Interstate Tax Competition After TRA86

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Abstract

When a governor announces that a tax increase is necessary, how do voters decide whether the governor is representing the situation honestly, or just preparing to line his or her pockets? This paper presents evidence that voters may look at the tax increases in neighboring states to obtain information on whether a tax increase is appropriate and, using this information, decide whether to reelect their governor. The data suggest that comparisons with neighbors influence gubernatorial behavior: Governors are more likely to raise taxes when neighbors are doing the same. TRA86 allows us an extra check on the model presented: If the marginal dollar taken in state taxes is more costly to state residents, this may increase the extent to which residents use information provided through neighboring states to sort good governors from bad.

INTRODUCTION

Choosing the levels and distribution of tax burdens between income groups often presents elected state officials with difficult decisions. In addition to the effects of tax changes on the ability of a state to provide the services demanded by its electorate, tax changes may also affect the odds that elected officials will be returned to office. Elected officials are well aware that their jobs may depend upon the decisions they make in this area. Thad Beyle [1983] presents evidence that tax-loss governors, governors unseated because of their tax policies, have long been common: Taxes appear to be responsible for 30 percent of gubernatorial defeats in the 1960s and 20 percent in the 1970s. This suggests that tax changes—perhaps those necessary to keep a state's service provision at some minimum acceptable level—may be foregone if state officials fear that they will be unable to convince the electorate that such changes are necessary and understand that their jobs may be in jeopardy should they try and fail. This tension—between the loss in ability to provide services if taxes are not raised and the potential electoral damage if they are raised—may significantly reduce citizens' welfare. Tax decisions may not be

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Table 1. Gubernatorial defeat 1979–1988,[a] probit estimation (Dependent variable: Governor defeated = 1, reelected = 0).

	Income category		
	$25,000	$40,000	$60,000
Change in tax liability[b]	0.0032	0.0012	0.0004
	(0.0019)	(0.0010)	(0.0005)
Change in neighbors' tax liability	−0.0048	−0.0031	−0.0018
	(0.0031)	(0.0017)	(0.0010)
State income/capita	−0.0008	−0.0008	−0.0008
	(0.0004)	(0.0004)	(0.0004)
State income, lagged	0.0008	0.0009	0.0009
	(0.0004)	(0.0004)	(0.0004)
State unemployment rate	0.0926	0.0832	0.0760
	(0.1054)	(0.1060)	(0.1060)
State unemployment rate, lagged	−0.0167	−0.0015	0.0111
	(0.1097)	(0.1106)	(0.1108)
Number of observations	119	119	119

Note: Standard errors in parentheses.

[a] Governors defeated at the polls and those eligible for reelection who chose not to run.

[b] Change in effective income tax from year t to $t - 2$, for joint filers in the stated income category.

made on their economic merits alone, but may include additional political calculations.

How might citizens learn whether tax changes are indeed necessary? Citizens might try to gather as much direct information as possible on changes in the cost of service provision. However, if it is possible to collect such information at all, it may prove prohibitively expensive to do so. Alternatively, citizens may look at the tax changes made in neighboring states. If a state's cost of service provision has risen, for example, if Medicaid expenses have increased or a recession driven revenue shortfall has occurred, and if neighboring states have correlated cost shocks, then neighboring states will have to respond to such shocks as well. By looking at neighbors, citizens may obtain information on whether a tax increase is appropriate and, if so, what size it should be. In this way citizens of a given state may be able to avoid unseating their incumbents whenever a tax change is necessary and may, instead, use the voting booth to unseat only those officials thought to be spendthrifts.

Table 1 presents evidence consistent with the view that the electorate may use information on tax changes in geographically adjoining states to sort good governors from bad. Here, we model the patterns of reelection and defeat of governors from 1977 to 1988 as a function of changes in state income tax liabilities, specifically the difference between the income tax liability in the governor's reelection year and the tax liability in effect at the end of the governors' first year in office. In addition to economic variables, we allow also for the possibility that *neighboring* states' changes in tax liability over the same period may affect the reelection odds of a given state's governor. (The changes in tax liabilities are changes in the effective tax liabilities of three types of filers, calculated using TAXSIM. TAXSIM calculates effective

Table 2. Correlations in tax changes between neighboring states.

