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Lobbying and Taxes

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Lobbying dominates corporate political spending, but comprehensive studies of the benefits accrued are scarce. Using a dataset of all U.S. firms with publicly available financial statements, we delve into the tax benefits obtained from lobbying. Firms that spend more on lobbying in a given year pay lower effective tax rates in the next year. Increasing registered lobbying expenditures by 1% appears to lower effective tax rates by somewhere in the range of 0.5 to 1.6 percentage points for the average firm that lobbies. While individual firms amass considerable benefits, the costs of lobbying-induced tax breaks appear modest for the government.

Pervasive popular press accounts contend that money buys political access, access buys influence, and influence buys outcomes.¹ Beginning with Soruaf (1988, 1994), academic inquiry dismisses the contention that corporate campaign contributions yield firms benefits.² Campaign contributions, however, are not the only type of corporate political money: the amount spent on lobbying is an order of magnitude larger. Nevertheless, systematic cross-industry studies testing whether or not individual firms benefit from their lobbying efforts do not exist.³

Using a unique U.S. firm-level dataset, we find a systematic and robust link between firms' lobbying expenditures and one important outcome: their tax rates. The main advantage of starting with taxes is that they

are relatively easy to standardize and measure compared to alternative metrics, notably regulation and licensing.⁴ Specifically, we estimate that firms that increase their lobbying expenditures by 1% in one year reduce their effective tax rates in the range of 0.5 to 1.6 percentage points the following year. The channels through which tax breaks accrue include narrow research and development credits and tax depreciation schedules tailored to specific types of capital equipment. Our findings suggest that strategic lobbying—not to be confused with campaign contributions—yields quantifiable benefits to firms across industries.

This research is motivated by several factors. First, as seen in Figure 1, lobbying is big business: registered lobbying expenditures increased from US\$1.44B to US\$2.47B

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¹See, for example, Stern (1988, 1992); Greider (1993); Drew (1999); Green (2004).

²Others following his lead include Ansolabehere, de Figueiredo, and Snyder (2003); Bronars and Lott (1997); Chappell (1982); Grenzke (1989); Levitt (1995); Milyo, Primo, and Groseclose (2000); and Wright (1985).

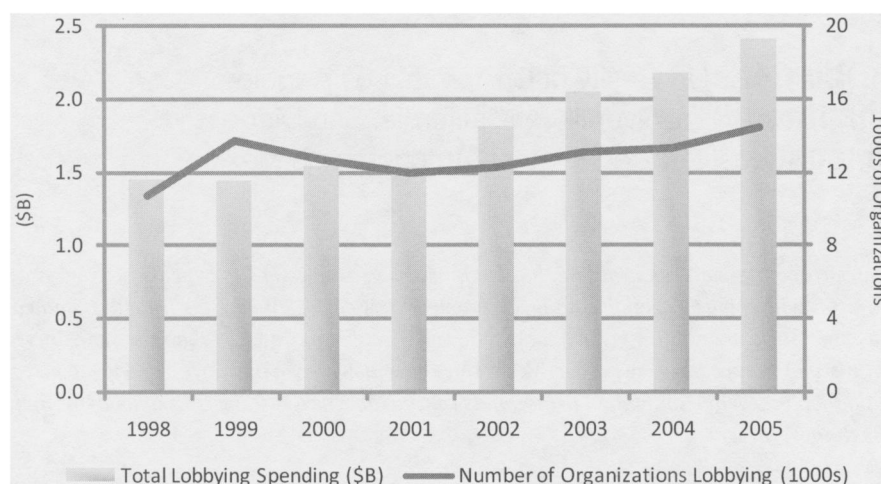
³We are aware of only one study measuring outcomes obtained from lobbying: de Figueiredo and Silverman (2006) found some academic institutions successfully lobby for appropriations.

⁴Expanding the scope of inquiry to other coveted outcomes would be desirable in future work.

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FIGURE 1 Aggregate Lobbying Trends, 1998–2005

between 1998 and 2005, accounting for nearly 85% of special interests' registered political expenditures over the period. Second, while firms covet a variety of politically related benefits, all firms care about taxes: keeping them low raises net profits. Not surprisingly, firms make tax issues a top lobbying priority, and the lobbyists they hire believe "lobbying on tax policy is the 'World Series of lobbying'" (*The Hill* 2004).⁵ Nevertheless, no one has shown a systematic link between firms' lobbying expenditures and firm-specific tax benefits. We do so here. Our study has several advantages over even its best-executed predecessors: we use an explicit measure of firms' lobbying expenditures, have a larger sample of firms in our dataset, and rely on more appropriate quantitative methods, including a simultaneous equation model that addresses endogenous selection.

Related Literature

Money-in-politics researchers ask virtually every newsworthy question: who, what, when, where, why, and how.⁶ Despite the literature's depth, Brasher and Lowery (2006) suggest that much of it may miss the "big picture" by focusing on firms' campaign contributions through politi-

cal action committees (PACs) rather than on their lobbying spending, even though the latter is considerably larger in dollars terms. Milyo, Primo, and Groseclose (2000) suggest "the inordinate attention given to PAC contributions is essentially an exercise in 'looking under the lamppost'" (p. 76) since PAC data have been readily available since the 1970s, whereas lobbying data have only become available recently.⁷ Much of the literature on corporate political activity such as that in Austen-Smith and Wright (1994) and Hojnacki and Kimbell (1998) examines the processes through which firms exert influence rather than the results obtained. While processes are important, presumably outcomes matter more to constituents. Studies of outcomes typically attempt to link corporate contributions to individual politicians' roll-call votes on specific bills.⁸ While focusing on contentious bills has its merits, crafty politicians have a variety of tools at their disposal to deliver favors, including attaching riders to mundane bills and exercising their power to steer bills in the congressional committee process (Hall and Wayman 1990). By not considering outcomes more broadly defined than roll-call votes on specific bills, existing research has arguably failed to detect some important benefits firms receive.

Since Surrey (1957), specific inquiry into political influence over tax rates has produced a rich set of

⁵Legally mandated self-reporting on the issues lobbyists discussed with government officials indicates taxes were the top one discussed from 1998 to 2001 and second after appropriations from 2002 to 2005.

⁶For an overview of the field, see recent analytical literature reviews by Ansolabehere, de Figueiredo, and Snyder (2003); Hillman, Keim, and Schuler (2004); Brasher and Lowery (2006).

⁷Until the Lobbying Disclosure Act of 1995 forced firms to reveal how much they spent on lobbying, no systematic data on the subject existed.

⁸Ansolabehere, de Figueiredo, and Snyder (2003) analyze these and find that only 25% of 36 different studies linking politicians' roll-call votes to their PAC contributions support the popular press's conjecture that money buys policy outcomes.

hypotheses, narratives, and descriptive statistics. Special tax provisions for individual firms and other entities have been chronicled by Siegfried (1974), Bartlett and Steele (1988), Clawson, Neustadt, and Scott (1992), and McIntyre and Nguyen (2000, 2004). Bartlett and Steele (1988), for example, waded through the 880-page 1986 Tax Reform Act and identified some 650 special tax exemptions for specific firms or individuals.⁹ Nonetheless, we still do not understand completely what role political influence plays in determining why some firms pay lower taxes. Studies of aggregated PAC spending and taxes have turned up mixed results (Quinn and Shapiro 1991; Williams and Collins 1997).¹⁰ The absence of explicit data on lobbying has meant that existing firm-level studies proxy political influence with second-best measures of firms' political activities.¹¹ Consequently, the conjecture that firms' lobbying activities influence their effective tax rates has yet to be directly tested. We do so here.

