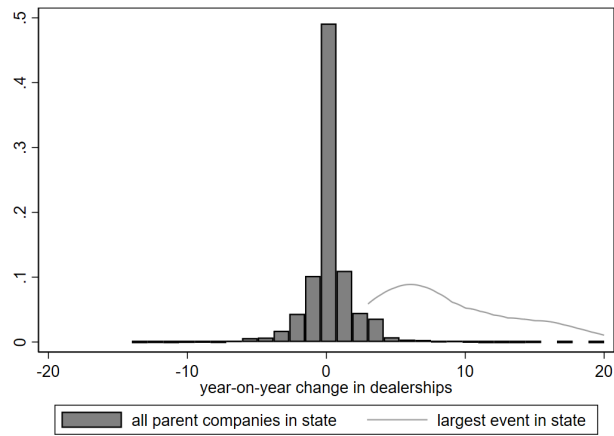


(c) Number of States, Conditional on Multi-Establishment Firm

(d) Parent Level: Number of States and Number of Dealerships (2004, 2019)

**Notes:** This set of figures show changes in the market structure in the auto dealer industry, over time. Data on ownership structure and dealership location is from the Infogroup Historical Business Database.

Figure D.6: Distribution of year-to-year changes in dealership count



**Notes:** This figure compares the average “event” with the mergers we study in the event study. The histogram shows the year-on-year change in dealerships, within a state, for each auto group in the sample. The line shows the distribution of the size of the events in the event study sample.