	Income category		
	$25,000	$40,000	$100,000
All states, all years (obs = 480)	0.1758	0.2446	0.2955
When governor reelected (obs = 65)	0.0234	0.2271	0.3040
When governor defeated[a] (obs = 23)	−0.4795	−0.1457	0.4218
When governor ineligible to stand for reelection (obs = 150)	0.0777	0.0661	0.0928

[a] Governor defeated in primary or general election.

tax rates, factoring in the effect of federal tax payment and local property tax payment on state taxes owed. These rates will be discussed in greater detail below.)

Results presented in Table 1 suggest that, for each income category tested, incumbent defeat is positively correlated with tax increases. For higher income filers, the effect of a dollar increase in tax liability on the probability of a governor's defeat is of the same order of magnitude as a loss of a dollar of state income per capita. Both reduce the odds of reelection. However, if a given state's neighbors increase their taxes as well, this has an important moderating effect on incumbent defeat: Incumbent defeat is negatively and significantly correlated with increases in neighbors' tax liabilities.[1] If governors stand alone in raising taxes, this reduces the probability of reelection. However, if the state's neighbors increase taxes at the same time, they offset this effect on the governor's reelection odds.

Governors, keen to time tax increases in a way to minimize voter wrath, are apt to bear this in mind when setting taxes. This would, then, induce a positive correlation between observed tax changes in a state and the tax changes observed in neighboring states. We see this as well in our data: Table 2 suggests that there is a positive and significant correlation between tax increases in a given state and tax increases in neighboring states, with correlations of roughly 0.2–0.3 for $25,000 to $100,000 filers. However, if we restrict our sample to states holding gubernatorial elections, in states in which governors lost their reelection bids we find large and *negative* correlation between states' tax changes and those of their neighbors for $25,000 and $40,000 filers. For example, in the case of $40,000 filers, states in which governors won reelection bids had tax changes that were positively correlated with neigh-

[1] Tax changes and incumbent defeat may be moved by correlated shocks to the system. To adequately control for the fact that tax changes may be endogenous, one must run the reelection equation simultaneously with the tax-setting equation. This is beyond the scope of the current study, but see Besley and Case [1992] for joint treatment of tax-setting and reelection equations. Treating tax changes as endogenous changes in the voting equation does not qualitatively change the results presented here.

bors' changes (0.23); states in which governors lost their reelection bids had tax changes that were negatively correlated with neighbors' changes (−0.15).

While these correlations provide evidence of what is present in the raw data, they do not control for regional or national shocks that may induce correlation in tax changes. In the analysis that follows, we will control for many of these variables in order to trace out the extent to which correlated behavior between neighbors is due to electoral considerations.

Specifically, in this study we present a model in which political factors play a role in the tax-setting process. The model predicts that states will be sensitive to tax changes in neighboring states. In addition, the model predicts that states in which the governor faces no limit on terms should be more sensitive to neighbors' behavior than those in which governors face a term limit: They have more to lose if the electorate becomes leery of a proposed tax increase. The Tax Reform Act of 1986, TRA86, allows us an extra check on our analysis: After the tax reform of 1986, increases in state taxes are costlier to taxpayers. Citizens who deduct state and local taxes and face a marginal federal tax rate of tf lose only $(1 - tf)$ of a dollar taken by the state in taxes. With the reductions in federal marginal rates stemming from TRA86, the marginal dollar taken by the state is, then, more costly to state residents. This in turn may cause citizens to look more closely at the changes in their taxes relative to changes in neighbors' taxes. If this is the case, following TRA86 we would expect governors to also become more sensitive to neighbors' behavior and to align their tax changes more closely with those observed in neighboring states. We test these predictions, using TAXSIM data, below.