How Lobbying Works

Explaining how lobbying works sets the context for the econometric specifications discussed below and provides further justification for using effective tax rates as a dependent variable.

Lobbying is a negotiation among several interested parties rather than an exchange of dollars for specific legislation. As such, the outcome that helps a firm solve the problems that compelled it to lobby may not be the solution originally envisioned.¹² All registered lobbying

money goes directly to registered lobbying firms or in-house lobbying operations, not to politicians or legislative staffers. These dollars pay lobbyists' salaries in addition to covering their overhead and related expenses. Lobbyists conduct research on firms' problems and all affected parties, including the relevant political constituencies. They then coordinate meetings with the relevant bureaucratic and legislative agencies to argue their case for mutually beneficial changes in enforcement or in legislation. In this capacity, lobbyists provide private information to politicians (and bureaucrats) that may be politically useful, particularly with respect to employment, wages, and services in their districts.

Importantly, not every part of the lobbying process can be observed: the absence of new legislation could be a positive outcome. Many firms engage in defensive lobbying, keeping lobbyists on retainer or maintaining large in-house operations to protect the status quo; they only change the amount they spend on lobbying when their lobbyists identify potential new legislative or enforcement opportunities that can benefit the firm. When these opportunities arise outside of the expertise of the in-house lobbyists or those on retainer, specialists are brought in to lobby on specific issues in which they have demonstrated success. Lobbying for tax benefits has both a defensive component and an opportunistic component: firms wishing to retain their current tax rate have incentives to maintain their current lobbying expenditures while firms that anticipate that lobbyists will be able to secure lower tax rates in the next period are likely to have higher lobbying expenditures in the current period.

The results of lobbying, furthermore, may not always be codified; hence, outcomes may not be observable in legislation, especially when they are related to the interpretation or enforcement of the law. Bureaucrats enforce the will of politicians who frequently make "status calls" to them to ensure that the law is being enforced in ways the politicians see best meet the needs of their constituents.¹³ While politicians carefully keep hard evidence of these "status calls" from public records, allusions to them have been made by the Internal Revenue Service Commissioner, Mark Everson, in Ways and Means Committee hearings. For example, in response to questions by Representative Pat Tiberi on March 20, 2007, Everson answered: "We have a representative democracy and your constituents, they asked you to do your best to get them

⁹Borrowing one of Bartlett and Steele's examples, the law contained the following clause: "the amendment made by section 1275 (b) shall not apply to any domestic corporation if . . . during the fiscal year which ended May 31, 1986, such corporation was actively engaged directly or through a subsidiary in the conduct of a trade or business in the Virgin Islands and such trade or business consists of business related to marine activities and . . . such corporation was incorporated on Mar. 31, 1983, in Delaware." Bizcap Inc. is the only company fitting the criteria.

¹⁰There are no firm-level tests so far as we are aware.

¹¹Salamon and Siegfried (1977), rather than using a direct measure of lobbying, examine the firm-level relationship between taxes and firm-size/industry-concentration as proxies for political influence. While these variables may affect effective tax rates, neither necessarily reveals anything about the politics of taxation. At the time they conducted their research, systematic data on lobbying did not exist because it was not legally required to be reported.

¹²For example, imagine a firm has a problem meeting new environmental regulations because the costs of compliance are too high. Compliance may drive them out of business, resulting in local job losses. To avert these constituent job losses while maintaining the environmental regulations, a politician may find a solution through

the tax code: incentives can be offered to firms that purchase equipment related to compliance with the environmental regulation.

¹³We confirmed this in conversations with several Washington lobbyists who agreed to speak with us anonymously on background, but who did not want to participate in formal interviews.

a slightly separate deal from Mr. Lewis's constituents in Georgia, and that is the nub of this" (Ways and Means Committee 2007).

Some examples of firm-specific benefits appear in legislation nonetheless. One recent piece of legislation that provides tax benefits to a specific firm can be found in Section 704 of the "Jobs Creation Act of 2004." The law allows for accelerated tax depreciation of specific types of construction expenses on any "motorsport entertainment complex" placed in service after October 22, 2004, and before December 31, 2007. The clause could in principle apply to all three of the major firms that own and operate NASCAR facilities—International Speedway Corp. (ISC), Speedway Motorsports Inc., and Dover Motorsports Inc.; however, given the limited three-year window and the large site planning and municipal approval lead time necessary, it is unlikely that the law could provide substantial benefits to any firm that was not already planning on construction projects. Only ISC touted major construction plans during the 2005–2007 time frame in their 2004 Annual Report. ISC was also the only firm that lobbied in the appropriate time frame: the company started lobbying two years prior to the enactment of the favorable legislation, increasing its initial lobbying expenditure of \$180,000 in 2003 to \$200,000 in 2004, before beginning to receive tax benefits in 2005.¹⁴ ISC hired, as its sole registered lobbyist, Williams and Jensen. The lobbying firm, according to its web site, has "the primary mission of advancing the tax policy interests of clients" and claims to have a "results-oriented approach, proven by outcomes" including "creating new tax code provisions to help finance a client's project" by "securing special effective dates and exemptions when Congress adopts tax law changes."¹⁵ Given the timing of the legislation and its narrow application, Williams and Jensen appears to have secured a tax break for ISC in this instance.

Framework and Data

The empirical accounting literature on taxes typically estimates the determinants of effective tax rates using the following firm fixed-effects regression model:

$$ETR_i = \beta X + \alpha_i + \varepsilon_i$$

¹⁴In its 2006 Annual Report, ISC references using the "Jobs Creation Act of 2004" to its advantage.

¹⁵See <http://www.williamsandjensen.com/practiceareas.asp?id=14> [Accessed 2 January 2008].

where X is a matrix of firm characteristics.¹⁶ This regression and the theories that inform it provide the basis of the conceptual framework guiding our analysis in the next two sections of the article. In those sections, we extend the logic of the accounting framework (that economic variables determine tax rates) to incorporate political (lobbying) variables.

We have compiled a unique firm-level dataset on lobbying, taxes, and their economic determinants which we use to test the nature of the systematic relationship between the two primary variables of interest: lobbying and taxes. We created our dataset by merging lobbying expenditure data from the Center for Responsive Politics (CRP) with financial accounting data on all active firms in the COMPUSTAT database. These lobbying data reliably cover all firms' registered lobbying expenditures in the seven years from 1998 through 2004, while the financial statements data, including our measure of effective tax rates, run through 2005. The number of firms in COMPUSTAT with sufficient data to calculate effective tax rates ranges from 4,086 in 1998 to 6,234 in 2005. We believe our dataset is the most comprehensive in the lobbying literature and, perhaps, in the broader literature on money in politics.¹⁷

In the remainder of this data section, we define (1) the lobbying variables we add to the accounting framework as explicit measures of political influence, (2) the effective tax rate measure (i.e., ETR_i), and (3) other variables the accounting literature has determined are important determinants of tax rates (i.e., the typical components of the X matrix).¹⁸

Lobbying

The Center for Responsive Politics (CRP) has compiled and cleaned all registered lobbying expenditures in the public record since 1998.¹⁹ The CRP data do not include bribes and other under-the-table forms of garnering

¹⁶For a full review of empirical tax research in accounting, see Shackelford and Shevlin (2001).

