Tobacco Politics and Electoral Accountability in the United States

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Abstract

This paper investigates whether reputation-building strategies guide U.S. governors' state cigarette tax choices, and whether the federal cigarette tax influences such behavior. Using 1975-2000 data, we find evidence that governors in states with relatively important agricultural tobacco production and tobacco manufacturing, and which are densely populated by smokers, appear prone to reputation-building. Moreover, lame ducks are more prone to raise the state cigarette tax the lower the federal tax.

Keywords: Agricultural tobacco, cigarette taxation, lobbying, reputation-building; electoral accountability; term limits; federalism.

"*Tobacco use is the leading preventable cause of death in the United States. A direct contributor to this massive health burden is the effectiveness of the tobacco industry's activities, including campaign contributions*."

- D.A. Luke and M. Krauss, in "Where There's Smoke There's Money: Tobacco Industry Campaign Contributions and U.S. Congressional Voting," *American Journal of Preventive Medicine* 27(5): 363-72, 2002 (p. 363).

1. Introduction

In representative democracies, elections are the voters' tool for making incumbent politicians pay attention to their constituents' interests. While in office, politicians attempt to build a reputation that can help them get reelected with votes (Besley and Case, 1995, 2003; List and Sturm, 2006) and campaign contributions (Kroszner and Stratmann, 1998). However, when reelection is no longer possible due to a binding term limit, voters lose their main tool for holding the politician accountable, and interest groups can no longer count on future help.

The literature studying political reputation-building behavior by politicians has recently documented how state fiscal and environmental policies are used to attract certain voter groups to governors' platforms (Besley and Case 2003; List and Sturm 2006). List and Sturm (2006) present a two-policy model where a politician sets both "primary policies" (e.g., government spending or the extent of wealth redistribution) and "secondary policies" (e.g., environmental policy or trade policy). Their model predicts that if the secondary policy is some voters' main priority, politicians may distort the secondary policy to attract such "single-issue voters." The state cigarette tax is (in our view) an example of a secondary policy, and this is the policy focus in the current paper. Taxation of tobacco products is a relatively important issue in the U.S. For example, in 1997 U.S. tobacco farmers sold tobacco leaf valued at $2.9bn, U.S. consumers spent $52.6bn on tobacco products (out of which $5.7bn was federal taxes, and $7.8bn was state and local taxes), and 1 to 2 million jobs are supported by the tobacco industry (farming, manufacturing, wholesale, and retailing), according to Gale *et al*. (2000). Uri and Boyd (1995) find that a $1 per pack equivalent increase in the excise tax on tobacco products could cause a

fall in the consumption of all goods and services in the U.S. by approximately 0.49 percent, a fall in tobacco consumption by more than 12 percent, a decline in total utility by almost 0.5 percent, and a net increase of government revenue by more than 1.7 percent.[1] Various voter and interest groups have intense preferences over state cigarette taxes. These groups include cigarette smokers, but also factor owner lobby groups and workers in agricultural tobacco production and in the cigarette (tobacco products) manufacturing industry. These groups all favor lower cigarette taxes.[2] On the other hand, anti-smoking groups favor higher cigarette taxes.

Electoral incentives are not the only consideration of politicians, however. In addition to votes, politicians care about financial contributions from special interest groups. For example, Glantz and Begay (1994), Goldstein and Bearman (1996), Morley *et al*. (2002), and Luke and Krauss (2002) all argue that lobbying is an important influence on policy in the area of state cigarette taxation.[3] In this paper, we rely on the theoretical framework developed by Kroszner and Stratmann (1998), who argue that politicians build a reputation with various lobby groups. Kroszner and Stratmann (1998) argue that over time, as a politician's credibility rises as a champion of a particular group's interest, the politician will be supported with larger amounts of campaign contributions by groups close in ideology. Kroszner and Stratmann (1998) also suggest that as the probability rises that the politician leaves office, the level of contributions will decline.[4] Since a lame duck governor has a probability equal to unity of leaving office, it

[1] Moreover, according to the Centers for Disease Control and Prevention, an estimated 19.8 percent of U.S. adults (43.4 million), were smokers in 2007, and during 2001–2004 the average annual smoking-attributable health care expenditures and productivity losses were approximately $193 billion per year (see http://www.cdc.gov/media/pressrel/2008/r081113.htm, visited July 7, 2009).

[2] However, if a share of output is sold out of state, these workers would have less at stake in the cigarette tax policy outcome.

[3] For example, Glantz and Begay (1994) find that tobacco industry campaign contributions influence California state legislators on matters related to tobacco policies, independent of constituents' support for tobacco control measures. Lopez and Pagoulatos (1996) argue that campaign contributions have a "strongly persuasive role" (p. 237) for U.S. tobacco trade protection, while Lopez (2001) find that campaign contributions from the farm lobby yields high returns in the form of substantial agricultural subsidies, and Lopez and Matschke (2006) and Ederington and Minier (2008) report that campaign contributions are highly influential for trade barriers in the U.S. food-processing industries and in the agricultural commodities sectors, respectively.

[4] Evidence appears to support this conclusion. Kroszner and Stratmann (1998) find that PAC contributions dried up almost completely for U.S. House Banking Committee members who announced their retirement.

follows that contributions given to such governors should decline sharply. In the area of tobacco, lobbying is carried out both by tobacco farmers, the tobacco manufacturing industry, and by anti-smoking groups.[5] Our first objective in this paper is to study whether U.S. governors use cigarette taxes to (*i*) build reputation among voters with a strong interest in the tax rate, and/or (*ii*) build reputation among agricultural and manufacturing lobby groups with a large stake in cigarette taxation.

Anecdotal evidence indeed indicates that governors use cigarette taxes to build reputation and gain re-election, and then raise this tax during the lame duck term. For example, in his lame duck term Gov. Parris N. Glendening (D) of Maryland pushed through a 30 cents/pack state cigarette tax (to 66 cents per pack, effective July 1, 1999). His predecessor Gov. William D. Schaefer (D) had then already raised this tax twice in 1991 and 1992, while in lame duck status.[6]

In our analysis of reputation building, we also contribute by incorporating insights from the literature on fiscal federalism: policies set by one level of government have been found to influence the policies set by the government at another level. We therefore believe the results from the literature on vertical tax interactions should be taken into consideration in empirical studies of state cigarette taxation. This literature establishes that states set taxes (e.g., cigarette, gasoline, income, and corporate taxes) *conditional* on the federal cigarette tax rate (see, e.g., Besley and Rosen, 1998; Devereux *et al*., 2007).[7] This suggests that governors may take the federal tax rate into consideration also when engaging in reputation building activities. Our

[5] Morley *et al.* (2002) report that spending by the Tobacco Institute (an anti-tax tobacco industry lobby group) increased significantly in Ohio in 1991-92 preceding the 1993 cigarette tax of 6 cents per pack; spending in Utah and Washington State rose sharply in 1995-96 during which time their state cigarette taxes however increased significantly. Goldstein and Bearman (1996) report that in year 1994 there were 450 state level pro-tobacco lobbyist, but only 16 lobbyists primarily working to reduce tobacco consumption.

[6] Other examples include Gov. Michael N. Castle (R) who raised the Delaware cigarette tax to 24 cents during his lame duck term in 1991, and lame duck Gov. John G. Rowland (R) who oversaw a 40 cent increase in 2003 of the Connecticut state cigarette tax (to $1.51 per pack). It is or relevance for this paper that in 2004, Gov. Rowland resigned from office (under the threat of impeachment), and in 2005 was sentenced to one year and one day in prison on corruption charges. Thus, governors do not appear immune from influence-seeking individuals and/or groups.