We find that states appear to be quite sensitive to tax liabilities imposed by neighboring states. For taxpayers earning $20,000 or above, when a given state's neighbors increase taxpayers' liabilities by a dollar, on average that state will increase tax liability for a comparable income group by 50 cents. This is true even when controlling for observable state economic characteristics, state political variables, and year effects. Consistent with this incumbent reelection model, we find greater sensitivity to neighbors in states where there is no limit on the number of terms a governor may serve.

This article draws on many themes discussed in the recent political economy literature. The importance of temporary information asymmetries in electoral models, and the ways in which an elected official may use taxes and expenditures as signaling devices, have been studied by Rogoff [1990], Rogoff and Sibert [1988], and Ferejohn [1986]. The incentive problems associated with an elected official not standing for reelection have been studied theoretically by Alesina and Spear [1988] and empirically for congressional behavior by Lott [1990]. In contrast to Alesina and Spear, who find that existing compensation mechanisms should allow political parties to keep ineligible incumbents from pursuing their own short-run interests, our results suggest that outgoing incumbents appear to follow their own drummers.

We will proceed as follows. The next section will outline an incumbent decisionmaking model of tax-rate determination. The third section will suggest an econometric model that is consistent with the theoretical model and will briefly discuss the data used. The final section will present results and discuss some of the policy implications of the findings.

THEORETICAL CONSIDERATIONS

In the model presented here, governments must choose a level of services and taxes. Citizens don't have full information on changes in the cost of service provision; elected officials ask citizens to trust them on the level of tax increase that is necessary to provide services. To make the model as simple as possible, we will assume that governors can serve a maximum of two terms, and that only some fraction of governors are "honest." While honest governors provide services at cost, dishonest governors are solely interested in maximizing their rents, which we will define as the difference between the taxes they take in and the minimum cost necessary to provide the service level chosen. (Alternatively, one can view rents as government inefficiency. In this interpretation, one can view citizens as unable to fully observe how efficient their elected officials are at providing services.)

If, when a governor enters office, state tax revenues just cover the cost of service provision, a dishonest governor will try to maximize his rents by raising taxes relative to the level of services provided. However, in keeping with the empirical findings of the introduction, we will assume that if a state's tax changes are too far out of line with those in neighboring states, the electorate will defeat the incumbent in the next election. The governor optimizes by choosing a *change* in the level of taxes (t) and a *change* in the level of service provision (g) to maximize his utility U:

$$\underset{t,\,g}{\text{Max}}\ U = [Yt - g] + I(g, t; g_j, t_j)[Yt - g] \qquad (1)$$

where t is the change in effective income tax rate in state i: t is equal to $(1 - tf)$ times the change in statutory tax rate in state i. Increases in the federal marginal tax rate, tf, reduce the state's effective income tax rate; citizens retain only $(1 - tf)$ of a dollar not going to the state. In (1), Y is the level of taxpayer income, and I is a function that indicates to the official the odds that he or she will be returned to office, multiplied by whatever discount factor the official uses to discount future gains. If the cost of service provision in this state is correlated with costs in state j, the electorate may use state j as a reference group. In this case, the probability that an official is returned to office is a function not only of changes in the state tax rate and services level, but also of the state's neighbors' changes in taxes and services (g_j, t_j).

If the governor decides to raise taxes markedly in his or her first term relative to the change in services provided, the rents received in that first term will be quite high. However, the governor may run the risk of sharply reducing the chances of being reelected. We will assume the following relationships hold between this reelection variable, I, and other variables. All other things held equal: Increases in services in state i increase the odds of reelection, $\partial I/\partial g > 0$; increase in taxes reduce the odds of reelection, $\partial I/\partial t < 0$; when a neighboring state j increases services at a given level of taxation, this reduces the odds of reelection for governor in state i (since citizens in the neighboring state j will now get more services out of each dollar spent), $\partial I/\partial g_j < 0$; and neighbors' tax increases raise the odds of reelection, because citizens are more apt to believe their own governor is fair, $\partial I/\partial t_j > 0$.