¹⁷Note that the COMPUSTAT database, and hence our sample, does not include nonprofit organizations such as professional associations, unions, or foundations. Although these organizations do lobby, tax reduction is not their objective as they are nonprofits and mostly exempted from tax payment.

¹⁸Categorical summary statistics of effective tax rates for firms that lobby and firms that do not lobby across year and sector can be found in the appendix of the longer prepublication working paper version of this article, available online on the Social Sciences Research Network.

¹⁹Details on the Center for Responsive Politics methodology can be found at <http://www.opensecrets.org/lobbyists/methodology.asp>.

political influence, nor does it include firms' legal expenditures, biasing against finding a systematic relationship between firms' political activities and their attainment of policy outcomes. We took the company names in the CRP data and manually matched them to firms' unique ticker symbols. We then merged the CRP and COMPUSTAT datasets on firms' tickers. In the merged dataset, we created two new variables featured throughout our analysis:

- 1) $Lobby_{it}$ is defined as the natural logarithm of the lobbying expenditures (in U.S. dollars) for firm i in year t . We take the log of lobbying expenditures to normalize the data.
- 2) $If Lobby_{it}$ is a binary variable equal to 1 if firm i lobbies in year t and 0 otherwise.²⁰

We will confirm that higher lobbying expenditures are associated with lower tax rates, if we find that it is negatively associated with firms' effective tax rate when we add our primary lobbying variable ($Lobby_{it}$) to the accounting regression framework. Given that the bulk of lobbying expenditures goes towards paying the salaries of lobbyists, such a finding would be consistent with an informational view of lobbying (if more hours spent researching by lobbyists lead to the revelation of more pertinent or valuable data).

When we add our secondary lobbying variable ($If Lobby_{it}$) to the accounting regression framework, we may not find it to be statistically significant. This nonfinding could be consistent with tax lobbying benefits accruing to firms engaging in opportunistic lobbying rather than defensive lobbying. Only firms that marginally increase their expenditures in anticipation of a potential tax break may realize the short-run benefits of their action; the bulk of firms that keep their lobbying expenditures constant might not see opportunities available and might be lobbying for defensive purposes only.

Effective Tax Rates

We use the measure of effective tax rates defined in Gupta and Newberry (1997). While the accounting literature produces numerous measures of effective tax rates from financial statements data, it favors the Gupta-Newberry measure. Plesko (2003) shows that, while no measure of

effective tax rates based on financial statements correlates perfectly with those calculated using confidential IRS tax payments data, the Gupta-Newberry measure fares considerably better than all others, especially in multivariate settings like the ones we employ.

Gupta and Newberry calculate their effective tax rate measure using COMPUSTAT as:

$$ETR = \frac{\text{Income Taxes Total} - \text{Deferred Taxes}}{\text{PreTax Income} - \text{Equity in Earnings} + \text{Special Items} + \text{Interest Expense}}$$

Given that the values for Deferred Taxes, Equity in Earnings, Special Items, and Interest Expense are frequently not available in COMPUSTAT, we calculated our effective tax rate measure treating these entries as zeros.²¹

Other Independent Variables Explaining Effective Tax Rates

The standard firm-level economic characteristics used as explanatory variables throughout the accounting literature on the determinants of tax rates (i.e., as part of the X matrix in the regression above) are size, leverage, and capital intensity (Shackelford and Shevlin 2001; Stickney and McGee 1982). Prior research conjectures that size may either positively or negatively affect tax rates. Proponents of a "political cost" story such as Watts and Zimmerman (1978) believe the sign should be positive because of larger firms' visibility, whereas proponents of a "political clout" story such as Salamon and Siegfried (1977) and Porcano (1986) believe the sign should be negative because larger firms supposedly have both a greater ability to access politicians and to organize their operations in a tax-efficient manner. The existing empirics for how size matters are inconclusive. The inclusion of leverage controls for firms' financing activities, given the tax advantages of financing with debt. Interest payments made to debt holders are deducted from pretax profits, making taxable income smaller for firms financed more heavily with debt than equity; consequently, effective tax rates are expected to be lower for firms with more leverage (debt). The inclusion of capital intensity is intended to capture the impact of firms' investment decisions on their tax rates; more capital-intensive firms are expected to pay taxes at a lower rate.

Gupta and Newberry (1997) add inventory intensity, return on assets, and research and development

Other articles that use CRP data include Ansolabehere, Snyder, and Tripathi (2002) and de Figueiredo and Silverman (2006).

²⁰Firms are required to register their lobbying expenditures if they spend more than \$20K annually. We confirmed the results using alternative truncation points, also defining $If Lobby_{it}$ at the \$50K and \$100K levels.

²¹As a robustness check, we ran separately all of our tests on the smaller sample where our effective tax rate measure was calculated without treating these missing data entries as zeros and obtained similar results.

intensity as explanatory variables (to the X matrix). They claim that the inclusion of both inventory intensity and research and development intensity should capture the impact of firms' asset mix on their tax rates. Gupta and Newberry also favor including return on assets to control for firms' performance. Other articles, such as Stickney and McGee (1982), include foreign operations and natural resource involvement.²² With the exception of these last two variables from Stickney and McGee, all variables can be replicated using COMPUSTAT data. Following Gupta and Newberry, we assume that most of the variation in effective tax rates caused by characteristics like the extent of foreign operations or natural resource involvement is absorbed by firm-fixed effects, since those variables are likely to be persistent.

We replicate the six variables—size, leverage, capital intensity, inventory intensity, return on assets, and research and development intensity—using Gupta and Newberry's definitions. Size is the natural logarithm of a firm's total assets; leverage, the ratio of a firm's long-term debt to its total assets; capital intensity, the net value of firm's property, plant, and equipment (PPE) divided by its total assets; return on assets, the ratio of a firm's pretax income (excluding special items) to its total assets; inventory intensity, a firm's total inventory divided by its total assets; and research and development intensity, research and development expenses divided by total sales.

Higher Lobbying Expenditures, Lower Effective Tax Rates

Figure 2 provides visual evidence, from a crude univariate regression (using linear and kernel fits), that higher lobbying expenditures are associated with lower effective tax rates.

To assess the relationship between lobbying and taxes more rigorously, we use the multivariate accounting regression framework introduced above. We add our primary lobbying spending variable ($Lobby_{it-1}$) to the framework as an independent variable. The results of this baseline analysis appear in the next subsection. We perform robustness checks on alternative regression specifications in a subsection that follows. Finally, since a

firm's choice to lobby could remain a concern, we explore the determinants of lobbying and estimate a Heckman (1979) selection model as a final check. Taken together, our results indicate that higher lobbying spending reduces firms' effective tax rates in the following year.