[7] E.g., Besley and Rosen (1998) find that a higher federal cigarette tax is associated with higher state cigarette taxes.

second objective is to investigate whether reputation building in the area of cigarette taxation is conditional on the federal cigarette tax rate.

In year 2000, 17 states had positive amounts of agricultural tobacco production, while 18 states had cigarette manufacturing located within their borders. This makes cigarette taxation a suitable policy to study reputation building, as state politicians may be expected to be especially likely to build relationships and reputation among tobacco (agricultural and manufacturing) lobby groups in states with tobacco related economic activity. Our empirical results appear to confirm this view. Utilizing state-level panel data for 1975-2000, we find that reputation building occurs by governors, as indicated by a temporal difference in tax rates when they reach lame duck status. In particular, such reputation building is conditional on: (*i*) the share of smoking voters in the state; and in particular, (*ii*) the amount of agricultural tobacco production in the state [indicating agricultural tobacco sector lobbying, see Potters and Sloof (1996)]; and (*iii*) the amount of cigarette manufacturing in the state [indicating manufacturing tobacco sector lobbying, see Potters and Sloof (1996)]. A lame duck governor raises the state cigarette tax, in particular if the state has a high concentration of agricultural tobacco production, cigarette/tobacco manufacturing, and/or smoking voters. Thus, not only do voters hold governors accountable as shown by List and Sturm (2006), but reputation building is also related to lobby group activity, as suggested by Kroszner and Stratmann (1998). Moreover, the policy effects of these reputation building activities are conditional on the federal cigarette tax. Lame duck governors raise the state cigarette tax by more, the lower the federal cigarette tax. We believe our empirical results complement existing findings in the literature.

The paper is organized as follows. Section II further outlines the theoretical predictions provided by the literature, and gives a brief overview of the existing empirical literature. Section III discusses the empirical model and data. Section IV presents the results, and Section V concludes.

II. Theoretical and Empirical Background

Theoretical Predictions

Kroszner and Stratmann (1998) argue that politicians seek to build up a favorable reputation with lobby groups through repeated interactions over time.[8] As time passes, a politician's credibility rises with a particular interest group due, e.g., to a consistent voting record and high effort level on behalf of the group(s) (e.g., by drafting bills, negotiating with legislators, giving media interviews, or by meeting and persuading voters). This reduces uncertainty for the lobby groups regarding policy outcomes (see also Gilligan and Krehbiel, 1989). As time progresses, the politician increasingly receives support only from groups close in ideology and policy preferences. The amounts of campaign contributions received increase due to the reputation building activities. However, these funds disappear when the politician faces a certain eviction from office. Consistent with the findings by Kroszner and Stratmann (1998), we assume that a lame duck governor receives lower amounts of campaign contributions by the agricultural tobacco and cigarette manufacturing lobbies. Thus, the term-limited politician has a lower incentive to set a cigarette tax that deviates from her most-preferred policy.

List and Sturm (2006) present a two-policy model where a politician sets both a frontline policy and a secondary policy. Voters have heterogeneous preferences over policies. While most voters have no preferences over the secondary policy, for some voters the secondary policy is of greater importance than the frontline policy. There is uncertainty regarding the politician's preferences over the secondary policy. The model predicts that if the secondary policy is some voters' main priority, politicians may distort the secondary policy to attract "single-issue voters." An increase in the number of voters that can be attracted by distorting the secondary policy raises

[8] An extensive theoretical literature on lobbying predicts that politicians distort policy in exchange for campaign contributions. Kroszner and Stratmann (1998) focus on explaining the organization of the U.S. Congress into committees. Grossman and Helpman (1994) develop a seminal menu auction model where campaign contributions are exchanged for more favorable trade policies. The findings in this literature suggest that tobacco manufacturing industry and agricultural tobacco sector lobbying will have a negative effect on state cigarette tax rates.

the probability that incumbent governors engage in reputation-building activities.[9] In equilibrium, even politicians with views opposite to the single-issue voters may seek to placate this voter group by distorting their policy choice in order to win re-election. However, when politicians face a binding term limit they set their preferred policies rather than strategically distorting policies, since gaining votes and re-election are no longer considerations (consistent with, e.g., Alesina, 1988). This view is supported empirically by Besley and Case (1995) who report that lame duck governors do *not* appear to care for either their own or their party's reputation, as evidenced by the finding that only re-electable governors respond to natural disasters by raising expenditures. Thus, we expect re-electable governors to attract smokers to their platform by lowering the cigarette tax, but to raise this tax as they gain lame duck status.

Besley and Case (1995) provide a model where voters with imperfect information re-elect a governor with a higher probability, the greater the incumbent's effort (which yields more "successful" policies and high voter utility) and reputation (see also Barro, 1970; Banks and Sundaram, 1998). In the governor's final term she finds herself a lame duck without re-election prospects, with no payoff from building reputation. Thus, she puts in less effort and her policy choices differ from earlier periods, consistent with List and Sturm (2006).[10]

The theoretical literature on vertical tax interactions identifies a multitude of opposing and ambiguous effects of a federal tax on state commodity taxes. The impact of the federal tax rate depends on the price-elasticity of demand, revenue effects, the extent of cross-border shopping, and on the degree of horizontal tax competition (see, e.g., Besley and Rosen 1998; Keen 1998; Devereux *et al*. 2007).[11] It follows that governors are likely to take the federal tax

[9] List and Sturm (2006) argue that the pressure to attract these voters also depends on the electoral pressures faced by the politician (reflected by the vote margin). This aspect is not a focus of the present paper, and thus we abstract from this issue in our empirical analysis.

[10] See Dick and Lott (1993) and Bernhardt *et al*. (2004) for additional theoretical contributions.

[11] Devereux *et al*. (2007) argue that the price-elasticity of demand (the elasticity of the tax base) is an important determinant of the sign of the tax reaction function. With price-inelastic individual demand and a high incentive to undertake inter-state shopping, the federal tax will not matter for the state tax; Devereux *et al*. (2007) argue that these conditions match the U.S. market for cigarettes (when demand instead is elastic, the response is ambiguous).

rate into account when building reputation, as the cost of acquiring a reputation (and distorting state tax policy) will depend on the federal tax. Moreover, it appears probable that state legislatures' willingness to change state taxes (or not) is conditional on the corresponding federal tax, as the marginal effect of, e.g., a state tax increase is influenced by existing taxes levied by other levels of government.

Empirical Literature

The related empirical literatures contain a multitude of results. Kroszner and Stratmann (1998) find that older U.S. House representatives and those who announce their retirement (from the Banking Committee) face declining PAC contributions, as they can no longer benefit from the reputation they have built with lobby groups. The empirical literature on the impact of reputation-building on tax policy includes the important contribution by Besley and Case (1995), who find that Democratic lame duck governors set significantly higher per capita total state taxes and state expenditures than other governors. Millimet *et al*. (2004) report that Republican lame ducks raise taxes and spending per capita more than do Democratic lame ducks.[12] List and Sturm (2006) establish that governors' environmental policy (the secondary policy) choices change notably once they obtain lame duck status, and the change is conditional on the environmental preferences of the electorate.