The relationships that must hold at optimally chosen changes, t and g, are given by the first order conditions for (1):

$$[(1 + I)Y] + [(tY - g)dI/dt] = 0 \quad (2a)$$

$$[-(1 + I)] + [(tY - g)dI/dg] = 0 \quad (2b)$$

These equations implicitly define the governor's optimal choices for changes in taxes and service provision. Note, from the first bracketed term in (2a), that increases in the size of tax changes result in increased rents for the governor in the first term and, to the extent he or she expects to be reelected (given by I), in the second term as well. However, from the second bracketed term, the marginal gain of a further increase must be weighed against the reduction in expected future rents caused by the lowering of the governor's odds of reelection. Equations (2a) and (2b) implicitly define the optimal tax increase as a function of all of the variables that determine the reelection variable, I, and changes in I with respect to t. The econometric specification for this tax change equation will be discussed in the next section.

Total differentiation of (2a) and (2b) would give us an expression for the way in which tax changes in state i respond to tax changes in neighboring states. This will, in general, be different from 0. Furthermore, if changes in the federal marginal tax rate change the reelection probability, given by I, then the responsiveness of tax changes in state i to tax changes in a neighboring state will also change with changes in the federal marginal tax rate. In the next two sections, we will explore the extent to which this is borne out in the data.

ECONOMETRIC SPECIFICATION

From (2a) and (2b), tax changes can be represented as a function of all variables that influence the reelection probability, I, and that influence the sensitivity of I to changes in t. These will include tax changes and spending changes in neighboring states.

In addition to neighboring states' behavior, we will allow economic variables to affect the relationship between tax setting and reelection—including state income per capita, state unemployment, and per capita grants received from the federal government; and demographic variables, such as state population and demographic characteristics of the population. In addition, we allow political variables to affect the tax change decision. Specifically, we use an indicator variable to denote the political party of the governor, and a second indicator variable to denote governors who, by law, are ineligible to run for reelection. We will also allow governors ineligible for reelection to respond differently to changes in neighbors' tax increases than those who may wish to run again. In addition, to control for national-level shocks to the economic environment, year indicator variables are also included in the analysis.

In order to allow for increased sensitivity to neighbors' tax rates following TRA86, we will also allow states' sensitivities to neighbors' behavior to change after 1986.

As discussed above, neighbors' tax changes, through their effects on the probability of reelection, may affect a given state's tax change. However, at the same time, these neighbors' taxes may be influenced by the first state's taxes. If this underlying feature of the model is correct, neighbors' tax changes will, then, be endogenous. For this reason, we estimate our tax-setting equa-

tions using two-stage least squares estimation. Our instrument list for neighbors' tax changes include neighbors' state population, state income per capita, state unemployment rate, level of per capita grants from the federal government, state demographic variables and demographic variables lagged, and year indicator variables. We use these instrumented values in all of the data analysis that follows. Use of these instrumented values frees our analysis from concern that some missing variable is inducing correlation between a given state's tax change and that state's neighbors' tax changes.

Our estimating equation becomes:

$$t = \phi_1 \hat{t} + \phi_2 \text{CAP}^* \hat{t} + \phi_3 \text{POST86}^* \hat{t} + X\beta + \varepsilon \qquad (3)$$

where t is a $[NT \times 1]$ vector of N states' tax changes observed for T years; X is an $[NT \times k]$ matrix of year indicator variables and observable state economic and political characteristics, discussed above, thought to affect the tax change chosen; and $\hat{t}$ is a $[NT \times 1]$ vector representing values of states' geographic neighbors' average tax changes for the period. For example, the first element of $\hat{t}$ is the value of the average tax change in the geographic neighbors of the first state in the first year of the analysis. The parameter ϕ_1 measures the extent to which states are influenced by the taxing decisions of their neighbors. We will assume that a state's geographic neighbors are most influential in its calculation of an appropriate tax rate.[2] We will assume, for example, that citizens in New Jersey look to New York, Pennsylvania, and Delaware when determining whether the tax increase proposed for New Jersey is appropriate. We will assume that states equally weight all neighbors, so that, say, when determining what would be an appropriate tax increase for New Jersey, citizens give New Jersey's neighbors equal weight.