Baseline Regressions

The baseline model, which we estimate using an ordinary least squares panel regression with both firm fixed effects and period fixed effects, is:

$$ETR_{it} = \gamma(Lobby_{it-1}) + \beta X_{it-1} + \rho ETR_{it-1} + \alpha_i + \alpha_t + \varepsilon_{it}$$

where X_{it-1} includes a lagged version of each of the variables thought to explain effective tax rates in the accounting literature: size, leverage, capital intensity, inventory intensity, return on assets, and research and development intensity.²³ The base sample for all regressions is restricted to firms listed as active in COMPUSTAT with a strictly positive value for assets, sales, and employees data entries. The sample for these regressions is further limited to firms that lobby, because it includes the variable $Lobby_{it-1}$, necessitating taking the log of lobbying expenditures, which can be done only for firms with strictly positive outlays used to gain political influence.

In columns 1 to 5 of Table 1, the coefficient γ on $Lobby_{it-1}$ remains negative and significant except when we add research and development intensity. This establishes the primary result that marginal increases in firms' lobbying expenditures decrease their effective tax rates. We note that the coefficient on research and development intensity is highly insignificant (t-statistic of 0.018). Our sample size also decreases dramatically when we include research and development intensity. The smaller sample, due to missing R&D expenditures data, increases the standard errors on all coefficient estimates including that on $Lobby_{it-1}$, making them less likely to be significant.²⁴ There are also reasons to believe that our measure of research and development intensity fails to capture all types of research and development activity rewarded in the tax code, making the financial accounting-based measure a

²²Stickney and McGee suggest that foreign operations may allow firms to exploit loopholes in their international operating activities (e.g., transfer prices) to shield themselves from taxes. They do not explain why taxes might apply differently for firms in natural resource industries, though plausible reasons could be imagined (e.g., national security concerns). Unfortunately, they do not define natural resources industries and hand-coded their observations using metrics we cannot identify and, hence, replicate.

²³We do not lag return on assets, however, because it is the one variable that is a flow variable; whereas each of the other variables represents a levels or stock.

²⁴We estimated the regression without R&D intensity as an explanatory variable, using only firms with research and development expenditures data. The coefficient γ on $Lobby_{it-1}$ was not significant in this specification, although its magnitude was largely unchanged, leading us to believe that the reduction in sample size alters the results more than the R&D variable itself.

FIGURE 2 Lobbying Expenditures and Effective Tax Rates: Univariate Regression

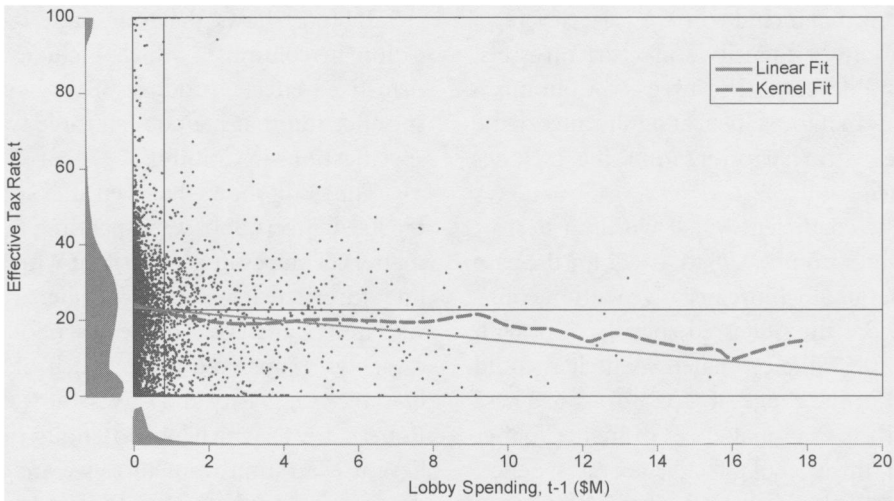


TABLE 1 Effective Tax Rate and Lobbying: Baseline Regressions

<i>Dependent Variable</i>	<i>Effective Tax Rate, t</i>						
<i>Sample</i>	All Firms That Lobby				Publicly Traded Firms That Lobby		
Lobby, t−1	−0.98* (0.59)	−1.09* (0.57)	−1.22** (0.57)	−1.07* (0.57)	−0.98 (0.88)	−1.51** (0.61)	−1.18** (0.60)
Size, t−1	3.00* (1.62)	3.14* (1.71)	3.10* (1.72)	3.09 (1.98)	0.41 (2.15)	1.37 (2.11)	3.45* (2.00)
Leverage, t−1	−15.43*** (5.30)	−16.78*** (5.28)	−17.68*** (5.28)	−20.07*** (5.24)	−12.48 (7.67)	−31.01*** (6.25)	−21.63*** (5.31)
Capital Intensity, t−1		9.26 (9.67)	10.01 (9.72)	8.88 (9.77)	16.54 (15.68)	4.36 (10.35)	11.60 (10.07)
Inventory Intensity, t−1			5.76 (15.08)	3.39 (15.01)	−8.04 (19.12)		−1.57 (14.89)
Return on Assets, t				−27.62*** (8.81)	−47.82*** (8.60)		−24.59*** (9.23)
R&D Intensity, t−1					0.00 (0.18)		
Effective Tax Rate, t−1	−0.10*** (0.04)	−0.09** (0.04)	−0.09** (0.04)	−0.10*** (0.04)	−0.09* (0.05)	−0.09** (0.04)	−0.10*** (0.04)
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	3952	3885	3837	3721	1962	3072	3481
R-Squared	0.486	0.489	0.496	0.516	0.535	0.537	0.510

Unit of observation is firm-years. Lobby is the natural logarithm of lobby expenditures in U.S. dollars. Size is measured using the natural logarithm of total assets of the firm. Leverage is the ratio of the firm’s long-term debt to its total assets. Capital intensity is computed by the net value of firm’s property, plant, and equipment divided by its total assets. Return on assets is the ratio of firm’s pretax income (excluding special items) to its total assets. Inventory intensity is defined as firm’s total inventory divided by its total assets. Research and development intensity is the research and development expenses divided by total sales of the firm. Panel corrected standard errors are in parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. The highlighted row shows that the coefficient on log(Lobby) remains significant in the specifications shown in columns 1–4 and 6–7. This suggests that marginal increases in lobbying expenditures lower firms’ effective tax rates. (A discussion of why the specification in column 5 leads to an insignificant coefficient is in the text of the article.)

poor proxy for a tax accounting measure available only on confidential IRS returns.²⁵ Thus, given data limitations, the preferred specification (which can be found in column 4 of Table 1) is the one that includes in X_{it-1} size, leverage, capital intensity, inventory intensity, and return on assets, but not research and development intensity. Columns 6 and 7 of Table 1 show that the statistical significance of the conclusion increases with a narrower sample that includes only firms with listed equity.

Estimates of the coefficient γ fall within a narrow range, taking on values from -0.98 to -1.22 for the base sample; they are marginally more negative with the publicly listed sample. For the preferred specification, with a standard error of 0.57, the estimated coefficient could reasonably fall within the range of -0.5 to -1.6 . These estimates represent the marginal effect of higher lobbying expenditures on the level of effective tax rates; hence, on average we expect firms with 1% higher lobbying expenditures to realize a 0.5 to 1.6 percentage point lower effective tax rate.

In passing, we note that the coefficient on the size variable is no longer significant in our preferred specification. It may suggest that neither the “political cost” nor “political clout” story is entirely accurate once we control for firms’ lobbying activities. If the clout story remained true, we would expect a negative and significant sign on the size coefficient once we control for lobbying, but we do not find one. If the cost story remained true, size would still be positive and significant. It is not—suggesting that lobbying for under-the-radar benefits counterbalances any visible public damages politicians inflict on larger firms.