In the empirical literature on vertical tax interactions reports diverging results, Besley and Rosen (1998) (using 1975-89 data) and Devereux *et al*. (2007) (using 1977-97 data) find some

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On the other hand, when price-elastic individual demand and little reason exists for inter-state shopping, the federal tax affects the state tax negatively when demand is linear, but positively if demand is iso-elastic. Besley and Rosen (1998) argue that a revenue effect arises from the need of states to raise tax rates in order to keep state revenues intact as the federal tax rises. This suggests that state and federal taxes should be positively associated. Besley and Rosen (1998) and Keen (1998) in addition argue that a higher federal tax increases the marginal value of state public goods, raising the attractiveness of the state tax. Keen (1998) suggests that a higher federal tax raises the consumer price and thus reduces demand for the good. Consequently, the welfare loss resulting from the state tax declines, yielding a positive effect on the state tax. Besley and Rosen (1998) argue that endogenous expenditure effects may induce states to reduce public spending in response to a higher federal tax, yielding an ambiguous link between federal and state taxes. Moreover, Besley and Rosen (1998) suggest that there could be substitutability and complementarity effects among various taxes in the presence of non–separabilities in demand, implying an ambiguous response by states.

[12] Besley and Case (2003) extend the data set to 1997 and find a significant effect only for state expenditures. Millimet *et al*. (2004) extend the same sample to 1999, and report stronger positive effects than the earlier literature.

positive effects on U.S. state cigarette and gasoline taxes of an increase in the corresponding federal excise tax.[13] This literature has not previously been incorporated in studies of reputation-building, and has not discussed such issues in the area of agricultural sector policy making.

III. Empirical Analysis

The Empirical Model

Drawing on the existing theories and empirical results discussed above, we distill three empirically testable implications. First, in states with more active agricultural tobacco and cigarette manufacturing lobby groups (with more at stake, as discussed by Potters and Sloof, 1996) and thus more intense reputation building by governors, we should see a sharper temporal difference in the state cigarette tax as governors reach lame duck status. Second, the temporal difference in the cigarette tax when a governor is re-electable versus a lame duck should depend on the fraction of voters with a relatively intense interest in the cigarette tax rate, reflected by the share of voters classified as smokers. The larger is this set of voters, the greater is the incentive of governors to build reputation with the help of cigarette taxes, by moving away from her bliss-point policy. Finally, if state cigarette taxes are set conditional on the federal cigarette tax, reputation building behavior should also be conditional on the federal cigarette tax. Thus, we evaluate whether the temporal difference in the cigarette tax set by a re-electable and a lame duck governor may be conditional on the federal cigarette tax. The following empirical model is estimated:

$$t_{it}^{s} = \alpha_i + \beta l_{it} + \gamma t_t^{f} + \rho l_{it} \times t_t^{f} + \delta l_{it} \times S_i + \theta l_{it} \times t_t^{f} \times S_i + \tau X_t + \varphi Z_{it} + \varepsilon_{it}, \qquad (1)$$

[13] On the other hand, Fredriksson and Mamun (2008) report a negative vertical cigarette tax externality for the shorter time span 1982-2001. This literature has also explored other areas of taxation. Boadway and Hayashi (2001) and Karkalakos and Kotsogiannis (2007) report negative effects on Canadian provincial corporate taxes, and Goodspeed (2000) finds a negative effect on U.S. state income taxes of federal income tax changes. Esteller–Moré and Solé–Ollé (2001, 2002) establish a positive impact on U.S. state taxes of federal personal income and general sales taxes, and for Canadian income taxes, whereas Brülhart and Jametti (2006) find a positive vertical externality on Swiss personal and corporate sub–national taxes.

where t_{it}^{s} is the real cigarette tax rate in state *i* in year *t*, α_i is a state fixed effect, l_{it} is a dummy variable equal to one if the governor in state i has lame duck status in year *t*, t_t^f is the real federal cigarette tax in year *t*, S_i is a dummy variable equal to one if state i meets a tobacco-related criteria (explained below), $t_t^f \times l_{it}$, $l_{it} \times S_i$ and $l_{it} \times t_t^f \times S_i$ are the corresponding interaction variables, X_t are the time varying controls common to all states, Z_{it} are the time and state varying controls, and ε_{it} is a random error term. The coefficients of interest are β, ρ, δ and θ.

Data and Hypothesis Specification

Our 1975-2000 panel data covers the 48 contiguous U.S. states. All sources, variable definitions, and summary statistics are reported in Table 1. The state and federal cigarette excise tax rates (per pack of 20 cigarettes) come from Orzechowski and Walker (2003) and are deflated to 1983 constant prices. The state tax rates (*STATETAX*) vary considerably across states and time. For example, during 1975 – 2000 the average real state cigarette tax was $0.025 in Virginia, while it was $0.38 in Washington. The nominal state cigarette tax rate increased in most states during this time period, although not in every state. The federal tax rate (*FEDTAX*) is (of course) identical for all states in any given year. The nominal federal tax rate was 8 cents per pack from year 1952 to 1982, but after several tax hikes it had increased to 34 cents by year 2000. Fig. 1 presents the pattern of real cigarette tax rates over the sample period for: (*i*) the three states with greatest real increases (CA, NY, and WA); (ii) the three states with the greatest real declines (KY, NC, and VA); and the real federal tax rate.

Data on gubernatorial term limits come from List and Sturm (2006). *LAMEDUCK* takes a value of one in years where the incumbent governor is facing a binding term limit, and zero otherwise. In many U.S. states governors face term limits after two terms in office. However,

one term, three terms, and no term limits also existed during our sample period. Table A1 in the appendix describes this pattern across states during the sample period.

Data on the share of the population who are smokers come from the State Tobacco Activities Tracking and Evaluation (STATE) System of the Centers for Disease Control and Prevention (various years). Since the relative size of the smoking population across years is highly correlated within states, we use an average of smokers across years 1975-2000 to create the dummy variable *SMOKER STATE,* which takes a value of unity in states heavily populated by smokers, and zero otherwise. While an average of 23.8% of the population in the United States are classified as smokers during the sample period, 31% of the inhabitants of Kentucky are smokers (highest frequency). While we do not have data on the number of anti-smoking proponents with preferences sufficiently intense to take them into account at the voting booth, we believe they are relatively few.[14]

We also create dummy variables based on the average state agricultural tobacco production in pounds per $ million real GSP (*TOBAC STATE*), and the average percentage of real GSP coming from the tobacco (cigarettes and other tobacco products) manufacturing sector (*MANUF STATE*) (both variables are averages for years 1975 – 2000). These variables represent the lobbying impact of the agricultural tobacco lobby and the tobacco manufacturing industry lobby, respectively. With local production activity, lobbying influence is likely to be stronger, since more is at stake for the industry in such states (see, e.g., Potters and Sloof, 1996). According to Jacobson *et al*. (1997), the tobacco industry wields its strongest influence at the state level. See Table A2 in the appendix for information about exact cut-off values and states. Data on agricultural tobacco production comes from USDA (various years); and data on

[14] Moreover, analogously to List and Sturm's (2006) argument for "green" and "brown" voters, our measure of smokers may yield an account also for this group. This would be a valid approach to proxy the relative political strength of smokers and anti-smoker activists in each state, if these voters are uncorrelated or negatively correlated. Our empirical findings below appear to suggest that this assumption is reasonable.

tobacco/cigarette manufacturing comes from the Bureau of Economic Analysis (U.S. Department of Commerce (various years)).