The next term includes an indicator variable, CAP, that takes the value 1 if the incumbent cannot, by law, run for reelection. If the incumbent decisionmaking model is responsible for significant effects of neighbors' on a state's tax setting decisions, we would expect this interaction, CAP*$\hat{t}$, to show that governors who may not run for reelection are less sensitive to neighbors' tax changes than are governors who are eligible for reelection. The final interaction term includes an indicator variable, POST86, that takes the value 1 if the year is 1987 or 1988. The product, POST86*$\hat{t}$, allows states to respond differentially to neighbors' tax changes after TRA86.

The final term in (3), the error term (ε), is assumed to be normally distributed with mean zero and constant variance.

DATA

The data needed to estimate the influence of neighboring states, in a given state's decision to tax, were generated by the TAXSIM program at the National Bureau of Economic Research. TAXSIM is encoded with all states' tax laws. These are used to calculate effective state income tax liabilities for taxpayers that differ on many dimensions—income levels and sources, family size and composition, and levels of other taxes paid. All tax liabilities dis-

[2] For an analysis that explores the extent to which income and demographic neighbors affect states' fiscal decisionmaking, see Case, Hines, and Rosen [1989].

Figure 1. Changes in effective state income tax liabilities by income class.

cussed below will be two year changes ($t - t-2$) in effective state income tax liabilities. These are "effective" liabilities in the sense that they control for the effect of taxes paid to the federal government and, in a less precise way, to local governments. Data were generated for this exercise for three different annual income levels: $25,000, $40,000, and $100,000 annually. We will focus on one tax measure: two-year changes in the effective state tax liability of a couple filing jointly [two taxpayer exemptions, no dependent exemptions]. To calculate effective tax liabilities, TAXSIM was set to assume property taxes were 4 percent of income, and deductions equal to 20.5 percent of income.

The average changes ($t - t-2$) in effective state income tax liabilities over all states by year are graphed in Figure 1. For each income group, the average changes in liabilities increase through 1983 and then fall rather dramatically through 1986. However, these averages mask movement by individual states that is much less uniform. To see this more clearly, Figure 2 presents changes in effective tax liability in California, New York, and Illinois, for $100,000 filers. In contrast to the averages over all states, California saw very little positive change in state income tax liability through 1986, and experienced a large decrease in tax changes only after 1986. New York saw negative, gradually smaller changes in tax liabilities each year through 1986. Illinois experienced a large tax increase in 1983. This was followed by a sizable reduction in 1984 and 1985, before the tax changes turned positive again in the end of the period. These highly visible (non-neighboring) states' tax changes bear little relationship to one another. In contrast, some neighboring