Specification Checks

Fixed-Effect Specifications. The significance of the lobbying and effective tax rate relationship we find holds whether we include any combination of period-, firm-, and industry-fixed effects or none at all. Here we generalize our baseline model to:

$$ETR_{it} = \gamma(Lobby_{it-1}) + \beta X_{it-1} + \rho ETR_{it-1} + \alpha + \epsilon_{it}$$

²⁵The U.S. GAAP treatment of R&D expenditures, reflected in financial accounting statements, is less flexible than Sections 41 and 174 of the Internal Revenue Code (Oliver 2003). Hence, our measure of R&D expenditures will be biased downward for many firms vis-à-vis a tax accounting-based measure—even taking on values of zero (or n/a in COMPUSTAT) when in fact the firm has significant expenditures that would qualify for R&D tax credits.

where α now represents each possible fixed effects specification. Everything else remains **the same as in our preferred baseline specification**.²⁶

Table 2 shows that our preferred baseline specification in column 4, which includes only period- and firm-fixed effects, produces a very similar result to the specification that includes all three types of fixed effects specifications in Column 5.

The result shows that even after controlling for industry fixed effects, lobbying spending at the firm level still matters. This result is consistent with the tax accounting literature, which generally considers firms to be the relevant unit of analysis. The treatment of the firm as the unit of analysis runs counter to much of the interest group literature (e.g., Esty and Caves 1983; Grier, Munger, and Roberts 1994), which looks at industries; however, we believe it is an improvement as we are able to use a more detailed dataset that allows firms’ tax rates to vary within industries as we know they do. It is important to note that this result does not imply that there is little variation in tax rates across industries. The source of the variation in tax rates across industries appears to be common characteristics among firms within an industry, rather than membership in an industry alone. For example, all firms in an industry that requires expensive capital equipment and few employees are likely to be highly capital intensive or all firms in an industry with increasing returns to scale are likely to be larger than those in an industry with constant or decreasing returns to scale.

Further Robustness Checks. As a specification check, we test whether a firm’s decision to lobby alone, captured by our dummy variable, *If Lobby_{it-1}*, influences its effective tax rate rather than the measure of political influence we use, *Lobby_{it}*, which represents the natural logarithm of lobbying expenditures in U.S. dollars. We find that a firm’s decision to lobby alone does not significantly capture the effect of corporate political influence over effective tax rates despite the earlier finding that a firm’s marginal lobbying expenditure, *Lobby_{it}*, does. This is consistent with a view that some tax lobbying is defensive and does not create lower effective tax rates, while seizing available political opportunities does lower effective tax rates.²⁷

²⁶Industry-fixed effects are implemented by de-meaning the independent variables at the four-digit North American Industry Classification System (NAICS) code level. Firm- and time-fixed effects are implemented using dummy variables as they were in earlier regressions.

²⁷This result can be seen in the longer, prepublication working paper version of this article, available online on the Social Sciences Research Network.

TABLE 2 Effective Tax Rates and Lobbying: Fixed Effects Specifications

Dependent Variable	Effective Tax Rate, t						
	All Firms That Lobby					Publicly Traded Firms That Lobby	
Sample							
Lobby, t-1	-0.46* (0.25)	-0.50* (0.28)	-0.59** (0.29)	-1.07* (0.57)	-1.44* (0.85)	-1.18** (0.60)	-1.84** (0.90)
Size, t-1	-0.20 (0.22)	-0.17 (0.20)	0.02 (0.23)	3.09 (1.98)	1.70 (2.26)	3.45* (2.00)	2.67 (2.24)
Leverage, t-1	-14.43*** (2.44)	-14.39*** (2.04)	-15.09*** (2.06)	-20.07*** (5.24)	-15.65** (7.60)	-21.63*** (5.31)	-16.46** (7.66)
Capital Intensity, t-1	-3.75** (1.52)	-3.89** (1.57)	-0.75 (2.16)	8.88 (9.77)	5.26 (12.53)	11.60 (10.07)	10.09 (12.45)
Inventory Intensity, t-1	-1.17 (3.48)	-1.25 (3.54)	0.33 (4.32)	3.39 (15.01)	-3.81 (17.53)	-1.57 (14.89)	-5.67 (17.55)
Return on Assets, t	-0.58 (2.47)	-1.24 (1.96)	-1.38 (1.98)	-27.62*** (8.81)	-47.86*** (10.62)	-24.59*** (9.23)	-46.87*** (11.16)
Constant	26.87*** (2.96)						
Effective Tax Rate, t-1	0.34*** (0.03)	0.34*** (0.02)	0.32*** (0.02)	-0.10*** (0.04)	-0.12*** (0.05)	-0.10*** (0.04)	-0.12** (0.05)
Time Fixed Effects	-	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	-	-	-	Yes	Yes	Yes	Yes
Industry Fixed Effects	-	-	Yes	-	Yes	-	Yes
Number of Obs.	3721	3721	3721	3721	2599	3481	2468
R-Squared	0.153	0.160	0.172	0.516	0.511	0.510	0.512

Unit of observation is firm-years. Lobby is the natural logarithm of lobby expenditures in U.S. dollars. Size is measured by the natural logarithm of total assets of the firm. Leverage is the ratio of the firm’s long-term debt to its total assets. Capital intensity is computed by the net value of firm’s property, plant, and equipment divided by its total assets. Return on assets is the ratio of firm’s pretax income (excluding special items) to its total assets. Inventory intensity is defined as firm’s total inventory divided by its total assets. Research and development intensity is the research and development expenses divided by total sales of the firm. Panel corrected standard errors are in parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. The highlighted row shows that the coefficient on Lobby remains significant no matter what fixed effects specification we use, suggesting a robustness of our baseline regression to perturbations of fixed effects specifications.

We performed several other robustness checks on our baseline regression, the results of which are not reported here. These include (1) using jackknife resampling techniques and (2) rerunning the entire analysis using alternative definitions of effective tax rates. In each case, the primary finding—that on average firms with marginally higher lobbying spending pay lower effective tax rates in the subsequent period—holds. With some of the robustness checks, the statistical significance of the relationship becomes even stronger.

The Lobbying Decision and Possible Selection Bias

In previous regressions and specification tests, our sample includes only firms that lobby due to the restriction that

our key independent variable (*Lobby_{it-1}*) must be strictly positive. If the lobbying decision is not random, however, and only certain types of firms chose to lobby, our results may be subject to sample selection bias. In this subsection, we first use a binary regression framework to explore the determinants of lobbying and find that the lobbying decision is not random. We then use the results of the binary regression in estimating a Heckman (1979) two-step selection model which takes into account possible bias from some firms selecting themselves into lobbying while other firms do not. Our primary result remains unchanged: firms that spend more on lobbying pay lower effective tax rates in the subsequent year.