We utilize similar control variables as Besley and Rosen (1998). In order to control for political party dominance, we use (*i*) a dummy variable equal to one if the state governor is a Democrat (*DEMOGOV*), (*ii*) the proportion of Democrats in the state Senate (*DEMOSENATE*), and (*iii*) the proportion of Democrats in the state House (*DEMOHOUSE*). Note that Nebraska has a non-partisan, unicameral legislature due to the unicameral system of the state legislature. We therefore drop Nebraska completely from our data set, following, e.g., Reed (2006). The state governor data comes from the National Governors Association (2005), while the proportions of Democrats in the Senate and the House come from various editions of the Statistical Abstracts of the United States (U.S. Census Bureau (various years)).

National real GDP (*NatlGDP*) and the national unemployment rate (*NatlUNEMPLOY*) capture fluctuations in the national economic climate. These variables represent the X_t controls in Eqn. (1). The time- and state-varying controls Z_{it} in Eqn. (1) consist of state demographic and economic variables such as the total state population (*POPULATION*), real state income per capita (*INCOME*), state unemployment rate (*UNEMPLOYstate*), the portion of population in the state between five and 17 years of age (*CHILD*), and over 65 years old (*OVER65*).[15] The national real GDP, population, and state income data are from the Bureau of Economic Analysis (U.S. Department of Commerce (various years)), and the state unemployment rates are from the Bureau of Labor Statistics (U.S. Department of Labor (various years)). The data on the national unemployment rate and the proportion of children and those aged above 65 in the population, respectively, are from various editions of the Statistical Abstracts of the United States (U.S. Census Bureau (various years)).

[15] All models also include *POPULATION* and *INCOME* squared, as well as a time trend and its square.

Next, *TOBACCO INCOME* equals tobacco production (lbs) per dollar of state income, and comes from USDA (various years); it measures the relative importance of tobacco for the state. In addition, *GAS* measures gasoline production per dollar of state income. Tobacco producers may be expected to lobby for lower cigarette taxes, while gasoline producers should take the opposite stance (attempting to reduce the need to raise gas tax revenue). *GRANTS* is federal grants/capita, which reduces the need to raise state tax revenues. *INCOME TAX* is the federal income tax divided by adjusted gross income, which seeks to capture the ability of states to engage in further taxation effort. The daily gasoline production data comes from the U.S. Department of Energy (various years) database, whereas federal grant and income tax data comes from the U.S. Census Bureau (various years).

IV. Empirical Results

Tables 2 – 4 present our fixed-effects models. As shown by Moulton (1986), OLS estimations may give spurious results if the dependent variable is at the individual level and one or more of the independent variables are at the aggregate level. Thus, we utilize White (1980) robust standard errors and allow for within year correlations.[16] We also report the joint significant tests for *LAMEDUCK* and its interactions with *FEDTAX*, *SMOKER STATE*, *TOBAC STATE*, and *MANUF STATE*, respectively. For all models in Tables 2 – 4, R^2 fluctuates closely around 0.35 (not reported).

Basic Model Results

Models I-III in Table 2 present results for our measure of the share of voters most likely making a lower state cigarette tax a high priority (*SMOKER STATE*), with three classifications based on different cutoff levels (see Table A2). Our classification of *SMOKER STATE* varies between cutoffs at seven states (at least 26.36% of the population are smokers) and 13 states (at

[16] We calculate the variance of the estimators by allowing within-year correlations. This affects the estimated standard errors and the variance-covariance matrix of the estimators, but not the estimated coefficients (for detailed discussions, see Rogers 1993; Wooldridge 2002).

least 25% of the population are smokers).[17] Models IV-IX in Table 2 report results using our two measures of interest group lobbying intensity; the classification of *TOBAC STATE* varies between cutoffs at 6 states (at least 500 lbs agricultural tobacco production per real GSP) and 17 states (positive amount of agricultural tobacco production). The classification of *MANUF STATE* varies between cutoffs at 6 states (at least 0.1% of real GSP comes from tobacco manufacturing) and 18 states (positive amount of tobacco manufacturing). See Table A2 in appendix for further details.

In Table 2, 39 out of the 45 reported coefficients are significant, with signs highly consistent across models. The models in Table 2 suggest that once a governor obtains lame duck status and is no longer accountable to voters or lobby groups, her preferences change regarding cigarette taxes. Moreover, the altered behavior is conditional on the existence of tobacco-related activities in the governor's state, and on the federal cigarette tax in effect. As a benchmark case, let us first turn to governor behavior in states *not* classified as *SMOKER STATE*, *TOBAC STATE*, or *MANUF STATE*. Model I indicates that, at the mean of *FEDTAX*, a lame duck located in such a state raises *STATETAX* by (4.90-0.32×13.94) = 0.44 cents. This suggests that the average re-electable governor builds reputation by keeping state cigarette taxes low (assuming *FEDTAX* is at its mean), but raises the tax upon gaining lame duck status (when relieved of electoral accountability). Moreover, she raises *STATE TAX* further (by 1.22 cents) if *FEDTAX* is 1 std.dev. below its mean (1 std.dev. = 2.44). However, Model I suggests that at one std.dev. above the mean of *FEDTAX* she would *lower STATETAX* by 0.34 cents. Thus, lame duck behavior is conditional on the federal tax and it appears economically relevant, as it may even reverse the direction of lame ducks' tax changes. Models II and III yield similar results.

[17] The "standard controls" included in all models in Tables 2 – 4 are: *DEMOGOV, DEMOSENATE, DEMOHOUSE, NatlGDP, NatlUNEMPLOY, POPULATION, INCOME, StateUNEMPLOY, CHILD, OVER65, TOBACCO INCOME, GAS, GRANTS*, and *INCOME TAX*, square terms for *POPULATION* and *INCOME*, a constant, and a time trend and its square (results available upon request).

Why is lame duck behavior conditional on the federal tax? Besley and Rosen (1998) argue that states raise tax rates in order to keep state revenues intact when the federal tax is high; Keen (1998) suggests that a higher federal tax raises the consumer price and reduces demand with the consequence that the welfare loss resulting from the state tax declines; and both Besley and Rosen (1998) and Keen (1998) argue that a higher federal tax increases the marginal value of state public goods, raising the attractiveness of the state tax. These effects cause re-electable governors to raise (lower) the state tax when the federal tax is high (low) (for welfare reasons, in order to win re-election) above (below) their preferred level, ceteris paribus. Lame ducks are less guided by welfare considerations and set a tax in accordance with her preferences (as argued by Alesina 1988). Lame ducks may also encounter greater political resistance to tax hikes from lobby groups and (lobbied) state legislators, the higher the federal tax rate. If the drop in political contributions from tobacco-related lobby groups to lame duck politicians (as argued by Kroszner and Stratmann, 1998) is less sharp when *FEDTAX* is high, lame ducks have a greater incentive to keep *STATETAX* low.