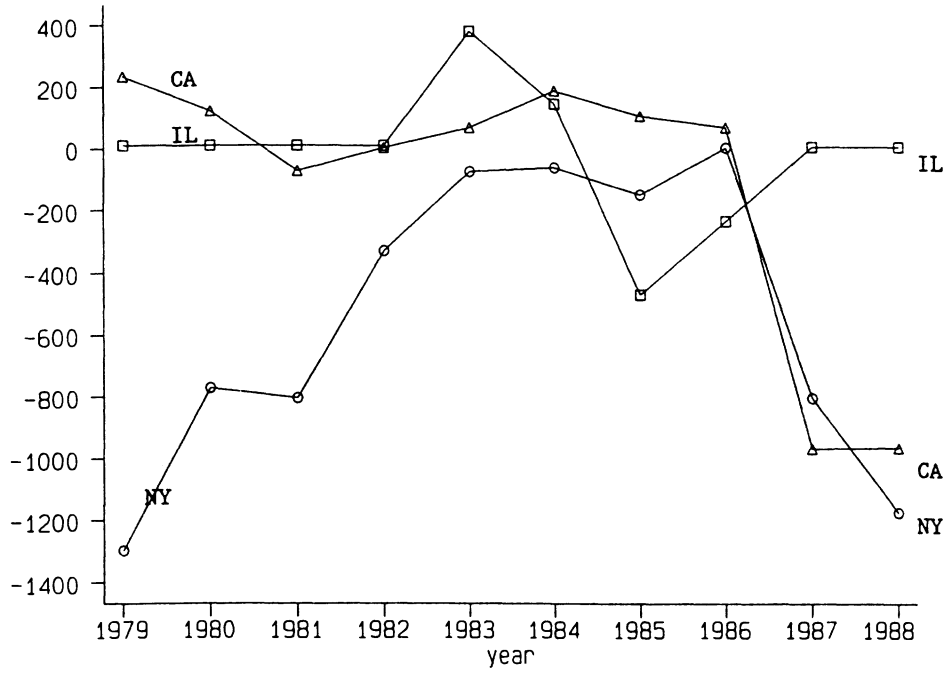

Figure 2. Changes in effective state income tax liabilities—NY, IL, and CA, $100,000 filers.

states' tax changes, presented in Figure 3, bear great resemblance to one another. Tax changes for $100,000 filers in Missouri and Kentucky are almost identical over this period. Tax changes in all three states in Figure 3, Missouri, Kentucky, and Arkansas, bear resemblance to the tax changes in Illinois, their closest neighbor among the states presented in Figure 2. Tax changes in all three of these central states rise through 1983, fall through 1986, and rise thereafter.

To see if robust patterns emerge from these data, we turn now to estimation results, and a more systematic look at the sensitivity of tax changes to neighbors' behavior.

ESTIMATION RESULTS

Results of two-stage least squares estimation of equation (3) are presented in Table 3. For each income category—$25,000 to $100,000—two equations are estimated. The first column for each income group presents results without allowing TRA86 to affect the sensitivity of a state's tax change to its neighbors' tax changes. In columns 1 and 3, note that when a state's neighbors increase their taxes for $25,000 or $40,000 filers by a dollar, this results in roughly a 60-cent increase in that state's income tax liability for $25,000 and $40,000 filers. (This is apparent in the coefficient on "Neighbors' tax change ($\hat{t}$).") In the case of $100,000 filers, a dollar increase in a state's neighbors' tax liability is matched one-for-one: Holding everything else constant, the state matches