Binary Regression Exploring the Determinants of Lobbying. Brasher and Lowery (2006) note, “the literature

does not provide very clear or consistent answers about why some organizations lobby and others do not" (p. 1). To explore the determinants of lobbying, we include effective tax rates in the previous year along with other firm-specific attributes thought to induce lobbying in a binary choice regression, estimating variations of:

$$\text{If Lobby}_{it} = F(\alpha + \theta \text{Tax Measure}_{it-1} + \delta \text{If Lobby}_{it-1} + \omega W_{it-1} + \mu_{it})$$

where $F(\cdot)$ is the cumulative density function inverted; *Tax Measure* is a variable based on effective tax rates; and W is a matrix of independent variables including the year, firms' capital-labor ratios, firms' total nonfixed assets, and the number of employees.²⁸

The various estimation methods used and regression specifications serve as specification checks. First, we use three different binary choice estimation methods (logit, probit, and gompit), relying on different assumptions about the density function inverted: since only about 10% of firms lobby in our sample, the gompit model likely produces more reliable results than the more common logit and probit models. Second, we consider two different *Tax Measures*: a level of effective tax rates and a difference in effective tax rates. Third and finally, we consider including a lagged dummy variable, *If Lobby*_{*it-1*}, in the regression specification.²⁹

Table 3 shows that factors other than tax rates determine whether or not firms lobby, as the coefficient θ on our *Tax Measure*_{*it-1*} is insignificant in all specifications of the model.

It is not current or lagged levels of effective tax rates that induce lobbying expenditures; it is the anticipated response of the tax rate to the lobbying effort that matters. The result may also be related to the opportunities political entrepreneurs find available.³⁰ Often, it may be politically infeasible to push through changes firms want,

²⁸Numerous explanatory variables for the W matrix have been proposed in the empirical literature; none of them, except perhaps firm size, receive consistent empirical support. Articles that attempt to identify which firms lobby include Alt et al. (1999) and Sadrieh and Annavarjula (2005). Ideally we would also have a measure for regulatory vulnerability to include in the matrix W ; however, no such measure exists for our sample of firms. To the extent that regulatory vulnerability is a persistent firm attribute, regression specifications that include a lagged dependent variable will tend to account for it nonetheless.

²⁹As further checks we also include a lagged level and lagged difference in tax rates in the same equation, as well as multiple lags of the change variable, to test whether dynamic shocks in tax rates influence firms' lobbying behavior. These alternative specifications do not alter our result and all combinations of these shock variables are statistically insignificant.

³⁰We use the term "political entrepreneur" as in the strategic management literature to mean opportunistic rent-seeking firms.

so those firms that lobbied in the past may maintain their lobbying spending to defend their positions, while only firms that see politically feasible opportunities will increase their lobbying efforts. This possibility could also explain why our primary independent variable, the log of lobbying expenditures, appears to yield firms tax benefits whereas the decision to lobby alone does not. Limited opportunities for political entrepreneurs who lobby to win desired outcomes may also explain why only about 10% of firms in our dataset lobby when clearly all could benefit from positive political outcomes.

Heckman Selection Model. Since the results in Table 3 reveal that the characteristics of the firms that tend to lobby are not random, sample selection bias may plague our primary finding in Table 1. The Heckman (1979) selection model is a type of simultaneous equations model that can help address potential bias caused by the lobbying decision (and the truncation of lobbying spending data since firms cannot spend negative amounts on lobbying). We present it as a robustness check.

The Heckman selection model can be written in our case as the system of equations:

$$\begin{aligned} \text{If Lobby}_{it} &= F(\alpha + \delta \text{If Lobby}_{it-1} + \omega W_{it-1} + \mu_{it}) \\ \text{ETR}_{it} &= \gamma(\text{Lobby}_{it-1}) + \beta X_{it-1} + \rho \text{ETR}_{it-1} \\ &\quad + \alpha_i + \alpha_t + \varepsilon_{it} \end{aligned}$$

where the errors (μ and ε) are correlated.³¹ The first equation, called the selection equation, includes all firms in the sample since it is designed to get at the decision to lobby or not; this is a variant of what we estimated in Table 3 exploring the determinants of lobbying. The sample in the second equation is restricted to include only firms that do lobby as we observe only positive values of lobbying spending (the key independent variable); this equation is equivalent to our preferred specification in Table 1, Column 4.

Coefficients in the Heckman selection model can be estimated consistently using a two-step procedure. The first step is to estimate the first of the simultaneous equations, the selection equation, using probit; the estimates are then used to calculate an inverse Mills ratio (λ). The second step then is to add the inverse Mills ratio to the second equation as an additional independent variable so that it becomes:

$$\begin{aligned} \text{ETR}_{it} &= \gamma(\text{Lobby}_{it-1}) + \beta X_{it-1} + \rho \text{ETR}_{it-1} \\ &\quad + \eta\lambda + \alpha_i + \alpha_t + \varepsilon_{it}. \end{aligned}$$

³¹The assumption is that these follow a bivariate normal distribution for identification; the joint distribution of our residuals confirms that this is the case.

TABLE 3 Selection into Lobbying

Dependent Variable	If Lobby, t					
	All Firms					
	Logit		Probit		Gompit	
Effective Tax Rate, t−1	−0.001 (0.001)	−0.001 (0.001)	−0.000 (0.001)	−0.001 (0.001)	−0.000 (0.001)	−0.000 (0.000)
Difference in Effective Tax Rate, t			0.001 (0.001)	0.001 (0.002)		
If Lobby, t−1	5.871*** (0.073)		5.853*** (0.074)	5.854*** (0.073)	3.210*** (0.035)	3.644*** (0.058)
Capital-Labor Ratio, t−1	0.081*** (0.024)	0.236*** (0.013)	0.076*** (0.024)	0.074** (0.024)	0.037*** (0.010)	0.027*** (0.007)
Total Non-Fixed Assets, t−1	0.147*** (0.025)	0.219*** (0.013)	0.147*** (0.026)	0.148*** (0.026)	0.068*** (0.011)	0.051*** (0.008)
Number of Employees, t−1	0.197*** (0.026)	0.397*** (0.014)	0.199*** (0.027)	0.198*** (0.027)	0.087*** (0.012)	0.057*** (0.008)
Year	0.035** (0.018)	0.035*** (0.009)	0.036** (0.018)	0.036* (0.018)	0.012 (0.008)	−0.001 (0.005)
Constant	−74.365** (35.062)	−75.353*** (18.889)	−77.399** (35.434)	−76.669* (35.460)	−25.870* (15.200)	−0.627 (10.778)
Number of Obs.	38518	38518	36969	32826	38518	38518
McFadden R-Sq.	0.706	0.241	0.706	0.706	0.707	0.708

The unit of observation is firm-years. *If Lobby* is a dummy variable that equals one if firm lobbies and zero otherwise. Capital-labor ratio, total non-fixed assets, and number of employees are the natural logarithms of these variables. Total non-fixed assets is total assets minus property, plant, and equipment. Panel corrected standard errors are in parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

The second equation can then be estimated using least squares. If the coefficient on the inverse Mills ratio (η) is statistically insignificant, we can deduce that sample selection bias (caused by a potentially endogenous decision to lobby) is not a primary concern.

Estimation results using the Heckman two-step procedure can be seen in Table 4. The estimate for the coefficient on the log of lobbying spending variable is very similar to that found in our baseline regression, Table 1, Column 4. These results also indicate that sample selection bias is unlikely. These last two points explain why we do not use the Heckman selection model throughout our analysis.