Next, we turn to the behavior of governors in states classified as *SMOKER STATE*. As an example, Model I suggests that at the mean of *FEDTAX*, a lame duck holding office in such a state raises *STATETAX* by 0.14 cents [(4.90+3.74-(0.32+0.29)×13.94)=0.14]. However, if *FEDTAX* is one std.dev. below the mean in a *SMOKER STATE*, a lame duck *raises STATETAX* by 1.63 cents, while at one std.dev. above the mean of *FEDTAX* a lame duck *lowers STATETAX* by 1.35 cents. Model I indicates that the *SMOKER STATE* classification on average appears to yield a relatively low level of reputation building (as evidenced by the small effect of *LAMEDUCK* on *STATETAX*). However, *FEDTAX* does influence lame duck behavior in *SMOKER STATE* states; the change in *STATETAX* is relatively sharper in such states than in

states without tobacco-related classification.[18] While tobacco producers clearly are negatively affected by federal cigarette taxes, our results indicate that producers indirectly benefit from the influence of smokers on state taxes, in particular when the federal tax is relatively high.

Turning to Models IV-VI, we find evidence that lobbying by agricultural tobacco interests have a similar (but greater, on average) effect on lame duck governor behavior as smoking voters. For example, Model V suggests that at the mean of *FEDTAX* a lame duck governor in a *TOBAC STATE* raises *STATETAX* by 0.96 cents, while at one std.dev. below the mean the hike equals 2.55 cents; at one std.dev above the mean, she lowers it by 0.63 cents.[19] This suggests that agricultural tobacco lobbying interests are relatively influential in the determination of state cigarette taxes, and governors build a reputation among these interest groups. A similar behavior is again detected in states classified as *MANUF STATE* (see Models VII-IX). Model VIII implies that at the mean of *FEDTAX* a lame duck raises *STATETAX* by 0.73 cents, while at one std.dev. below (above) the mean she raises (cuts) it by 2.61 cents (1.15 cents).

Our results suggest that governors engage in reputation building activities aimed at voters and tobacco lobby groups. Moreover, the degree to which voters and lobby groups hold governors accountable is conditional on federal tax policy. If the federal tax is relatively low, reputation building appears more accentuated. Lame ducks may face less resistance to tax hikes from the state legislature and other interests with sway over cigarette taxes when the federal tax is relatively low. On the other hand, if high federal taxes are in place, lame duck governors may be pressured to lower the state tax, as agricultural and manufacturing tobacco special interests continue to lobby to a greater extent when the federal tax takes more of a bite. Moreover, revenues, tax welfare losses, and the marginal value of public goods may play a role (Besley and Rosen, 1998; Keen, 1998).

[18] Model II suggests at the mean of *FEDTAX*, a lame duck holding office in a state classified as *SMOKER STATE* raises *STATETAX* by 0.49 cents, but at a *FEDTAX* one std.dev. above the mean she lowers it by 0.85 cents.

[19] The corresponding results using Model VI are increases by 0.18 cents and 1.79 cents, and a cut by 1.43 cents, respectively.

Robustness Analysis

Tables 3 and 4 offer robustness analysis (no controls reported; available upon request). The three panels in Table 3 present results using the middle-case cut-offs for the classifications as *SMOKER STATE* (10 states), *TOBAC STATE* (13 states), and *MANUF STATE* (13 states), respectively (remaining cases available upon request). In Model I in Table 3, *FEDTAX* is instrumented by the federal deficit as a percentage of national GDP and national unemployment following Besley and Rosen (1998) and Devereux *et al*. (2007). The state and federal cigarette tax rates may simultaneously be affected by some common factor, which might motivate federal and state governments to act simultaneously. For example, new information may become available on the adverse health effects of smoking. Moreover, the federal government may also be influenced by state governments' tax changes.

In Model II in Table 3, *FEDTAX* is allowed to affect *STATETAX* with a one year lag ($FEDTAX_{-1}$). State legislatures may react with a delay to federal legislative action, or state legislation may be implemented with a lag. Model III includes only states without any changes in the term limit legislation, as such changes may be simultaneously determined (Besley and Case 1995). Model IV includes only states having term limit legislation at some point during the sample period (see List and Sturm 2006), which forces us to drop 11 states (see Table A1 in the appendix). Model V adds *NEIGHBORTAX*, which controls for horizontal tax interactions (see Brueckner 2003; Devereux *et al*. 2007). We utilize the population weighted tax set by neighboring states, instrumented by the population weighted state unemployment rate, the percentage of children and old in the population, and the proportion of Democrats in the state House, following Rork (2003) (see also Devereux *et al.* 2007). Model VI includes a lagged dependent variable, $STATETAX_{t-1}$, which is likely to be appropriate if state taxes exhibit strong serial correlation (Devereux *et al*. 2007). $STATETAX_{t-1}$ is instrumented by the second lag of the

dependent variable.[20] Model VII includes *BEERTAX* from the World Tax Data Base (2006); it adjusts for another sin tax. Model VIII includes $DEFICIT_{-1}$, which is the lagged (one year) state budget deficit as a percent of real gross state product (GSP). See the table notes for further details. Table 4 provides a fixed-effects analysis using several different combinations of the state classifications discussed above, using various cut-off levels.

Results of Robustness Analysis

The robustness results reported in the three panels in Table 3 show a considerable degree of robustness, in our view. *LAMEDUCK* and *FEDTAX*×*LAMEDUCK* are positive and significant in 16 and 17 out of the 24 models, respectively. Among the three state-classification variables, the two interactions with *MANUF STATE* are significant most frequently (14 out of 16 coefficients), while the *SMOKER STATE* interactions coefficients exhibit significance in seven out of 16 instances, and the *TOBAC STATE* interactions are significant in eleven out of 16 coefficients. Notably, the IV estimations in Model I appear to suggest that reputation building using state cigarette taxation is particularly prevalent in states with tobacco manufacturing industry (*MANUF STATE* states), and again that lame duck behavior is conditional on *FEDTAX*. Model I suggests that in *MANUF STATE* states, a lame duck raises *STATETAX* by 1.16 cents at the mean of *FEDTAX*. However, at one std.dev. above (below) the mean of *FEDTAX*, *STATETAX* falls (rises) by 8.8 cents (6.5 cents) when a lame duck is in office. This result is consistent with earlier results; a relatively low *FEDTAX* facilitates lame ducks' tax hikes, while a high *FEDTAX* pushes lame ducks to lower the state cigarette tax in states with a high concentration of tobacco manufacturing activity. Models II and III yield similar results.

Using data only from states with term limit legislation in Model IV, or incorporating horizontal tax interactions in Model V, suggest that reputation building may be particularly strong in the *TOBAC STATE* and *MANUF STATE* categories (the interactions with these lobby

[20] Models I, V and VI of Table 3 pass all the standard tests for validity of the instruments (results available upon request).

group indictor variables are significant in these models, but not for *SMOKER STATE*). For example, Model IV reveals that in a *TOBAC STATE*, a lame duck raises *STATETAX* by 0.95 cents (at the mean of *FEDTAX*). Moreover, reputation building appears conditional on *FEDTAX*.[21]

Turning now to Table 4 (no controls reported; available upon request), the insights gained from the earlier results remain largely intact. Models I-III suggest that reputation building is particularly intense in states meeting our most stringent cut-offs for the *SMOKER STATE*, *TOBAC STATE* and *MANUF STATE* classifications. All coefficients displayed are significant in these models. For example, Model I implies that (at the mean of *FEDTAX*) a lame duck in a *SMOKER STATE* raises *STATETAX* by 0.10 cents only, while in a *TOBAC STATE* she raises this tax by 0.34 cents.[22] Again, lame duck behavior is consistently conditional on *FEDTAX*.[23] As the cut-offs for inclusions are relaxed in Models IV-VIII the significance of some of the coefficients disappears. This may be due to less intense reputation building on average as the number of states rises (and thus the relative importance of tobacco falls). We also find that in Models IV-VIII the *TOBAC STATE* and *MANUF STATE* coefficients tend to be significant more frequently that the *SMOKER STATE* coefficients. This indicates that lobbying by agricultural tobacco and by cigarette manufacturing may be relatively more important political pressure than are smoking voters.