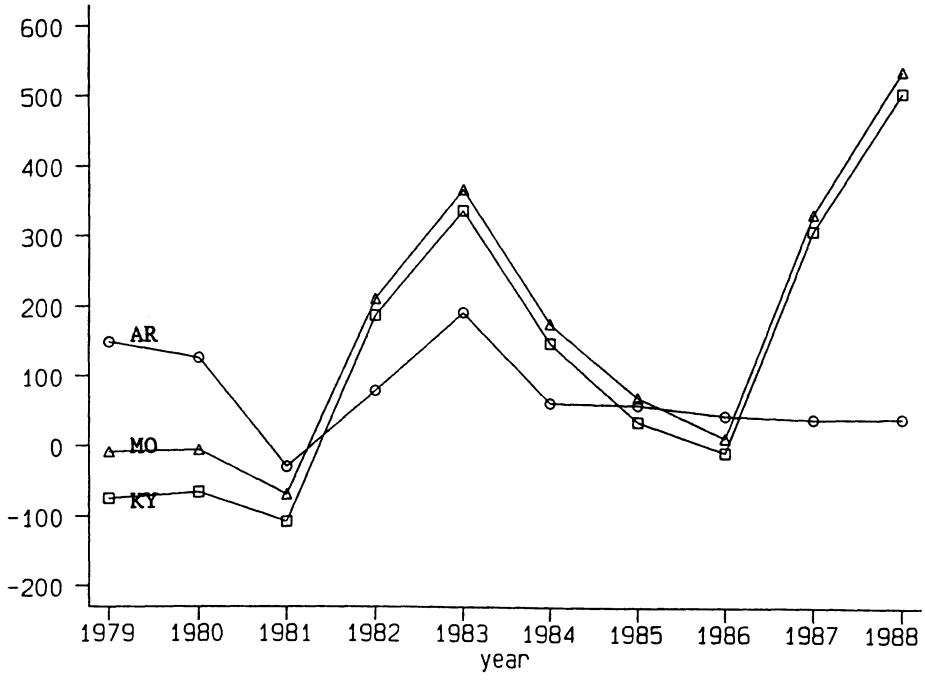

Figure 3. Changes in effective state income tax liabilities—AR, MO, and KY, $100,000 filers.

the tax increase/decrease in neighboring states' tax liabilities roughly dollar for dollar. For all three income groups, these effects are significant.

While there is sensitivity to neighbors' tax changes, we can see from the interaction term "CAP* $\hat{t}$" that this effect is entirely offset for upper income ($40,000 and $100,000) filers if the governor is ineligible to run for reelection. For example, for joint filers earning $40,000 annually, a 1-dollar increase in a state's neighbors' taxes has the effect of increasing those filers' taxes by 64 cents. However, if these filers happen to live in a state in which the governor cannot run for reelection, the filers' taxes are only marginally affected by neighbors' tax changes [62 cents minus 88 cents yields a net change of 26 cents]. For $100,000 filers, the effect of a governor hitting a term limit is even more serious: Instead of moving dollar for dollar with the neighbors' taxes, controlling for other factors, taxes between a state and its' neighbors are negatively correlated. That governors ineligible for reelection are not sensitive to neighbors' tax changes is consistent with what can be seen in the raw data, in the last row of Table 2: While, overall, states' tax changes were positively correlated with neighbors' tax changes (e.g., a correlation of 0.3 for $100,000 filers), this correlation drops almost to 0 when the sample is restricted to states in which the governor is ineligible to stand for reelection (e.g., a correlation of 0.09 for $100,000 filers).

The impact of TRA86 can be seen in the second column of each income category (columns 2, 4, and 6) for the interaction term "Post86*$\hat{t}$." The results suggest that, for $25,000 and $40,000 filers, state tax sensitivity did not change

Table 3. Changes in effective state income tax for $25,000–$100,000 joint filers 1979–88 (dependent variable: change in state income tax [$Year_t - Year_{t-2}$], two-stage least squares estimation).

	Income category					
Explanatory variable	$25,000		$40,000		$100,000	
Neighbors' tax change ($\hat{t}$)	0.63	0.72	0.64	0.54	0.90	0.07
	(0.30)	(0.45)	(0.29)	(0.52)	(0.33)	(0.63)
CAP * $\hat{t}$	−0.12	−0.13	−0.88	−0.84	−1.90	−1.14
	(0.96)	(0.97)	(0.83)	(0.83)	(0.83)	(0.97)
POST86 * $\hat{t}$	—	−0.15	—	0.14	—	1.02
		(0.59)		(0.63)		(0.67)
State pop. (*10^6)	0.05	0.13	−1.72	−1.85	−7.81	−9.43
	(1.18)	(1.24)	(2.02)	(2.10)	(6.91)	(6.89)
State income/cap	−0.00	−0.00	0.00	0.01	0.03	0.07
	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.04)
Grants/cap	−0.01	−0.00	−0.10	−0.10	−0.74	−0.87
	(0.06)	(0.06)	(0.09)	(0.09)	(0.30)	(0.31)
Unemployment rate	5.03	4.64	14.08	14.90	49.93	74.34
	(3.04)	(3.43)	(5.20)	(6.30)	(18.61)	(24.44)
Proportion black	−78.13	−81.21	−187.60	−181.13	−641.52	−579.01
	(62.87)	(64.54)	(107.69)	(110.98)	(371.09)	(367.61)
Proportion elderly	534.41	523.95	727.29	743.51	730.04	1416.03
	(447.27)	(452.86)	(723.51)	(724.43)	(2370.53)	(2377.20)
Proportion young	911.98	876.64	1739.72	1791.66	6102.81	7790.13
	(767.65)	(786.40)	(1293.37)	(1308.65)	(4324.16)	(4400.76)
Proportion young, lagged	9.98	9.10	23.37	25.42	11.60	49.07
	(15.89)	(16.38)	(26.66)	(28.04)	(91.32)	(93.26)
CAP	14.01	14.05	42.97	42.10	34.35	32.41
	(28.41)	(28.65)	(32.69)	(32.80)	(71.72)	(70.61)
Governor's party (= 1 if Democrat)	3.21	3.06	3.38	3.59	46.85	60.74
	(10.73)	(10.84)	(17.15)	(17.11)	(57.67)	(57.51)
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	480	480	480	480	480	480