Channels through Which Lobbying-Induced Tax Benefits Accrue

Having found a significant and robust negative effect of lobbying spending on effective tax rates, we now analyze

how firms receive their tax benefits. Case studies, such as those by McIntyre and Nguyen (2000, 2004), suggest that firms obtain favorable tax benefits through a variety of mechanisms, notably narrow research and development credits and tax depreciation schedules tailored to specific types of capital equipment.

Given that different firms accrue tax benefits in different ways, identifying all of the channels is impossible using the dataset. Nevertheless, we provide a crude attempt at isolating the channels through which firms that lobby accrue benefits. We do so by testing whether the sensitivity of firm characteristics in determining tax rates varies between firms that lobby and those that do not. If these are different for a given characteristic, that characteristic could serve as a channel through which lobbying-induced tax benefits accrue. Empirically, we implement this by modifying the basic accounting framework explaining determinants of effective tax rates (presented in the data section). We do so by adding an interaction term between the firm characteristics that determine tax rates (X_{it-1}) and a dummy variable for whether the firm

lobbied in the previous year or not (*If Lobby_{it-1}*). Hence, we estimate the following regression:

$$ETR_{it} = \beta X_{it-1} + \psi X_{it-1}(If Lobby_{it-1}) + \rho ETR_{it-1} + \alpha_i + \alpha_t + \varepsilon_{it}$$

The results from this analysis appear in Table 5. Column 1 provides a benchmark regression. Column 2 presents the specification explained above.

Significant ψ coefficients represent different tax treatment of underlying firm characteristics for firms that lobby. For three of the six tax-determining characteristics—size, leverage, and inventory intensity—we find no evidence supporting different treatment depending upon lobbying behavior. For the remaining three determinants of tax rates—capital intensity, return on assets, and research and development intensity—however, we find reason to believe there are systematic differences in the tax treatment of firms that lobby along those dimensions.

Research and development intensity, return on assets, and capital intensity serve as potential channels through

TABLE 4 Heckman Selection Model

1st Step of Heckman 2-Step Selection Model	
Dependent Variable	If Lobby, t
If Lobby, t–1	3.214*** (0.035)
Capital-Labor Ratio, t–1	0.039*** (0.010)
Total Non-Fixed Assets, t–1	0.068*** (0.011)
Number of Employees, t–1	0.087*** (0.011)
Year	0.012 (0.008)
Constant	–25.985* (15.121)
Number of Obs.	38904
McFadden R-Sq.	0.708

This is estimated using a probit regression just as in Table 4. The sample is all active firms in COMPUSTAT. The unit of observation is firm-years. If Lobby is a dummy variable that equals one if firm lobbies and zero otherwise. Capital-labor ratio, total non-fixed assets, and number of employees are the natural logarithms of these variables. Total non-fixed assets is total assets minus property, plant, and equipment. Panel corrected standard errors are in parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. The primary purpose of this regression is to calculate the inverse Mills ratio required for the second step.
(continued)

TABLE 4 Continued

2nd Step of Heckman 2-Step Selection Model	
Dependent Variable	Effective Tax Rate, t
Lobby, t–1	–1.013* (0.566)
Size, t–1	1.381 (2.996)
Leverage, t–1	–21.363*** (5.355)
Capital Intensity, t–1	5.592 (9.638)
Inventory Intensity, t–1	0.884 (15.030)
Return on Assets, t	–38.499*** (7.675)
Effective Tax Rate, t–1	–0.103*** (0.036)
Inverse Mills Ratio (λ), t	–5.871 (64.743)
Time Fixed Effects	Yes
Firm Fixed Effects	Yes
Number of Observations	3704
R-Squared	0.522

This is estimated using least squares. The inverse Mills ratio is calculated using the first-stage regression; all other data are defined as in other tables in the article. Note that since the coefficient on the inverse Mills ratio is not statistically significant, we cannot reject the null hypothesis that there is no sample selection bias under the assumptions of the Heckman sample selection model. Hence our baseline regression in Table 1, Column 4 remains the preferred specification.

which politicians could manipulate the tax code to favor firms that lobby. We expect the tax treatment of firms that lobby to be more responsive towards accruing benefits along these channels than firms that do not lobby. The values of the coefficients ψ on research and development intensity and on return on assets (interacted with the dummy variable) should be negative for firms that lobby if higher values of these characteristics receive special treatment. By contrast, the value of the coefficient ψ on capital intensity (interacted with the dummy variable) could be positive for firms that lobby while paradoxically reflecting lower tax rates given systematic discrepancies in tax and financial accounting.³²

³²Our metric for capital intensity is financial accounting based. Most firms use some form of accelerated depreciation in their tax accounting. If tax depreciation schedules changed, the standard mappings between our financial accounting–based measure of capital intensity and a tax accounting–based measure would change.

TABLE 5 Effective Tax Rates and Lobbying: Isolating Channels through Which Benefits Accrue

Dependent Variable	Effective Tax Rate, t	
	All Firms	
Sample		
Effective Tax Rate, t-1	0.031*** (0.008)	0.003*** (0.008)
Size, t-1	2.356*** (0.397)	2.335*** (0.399)
Leverage, t-1	0.010 (0.043)	0.010 (0.043)
Capital Intensity, t-1	-2.164 (2.979)	-3.011 (2.992)
Inventory Intensity, t-1	-6.727 (4.217)	-7.010* (4.232)
Return on Assets	-0.003 (0.039)	-0.002 (0.039)
R&D Intensity, t-1	-0.004 (0.005)	-0.004 (0.005)
Size, t-1 * If Lobby, t-1		-0.212 (0.329)
Leverage, t-1 * If Lobby, t-1		-5.575 (5.884)
Capital Intensity, t-1 * If Lobby, t-1		15.207*** (7.055)
Inventory Intensity, t-1 * If Lobby, t-1		0.951 (11.607)
Return on Assets, t * If Lobby, t-1		-15.726*** (4.046)
R&D Intensity, t-1 * If Lobby, t-1		-0.696** (0.296)
Time Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
Number of Obs.	18569	18569
R-Squared	0.466	0.467

Unit of observation is firm-years. If Lobby is a dummy variable equal to one if firm lobbies and zero otherwise. Size is measured by the natural logarithm of total assets of the firm. Leverage is the ratio of the firm’s long-term debt to its total assets. Capital intensity is computed by the net value of firm’s property, plant, and equipment divided by its total assets. Return on assets is the ratio of firm’s pretax income (excluding special items) to its total assets. Inventory intensity is defined as firm’s total inventory divided by its total assets. Research and development intensity is the research and development expenses divided by total sales of the firm. Panel corrected standard errors are in parentheses. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level. The highlighted regions show firm characteristics whose responsiveness to tax treatments changes if they lobby. The firm characteristics highlighted may serve as potential channels through which politicians alter the tax code to benefit firms that lobby.

According to a recent *Wall Street Journal* article about lobbying for tax benefits, Internal Revenue Service data show “roughly 100 companies received 54% of the \$5.5 billion [research and development] tax benefit in 2004” (Ducker and Lueck 2007, A6). Moreover, our results sug-

gest that firms that lobby are the primary tax beneficiaries of research and development activities.

Case studies document politicians’ ability to codify firm-specific tax breaks by favorably altering the tax depreciation schedules for specific types of capital

equipment (Bartlett and Steele 1988; McIntyre and Nguyen 2000, 2004; and our example in the introduction). Our results are consistent with this finding only if firms that lobby are able to accelerate their tax depreciation at faster rates than firms that do not lobby.³³ These case studies also bring into question the suitability of using a capital-intensity metric calculated from financial accounting statements to capture the effects of changes in the tax code that should appear primarily in confidential tax accounting statements.