V. Conclusion

This paper provides evidence that state governors engage in reputation building strategies in the area of cigarette taxation, and that these strategies are focused on winning the approval among smoking voters, and in particular the agricultural tobacco lobby and the tobacco

[21] At one std.dev. below the mean of *FEDTAX*, e.g., the lame duck raises *STATETAX* by 2.44 cents in a *TOBAC STATE*, according to Model IV.
[22] Model II suggests a lame duck lowers *STATETAX* by 0.02 in a *SMOKER STATE*, while in a *MANUF STATE* she raises it by 0.39 cents (at the mean of *FEDTAX*).
[23] Note, however, that the six states each categorized as *TOBAC STATE* and *MANUF STATE* in Model III are identical, except one pair. Thus, some caution should be shown in the interpretation of Model III.

manufacturing lobby groups. Moreover, such reputation-building is conditional on the federal cigarette tax. With a lower real federal cigarette tax in place, lame ducks are more prone to raise the state tax.

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Appendix

Table A1. Term Limit Legislation for Governors by State (1975-2000)

States with no term limits (13 states): CT, ID, IL, IA, MA,[a] MN, NH, NY, ND, TX, VT, WA,[b] WI

States limiting governors to one term in office: VA

States limiting governors to two terms in office (17 states): AL, DE, FL, KS, LA, MD, ME, MO, NE, NJ, NV, OH, OK, OR, PA, SD, WV

State law changed from no term limit to a three-term limit: UT (1994)

State law changed from no term limit to a two-term limit (8 states): AZ (1992), AR (1992), CA (1990), CO (1990), MI (1992), MT (1992), RI (1994), WY (1992)

State law changed from a one-term limit to a two-term limit (8 states): GA (1976), IN (1972), KY (1992), NM (1991), MS (1986), NC (1977), SC (1980), TN (1978)

Source: List and Sturm (2006).

Notes: Year of term limit change in brackets.

a. Term limits were enacted in 1994, but in 1997 the MA Supreme Court ruled them unconstitutional.
b. Two-term term limits were enacted in 1992, but in 1998 the WA Supreme Court ruled them unconstitutional.

Table A2. Cutoff Values for the Classification as *SMOKER STATE, TOBAC STATE* and *MANUF STATE*

SMOKER STATE

Smokers' Share of Population	Number of States	States
26.36%	7 States	IN, KY, MO, NV, OH, TN, WV
26% or greater	10 States	AR, IN, KY, MI, MO, NV, NC, OH, TN, WV
25% or greater	13 States	AR, DE, IN, KY, MI, MO, NV, NC, OH, OK, SC, TN, WV

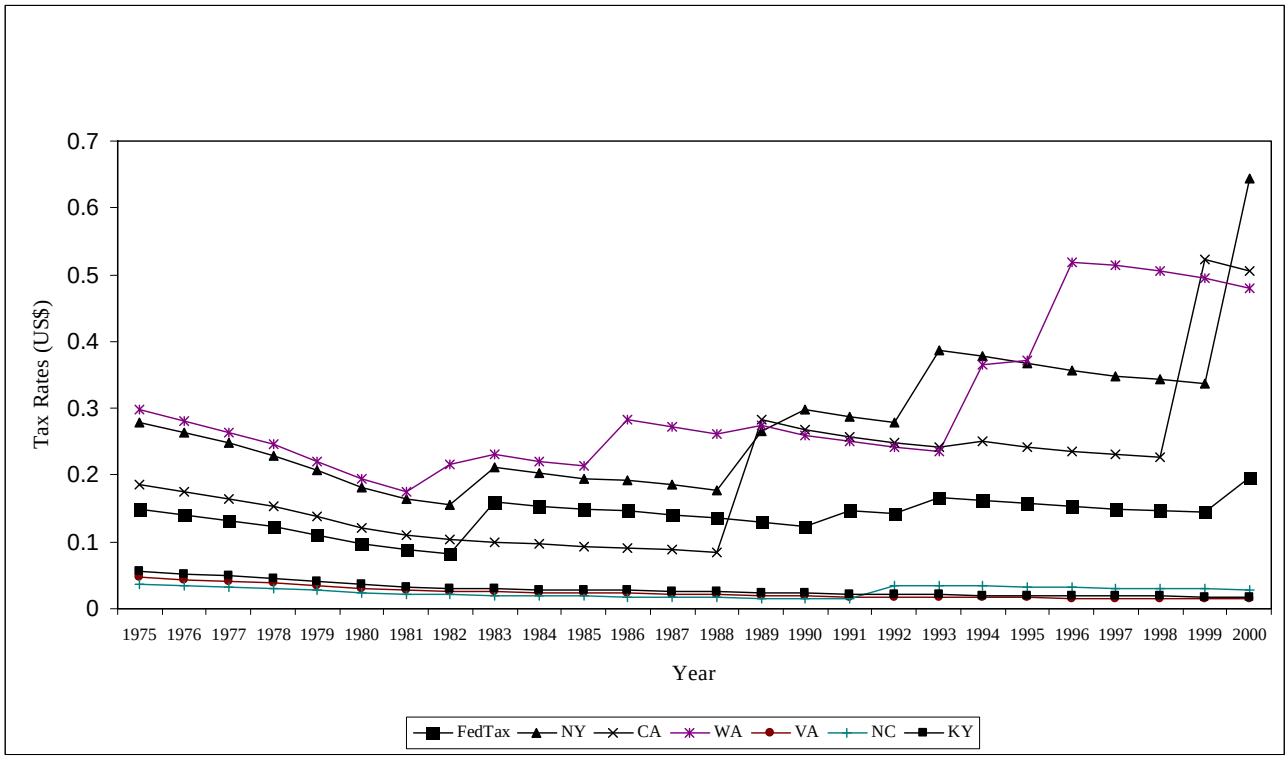
TOBAC STATE

Agric. Tobacco Prod. in Pounds/Real GSP	Number of States	States
500lbs/RGSP ($Mn)	6 States	GA, KY, NC, SC, TN, VA
50lbs/RGSP ($Mn)	13 States	FL, GA, IN, KY, MD, NC, OH, PA, SC, TN, VA, WV, WI
>0lbs/RGSP ($Mn)	17 States	AL, CT, FL, GA, IN, KY, MD, MA, MO, NC, OH, PA, SC, TN, VA, WV, WI

MANUF STATE

Share of Tobacco Manuf. in Real GSP	Number of States	States
0.1% of RGSP	6 States	GA, KY, NY, NC, TN, VA
0.01% of RGSP	13 States	AL, CT, FL, GA, IL, KY, NY, NC, PA, SC, TN, VA, WV
>0% of RGSP	18 States	AL, CA, CT, FL, GA, IL, IN, KY, MO, NJ, NY, NC, PA, SC, TN, TX, VA, WV

Figure 1: Real Federal Cigarette Tax Rates and State Cigarette Tax Rates



Note: Fig. 1 includes the three states with the greatest increases (CA, NY, WA) and the three states with the largest declines (KY, NC, VA).