Notes: (1) Standard errors in parentheses. (2) Two-stage least squares estimation: Instrument list for neighbors' tax changes includes *neighboring* state variables: state population, state income per capita, grants per capita, unemployment rate, proportion black, proportion elderly, proportion young, proportion young (lagged). All of these neighboring states' variables in both levels and changes ($Year_t - Year_{t-2}$) were used as instruments. (3) Proportion young (lagged) is proportion young ($Year_{t-1} - Year_{t-3}$).

as a result of TRA86. For $100,000 filers, however, it appears that TRA86 may have had the effect of increasing state sensitivity to neighbors' tax changes. However, because we have only two years worth of data following TRA86, it would be premature to put too much weight on the results of this estimation.

Table 3 also provides information on the relationship between effective income tax liabilities and state characteristics. Increases in the unemployment rate, other things held equal, increase the tax liability of each group significantly. For example, a 1-percent increase in the unemployment rate in a state, other things held constant, increases the tax liability of $40,000 filers by roughly $15 on average. Tax liabilities increase with the proportion of

elderly and the proportion of young in the population, and decrease with the proportion of the population that is black. For example, a 1-percent increase in the percent of the population that is young increases the tax liability of $100,000 filers by roughly $60 on average. In addition, Table 3 suggests that relationships between effective income tax liabilities and other explanatory variables vary by income group. For example, while an increase of 1 dollar per capita in grants from the federal government does not affect the tax liability of $25,000 and $40,000 filers significantly, it reduces the liability of $100,000 filers by roughly 75 cents.

Political variables also influence tax-setting equations. It appears, for example, that when the governor is hitting a term limit, the result is a tax increase of roughly $40 for $40,000 filers, as seen in the coefficient on the term "CAP." While the tax liabilities of $25,000 and $40,000 appear to be independent of the party in power, there is some evidence that when Democrats are in power, the tax liability of $100,000 filers increases by roughly $60.

CONCLUSIONS

The interactions between the political effects and the economic effects of taxation appear to be large and significant. To the extent that citizens use neighboring states' tax decisions as a benchmark of what is appropriate, the door is then opened to politicians to use neighbors' behavior strategically in their own decisionmaking. While tax competition may also be due to factor mobility, the results here suggest that voting behavior is a key determinant of tax competition. Without a voting model, it is unclear how one would be able to explain the effect of term limits on tax rates and on sensitivity to neighbors' tax changes.

The effects of this would appear twofold. First, there is a welfare loss associated with elected officials acting strategically: Tax decisions may not be made solely on their own economic merits, but may be influenced fairly heavily by the political ramifications. Offsetting this, if the ability to observe neighbors gives citizens an information base with which to sort good governors from bad, the presence of neighbors may be beneficial to an electorate.

The model presented above is consonant with the election results in New Jersey in November 1991. New Jersey's state taxes, in the two years leading to the 1991 election, increased more than those in neighboring states, and incumbent legislators were routed. However, the above model predicts that if the fiscal crises in New York, Pennsylvania, and (using neighbors slightly more broadly) Connecticut result in higher taxes, Governor Florio's reelection odds in New Jersey may improve.

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