We included return on assets in our framework initially to capture the effects of firm performance in determining effective tax rates. Firm performance does not affect the tax rates paid by the average firm; however, it does affect the tax rates paid by the average firm that lobbies. Firms at the same level of performance pay lower tax rates if they lobby.³⁴ We think this indicates that politicians creatively doctor the tax code to benefit higher performing firms that lobby in a variety of ways not captured in our accounting-based framework, designed primarily to capture a systematic relationship between lobbying and effective tax rates rather than to expose channels through which tax breaks accrue.

Discussion

In explaining our baseline regressions, we noted that the average firm that increases its lobbying expenditure by 1% realizes a 0.5 to 1.6 percentage point drop in its effective tax rate. Two sensible questions remain. What might undercut the reliability of this result? And what does it mean in an aggregate sense?

Reliability of the Findings

We conducted robustness checks ranging from treatments of the sample to treatments of fixed effects specifications and even to treatments of the underlying variables. We also performed checks to show that our estimation

does not suffer from sample selection bias. Given that the core results survive and are sometimes stronger, we are confident that the more a firm spends on lobbying, the lower its subsequent year effective tax rate is on average.

It is possible that we wrongly attribute some fraction of the tax benefits received to lobbying expenditures rather than to other forms of garnering corporate political influence. Examples might include black bags filled with cash and donations to politicians' favorite charities in lieu of registered means of garnering influence. To the extent that other forms of corporate political influence are positively correlated with lobbying expenditures, our coefficient estimates might be biased upwards. The one notable example may be PAC spending (Ansola-behere, Snyder, and Tripathi 2002). Given that lobbying expenditures are more than five times larger than PAC expenditures, any upward bias should be small, falling well within the standard errors we estimate.³⁵ Even if we used the smallest (absolute value) estimates, the magnitudes of the coefficients are meaningful in an economic sense. It is also informative to note that since the coefficient we estimate is the average effect for all firms—both those successful and unsuccessful in lobbying—the benefits obtained by successful firms are likely to be greater in practice.

A second concern is that the level of lobbying expenditures a firm chooses may be correlated with opportunities to win lower effective tax rates. Unfortunately, there is no statistical way to rule out or control for this possibility since we are limited to observational data rather than experimental data (and have no natural instrument available to use in a two-stage least squares design). To the extent that the decision of how much to spend on lobbying is predicated by the anticipated level of effective tax rates a firm would pay if successful, we may be finding (at worst) partial correlation between lobbying expenditures and effective tax rates rather than capturing only causal effects of opportunistic spending. The primary result, however, would remain economically and politically meaningful.

Consequences of Lobbying for Taxes

Since the big picture questions matter, many researchers are tempted to arrive at dramatic conclusions, such as corporations rule the world or money plays no role in

³³This is because firms accelerating tax depreciation at an even faster rate will have larger discrepancies between PPE on their financial accounting statement versus their tax accounting statement. Consequently, they would appear to be even more capital intensive using financial accounting metrics as a basis for the measure than they would using tax accounting metrics. For more on how depreciation schedules lead to difference in book and tax income, see Desai (2003).

³⁴The result is not compromised by potential selection issues. As noted earlier, higher firm performance does not affect firms' decision to lobby.

³⁵Taking the coefficient of our preferred specification, -1.07 , and multiplying that by 0.85 (since 85% of registered interest group spending is through lobbying) yields a new value of -0.91 , which is well above the lower bound of a one-standard-deviation confidence interval, -0.5 .

politics. Tackling these questions with data on narrowly defined problems does not seem promising. Instead we broaden our perspective to assess our results in multiple contexts: the tax benefits to firms appear substantial, while the revenue costs to the government appear modest.

As our econometrics necessarily relied upon marginal analysis, a direct interpretation of the coefficients may obfuscate the magnitude of the benefits firms receive. Interpreting a 0.5 to 1.6 percentage point drop in effective tax rates due to a 1% increase in lobbying in dollar terms may be more illustrative. In our sample, the mean firm that lobbies spends \$779,945 and the mean tax rate is 22.9%. An increase of lobbying expenditures by 1% only costs the mean firm \$7,799 over its prior year lobbying expenditures; the tax benefits it receives range from \$4.8M to \$16M. Taking into account the initial lobbying investment, for each additional \$1 spent on lobbying the mean firm receives somewhere in the range of \$6 to \$20 of tax benefits.

These dollar values make lobbying look astonishingly profitable. Clearly every firm cannot receive these benefits. Seventy-six percent of firms that lobby in our sample fall below the mean level of lobbying expenditures given the skewed, power-law type distribution of lobbying spending. Furthermore, only about 10% of firms choose to lobby. The selection mechanism determining which firms lobby is an important area for future research; theoretical models are particularly needed. For our core result, the most important things about the selection mechanism are that the level of a firm's effective tax rates in the previous year play no part in determining which firms lobby and that it does not introduce bias, both of which we showed. A further caveat is that presumably there is a point at which increasing lobbying expenditures would cease to be profitable. Most firms seem to perceive that they have reached this point given that both the modal and median increase in lobbying expenditures in our sample is near zero; this may also reflect few opportunities for political entrepreneurs.

Given that the benefits to the firms that receive them are large, how much does it cost the government to provide these benefits? We cannot estimate this reliably; however, we can present an illustration, albeit completely hypothetical. Aggregate pretax income of all active firms that lobby which were included in COMPUSTAT in 2005 was \$1,140B. If all of these firms increased their lobbying expenditures by 1%, the government would reduce the tax rate on these firms by 1.07%. The revenue loss the government would incur in this scenario would be approximately \$12B. This amount is relatively modest from the standpoint of overall government expenditures in 2005,

which were \$3,892B.³⁶ As a benchmark this amount approximates what the federal government spends on school lunches in any given year.³⁷ Relative to other metrics such as the corporate taxable revenues in 2005, \$377B, it is not as modest.³⁸ If all active firms listed in COMPUSTAT that lobby increased their expenditures by 1%, the government would collect roughly 3% less in corporate tax receipts under the scenario.³⁹

Conclusion

This article systematically establishes that on average firms with higher lobbying expenditures in one year pay lower effective tax rates in the following year; we did not find that all firms that lobby obtain tax benefits. These findings are consistent with a view of tax lobbying that is both opportunistic and defensive; the findings are also consistent with case studies, including one we present. We believe our findings are important because they stand in stark contrast to the findings of the campaign contributions literature, which has suggested that corporate political expenditures are merely a form of consumption (Ansolabehere, de Figueiredo, and Snyder 2003). Corporations have many ways they can spend money to attempt to influence politics. We do not find it surprising that they spend the most money on lobbying since it has a quantifiable payoff in at least one important area, taxes. A secondary contribution of this article is the introduction of a comprehensive dataset matching corporate lobbying expenditures to firm-level characteristics. This firm-level data should make it easier to delve into the benefits of lobbying in other dimensions.

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- ³⁶Bureau of Economic Affairs, National Income and Products Account Table 3.1, Line 15.
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- ³⁸Bureau of Economic Affairs, National Income and Products Account Table 3.1, Line 5.
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