Table 1. Summary Statistics

Variables Definition	Source	Obs	Mean	Min	Max
STATETAX State excise tax (1983 centsUS)	Orzechowski and Walker (2003)	1222	18.11	1.45	64.46
FEDTAX Federal tax (1983 centsUS)	Orzechowski and Walker (2003)	1222	13.94	8.29	19.75
LAMEDUCK	List and Sturm (2006)	1222	0.26	0	1
NatlGDP national real GDP (1983 bn $US)	U.S. Department of Commerce	1222	3858	2472	5700
NatlUNEMPLOY national unemployment rate	U.S. Census Bureau	1222	6.45	4	9.5
POPULATION State population	U.S. Department of Commerce	1222	5143911	376000	$3.40x10^7$
INCOME personal income/capita (1983 $US)	U.S. Department of Commerce	1222	12944	7628	24097
StateUNEMPLOY State unemployment rate	U.S. Department of Labor	1222	6.25	2.2	18
CHILD portion of population age 5–17	U.S. Census Bureau	1222	0.20	0.16	0.27
OVER65 Portion of population over 65	U.S. Census Bureau	1222	0.12	0.7	0.19
TOBACCO INCOME tobacco production (lbs)/$US of state income	USDA	1222	0.002	0	0.10
GAS daily production/$US of state income	U.S. Department of Energy	1222	0.008	0	0.32
GRANTS federal grants/capita (1983 $US)	U.S. Census Bureau	1222	499	231	1192
INCOME TAX federal income tax divided by adjusted gross income	U.S. Census Bureau	1222	0.14	0.06	0.19
DEMOGOV dummy = 1, if the governor is a Democrat	National Governors Association	1222	0.55	0	1
DEMOSENATE proportion of Democrats in State Senate	U.S. Census Bureau	1222	0.59	0.09	1
DEMOHOUSE proportion of Democrats in State House	U.S. Census Bureau	1222	0.585	0.13	1
BEER TAX State excise tax per gallon (1983 $US)	World Tax Data Base (2006)	1196	0.17	0.01	1.43
$DEFICIT_{-1}$ state budget deficit (% of real GSP) lagged 1 year	U.S. Census Bureau U.S. Department of Commerce	1222	8.85	-17.05	55.92

Table 2. Fixed Effect Estimations: *SMOKER STATE*, *TOBAC STATE*, and *MANUF STATE* Models I

Model	**I** ***SMOKER STATE***	**II** ***SMOKER STATE***	**III** ***SMOKER STATE***	**IV** ***TOBAC STATE***	**V** ***TOBAC STATE***	**VI** ***TOBAC STATE***	**VII** ***MANUF STATE***	**VIII** ***MANUF STATE***	**IX** ***MANUF STATE***
LAMEDUCK	4.90*** (2.92)	5.61*** (4.53)	5.11*** (3.67)	2.03 (1.15)	2.95** (1.99)	5.38*** (3.27)	3.36 (1.46)	3.45* (1.76)	5.08*** (2.97)
FEDTAX	0.32*** (2.77)	0.32*** (2.78)	0.32*** (2.75)	0.32*** (2.76)	0.31*** (2.73)	0.32*** (2.79)	0.32*** (2.77)	0.32*** (2.80)	0.32*** (2.72)
FEDTAX× LAMEDUCK	-0.32** (2.50)	-0.39*** (4.14)	-0.34*** (3.10)	-0.18 (1.46)	-0.24** (2.31)	-0.37*** (2.86)	-0.24 (1.46)	-0.25* (1.76)	-0.35** (2.59)
LAMEDUCK× SMOKER STATE	3.74* (1.76)	2.55* (1.90)	5.02** (2.08)						
FEDTAX× LAMEDUCK× SMOKER STATE	-0.29* (1.94)	-0.16* (1.76)	-0.38** (2.10)						
LAMEDUCK× TOBAC STATE				7.79*** (3.36)	7.07*** (3.69)	4.00 (1.66)			
FEDTAX× LAMEDUCK× TOBAC STATE				-0.47*** (3.10)	-0.41*** (3.50)	-0.29 (1.60)			
LAMEDUCK× MANUF STATE							5.86* (1.77)	8.01** (2.40)	4.63* (1.91)
FEDTAX× LAMEDUCK× MANUF STATE							-0.40* (1.85)	-0.52** (2.36)	-0.34* (1.84)
Classification *"SMOKER STATE"*	13 States	10 States	7 States						
Classification "*TOBAC STATE*"				17 States	13 States	6 States			
Classification *"MANUF STATE"*							18 States	13 States	6 States
Standard Controls?	YES	YES	YES	YES	YES	YES	Yes	YES	YES
Observations	1222	1222	1222	1222	1222	1222	1222	1222	1222
Joint Signif. Test	8.53 [0.00]	7.88 [0.00]	8.98 [0.00]	9.57 [0.00]	10.09 [0.00]	10.74 [0.00]	8.85 [0.00]	10.23 [0.00]	10.94 [0.00]

Notes: Fixed–effect estimations with robust standard errors for years 1975–2000, except for Model I, V and VI, where z-statistics is reported). The dependent variable is *STATETAX*. ***(**)[*] indicates significant at the 1(5)[10]% level, respectively. The joint significance test is for all variables which include *LAMEDUCK*. Standard controls included in all models (results available upon request) are: *DEMOGOV, DEMOSENATE,DEMOHOUSE, NatlGDP, NatlUNEMPLOY, POPULATION, INCOME, StateUNEMPLOY, CHILD, OVER65, TOBACCO INCOME, GAS, GRANTS, INCOME TAX,* square terms for *POPULATION* and *INCOME*, a constant, a time trend and its square.

Table 3. Fixed Effect Estimations: Robustness Analysis I

Model	I IV	II LAG FEDTAX	III NO T. LIMIT CHNGE	IV ONLY T. LIMIT STATES	V HORIZ. INTER ACTION	VI LDV	VII BEER TAX	VIII STATE DEFICIT
	SMOKER STATE (Cutoff: 10 States)							
LAMEDUCK	17.70** (2.12)	5.44*** (2.82)	3.83** (2.29)	5.20*** (3.71)	4.14* (1.82)	3.62*** (3.60)	5.22*** (4.29)	5.62*** (4.62)
FEDTAX	0.73*** (5.81)	0.48*** (4.18)	0.24** (2.35)	0.33*** (2.64)	0.15 (1.44)	0.12** (2.14)	0.33*** (2.93)	0.33*** (2.93)
FEDTAX × LAMEDUCK	-1.24** (-2.10)	-0.39*** (-2.79)	-0.20** (-2.03)	-0.37*** (-3.37)	-0.31* (-1.92)	-0.24*** (-3.42)	-0.37*** (-4.03)	-0.39*** (-4.25)
LAMEDUCK × SMOKER STATE	2.79 (0.26)	4.33** (2.40)	2.22 (0.72)	1.91 (1.48)	2.24 (0.76)	-0.81 (-0.86)	3.86*** (2.70)	2.88** (1.99)
FEDTAX × LAMEDUCK × SMOKER STATE	-0.19 (-0.24)	-0.29** (-2.18)	-0.35* (-1.75)	-0.11 (-1.28)	-0.07 (-0.32)	0.04 (0.63)	-0.24** (-2.45)	-0.19* (-1.95)
Joint Signif. Test	13.95 [0.00]	4.84 [0.00]	5.70 [0.00]	5.86 [0.00]	14.11 [0.01]	15.69 [0.00]	8.02 [0.00]	8.10 [0.00]
	TOBAC STATE (Cutoff: 13 States)							
LAMEDUCK	11.05 (1.31)	4.76*** (2.94)	2.80 (1.61)	2.12 (1.22)	0.99 (0.42)	2.28** (2.29)	2.81* (1.81)	3.01** (2.10)
FEDTAX	0.75*** (5.98)	0.47*** (4.10)	0.28** (2.55)	0.32** (2.57)	0.15 (1.49)	0.12** (2.15)	0.32*** (2.86)	0.32*** (2.88)
FEDTAX × LAMEDUCK	-0.81 (-1.35)	-0.37*** (-2.97)	-0.21** (-1.98)	-0.19 (-1.52)	-0.08 (-0.45)	-0.18** (-2.34)	-0.24** (-2.22)	-0.25** (-2.47)
LAMEDUCK × TOBAC STATE	15.33 (1.28)	4.13*** (3.00)	3.08 (1.36)	7.33*** (3.37)	9.64*** (3.41)	1.96** (2.08)	7.57*** (3.82)	7.20*** (3.77)
FEDTAX × LAMEDUCK × TOBAC STATE	-1.00 (-1.18)	-0.21** (-1.97)	-0.13 (-0.83)	-0.42*** (-2.99)	-0.65*** (-3.17)	-0.09 (-1.45)	-0.44*** (-3.65)	-0.41*** (-3.63)
Joint Signif. Test	15.82 [0.00]	4.09 [0.00]	4.48 [0.00]	8.24 [0.00]	25.59 [0.00]	20.08 [0.00]	10.50 [0.00]	10.02 [0.00]

	MANUF STATE (Cutoff: 13 States)							
LAMEDUCK	6.12 (0.81)	5.51*** (2.84)	1.32 (0.64)	2.79 (1.25)	2.98 (1.36)	2.92*** (2.83)	3.65* (1.84)	3.55* (1.85)
FEDTAX	0.81*** (6.03)	0.47*** (4.11)	0.27*** (2.60)	0.32*** (2.66)	0.15 (1.45)	0.12** (2.19)	0.32*** (2.94)	0.32*** (2.95)
FEDTAX × LAMEDUCK	-0.45 (-0.83)	-0.40*** (-2.78)	-0.10 (-0.76)	-0.21 (-1.28)	-0.20 (-1.26)	-0.20*** (-2.67)	-0.26* (-1.84)	-0.26* (-1.86)
LAMEDUCK × MANUF STATE	38.81*** (2.22)	3.27*** (2.50)	10.04** (2.18)	7.90** (2.23)	6.59** (2.20)	0.97 (1.08)	7.81** (2.38)	8.10** (2.43)
FEDTAX × LAMEDUCK × MANUF STATE	-2.69*** (-2.20)	-0.20* (-1.87)	-0.63** (-2.35)	-0.51** (-2.16)	-0.45** (-2.08)	-0.06 (-1.06)	-0.52** (-2.36)	-0.53** (-2.40)
Joint Signif. Test	9.80 [0.04]	4.09 [0.01]	5.57 [0.00]	9.04 [0.00]	15.65 [0.00]	22.22 [0.00]	10.68 [0.00]	10.16 [0.00]
Observations	1222	1222	754	936	1170	1128	1196	1222

Notes: Fixed–effect estimations with robust standard errors for years 1975–2000, except for Model I, V and VI, where z-statistics is reported). The dependent variable is *STATETAX*. ***(**)[*] indicates significant at the 1(5)[10]% level, respectively. The joint significance test is for all variables which include *LAMEDUCK*. Standard controls included in all models (results available upon request) are: *DEMOGOV, DEMOSENATE,DEMOHOUSE, NatlGDP, NatlUNEMPLOY, POPULATION, INCOME, StateUNEMPLOY, CHILD, OVER65, TOBACCO INCOME, GAS, GRANTS, INCOME TAX,* square terms for *POPULATION* and *INCOME*, a constant, a time trend and its square.

Table 4. Fixed Effect Estimations with *SMOKER STATE, TOBAC STATE* and *MANUF STATE*: Robustness Analysis II

Model	I	II	III	IV	V	VI	VII	VIII	IX
LAMEDUCK	3.96**	3.83**	5.36***	3.08**	3.12*	2.94*	1.88	2.50	1.88
	(2.31)	(2.28)	(3.26)	(2.13)	(1.73)	(1.92)	(0.97)	(1.04)	(0.87)
FEDTAX	0.32***	0.32***	0.32***	0.31**	0.32***	0.32***	0.31***	0.32***	0.31***
	(2.79)	(2.78)	(2.77)	(2.73)	(2.85)	(2.75)	(2.74)	(2.78)	(2.71)
FEDTAX×LAMEDUCK	-0.27**	-0.26**	-0.37***	-0.25**	-0.23*	-0.24**	-0.15	-0.17	-0.16
	(-2.08)	(-2.07)	(-2.85)	(2.42)	(-1.83)	(-2.24)	(-1.07)	(-0.99)	(-1.08)
LAMEDUCK×	5.00**	4.93**		-0.70	0.97		0.67	2.76	
SMOKER STATE	(2.37)	(2.38)		(0.51)	(0.65)		(0.35)	(1.46)	
FEDTAX× LAMEDUCK×	-0.38**	-0.37**		0.02	-0.05		-0.12	-0.23*	
SMOKER STATE	(-2.43)	(-2.45)		(0.23)	(-0.47)		(-0.87)	(-1.80)	
LAMEDUCK×	3.77**		-11.21***	7.38***		0.97	7.55***		6.19**
TOBAC STATE	(2.01)		(-3.15)	(3.23)		(0.21)	(3.29)		(2.36)
FEDTAX× LAMEDUCK×	-0.26*		-0.76***	-0.42***		0.06	-0.43***		-0.30
TOBAC STATE	(-1.96)		(-3.26)	(3.23)		(0.17)	(-3.15)		(-1.63)
LAMEDUCK×		4.37**	15.65***		7.86**	7.73		5.15	1.88
MANUF STATE		(2.31)	(3.48)		(2.28)	(1.15)		(1.63)	(0.46)
FEDTAX× LAMEDUCK×		-0.30**	-1.08***		-0.51**	-0.59		-0.34*	-0.21
MANUF STATE		(-2.29)	(-3.49)		(-2.22)	(-1.22)		(-1.70)	(-0.75)
Classification	7	7		10	10		13	13	
"SMOKER STATE"	States	States		States	States		States	States	
Classification	6		6	13		13	17		17
"*TOBAC STATE*"	States		States	States		States	States		States
Classification		6	6		13	13		18	18
"*MANUF STATE*"		States	States		States	States		States	States
Standard Controls?	YES	YES	YES	YES	YES	YES	YES		
Observations	1222	1222	1222	1222	1222	1222	1222	1222	1222
Joint Signif. Test	7.81	8.03	7.95	6.80	7.25	7.28	6.40	5.80	7.44
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]

Notes: Fixed–effect estimations with robust standard errors for years 1975–2000. The dependent variable is *STATETAX*. All models include a constant, and square terms for *POPULATION* and *INCOME*, a time trend, and its square. ***(**)[*] indicates significant at the 1(5)[10]% level, respectively. Joint significant test is an F-test for all variables involving *LAMEDUCK*. Table A2 provides the classification of states.