Separation of Powers, Line Item Veto and the Size Government: Evidence from the American States Draft 1

Lucas Ferrero and Leandro M. de Magalhães*

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Abstract

When the object of study is the effect of institutions on an economic policy outcome such as the tax level, separation of powers cannot be approximated by Presidentialism vs. Parliamentarism. Actual separation is only achieved when the power with the prerogative to raise taxes is not the residual claimant of the extra revenue. The panel data study of the institution of line item veto in the American states corroborates our claim.

1 Introduction

When studying the effect of separation of powers on the overall tax level, classifying regimes as either Presidentialist or Parliamentarist is not the right distinction. The institutional characteristic of interest is wether the power (agent or institution) which is responsible for a tax increase is also the residual claimant of that tax increase.

Actual separation of powers is achieved when the power which may raise taxes does not have the last word on how to allocate tax revenues. Both presidential and parliamentary systems may or may not present actual separation. We use a panel data set on the American states to empirically test this claim.

The states are presidential regimes. The governor is elected directly and the members in the chambers are elected in districts by a majoritarian system.

Actual separation in the states is observed when the institution of Line Item Veto over the budget is present and when the political outcome assigns distinct powers (Executive and Legislative) to competing groups. The minority governor uses his veto to cut any budget item that would transfer resources to the opposing party, the one which controls the chambers and, hence, the tax level. The party that controls the chambers but not the executive is unable

*Contact: leandro.machado@unibocconi.it

to allocate the extra funding from a tax increase to its own interests and has, therefore, no gain from proposing higher taxes.

On the first section of the paper we review the empirical literature on institutions in the American states and the level of taxation. We than discuss the classification of regimes in the political science literature and review the economic literature that has adopted this classification to study the effects of constitutions on economic outcomes. On a third section we present our model, which is an extension of [7] accommodating for the features of Line Item Veto. We follow with the empirical analysis and conclude.

2 Review of the Empirical Literature

A vast literature has looked on the effects of budgetary institutions on economic outcomes such as deficits, spending and overall taxation[1]. The effects of Line Item Veto on the tax level have been studied by four papers. None has approached the problem as a test ground for a wider institutional feature such as *actual separation of powers*, but have looked exclusively at the empirical relationships between the presence of Line Item Veto and economic outcomes.

Burton Abrams and William Dougan (1986)[1] based solely on a cross-section find no effect of Line Item Veto on the tax level. Bohn and Inman (1996)[3] work with a panel on 47 states from 1970 to 1991. Since Line Item Veto is time invariant, they regress the fixed effects on the institutional features. They find that states with Line Item Veto and no deficit rules have lower deficits.

Closer to our work, Holtz-Eakins (1988)[4] studies a panel from 1966 to 1983. He runs a fixed effect model interacting the time invariant Line Item Veto with partisan variables that indicate different levels of control of state institutions. There is a significant impact in the presence of divided government. He finds a negative impact on spending but a positive impact on the overall taxation.

Besley and Case(2003)[2] work with an extended panel and also run a fixed effect model interacting Line Item Veto with divided government. They find a significant negative effect.

Our empirical work departs from the previous two as we try to take care of the endogeneity of the interacted variable[2] and allow for persistence in the tax level. Our explanatory variable of interest is the interaction between the presence of veto and the alignment of powers, that is, the control of both chamber and of the executive.

With the dynamic model we can distinguish between a short-run and a long-run effect and accommodate budget inertia. We use as instruments the results of elections in lower offices of the states. And finally we restrict our sample around the point where one party starts to control both chambers and the governor's office.

[1] For a thorough review of the literature see [2].

[2] A divided government may be a choice of the electorate to attain a specific tax level, for example.

We find that nonalignment, that is, a governor from one party and at least one chamber controlled by the other party, has a significant negative effect on the overall tax level only in the states with Line Item Veto.

On theoretical grounds Holtz-Eakins(1988) present a median voter argument. The governor represents the preferences of the median voter in the state, the chambers represent the preferences of the median legislator. Veto is used to bring the outcome closer to the governor's preferred point. Since the governor's preferred point is unknown, the direction of the line item veto effect on tax and expenditure is not predicted.

Besley and Case (2003) present no model but argue that the line item veto should improve the bargaining power of the governor.

Our model comes from the literature that tries to identify the effects of constitutions on economic variables. It is an extension of the model on separation of powers by Persson, Roland and Tabellini(2000). Before reviewing this paper and presenting the model, we briefly discuss how different regimes have been classified in the political science literature and the choice of classification made by these authors.

3 Separation of powers and actual separation

In 'The Economic Effects of Constitutions'(2003)[8] Persson and Tabellini study the effect of Presidential versus Parliamentery regimes on the overall tax level across countries. The definition used classifies a regime as parliamentary if the continuation in power by the executive requires the confidence vote of the parliament. If this is not the case, a directly elected president for example, the regime is classified as presidentialist.

They find significant across countries results with a Heckman estimation and with the Kernel method of matching. For the nearest-neighbors estimation matching method, the result is not there. For the IV method, it depends on the exclusion of a Latin American dummy.

Latin American is illustrative since most countries are defined as presidentialist, that is, they have a popular elected president whose continuation in power does not depend on the confidence of the parliament. Very few of them, however, present *actual separation*. Most Latin American executives may initiate tax increasing bills, write the budget bill, have decree power, and even veto rights with amendment powers. The group that controls the executive, in other words, is the residual claimant of a tax increase. A low tax level is not expected[3].

In the political science literature the definition of presidentialism is very close to the one given above: the lack of a confidence requirement and the presence of a popular elected president. These features are shared by Lijphart(1999)[6] in 'Patterns of Democracy' and by Shugart and Carey (1992) [9] in 'Presidents

[3]In [**?**] we see that 10 Latin American countries have the power to propose amendments when vetoing the budget.

and Assemblies'. Lijphart also requires a one person executive, and Shugart and Carey include in the definition some law making power to the executive.

A parliamentary regime in this literature is defined by the executive answering to parliament, where the executive is a cabinet seen as a unit wherein all minister, including the head of government, depend on the confidence of parliament.

These definitions are based on the mechanism that determines how the executive stays in power or is ousted, either by the end of a predetermined mandate or by a government crisis and a vote of no confidence. When comparing regimes using this classification the object of study is mostly duration, stability or representativeness of the electorate.

When our objects of study are policy outcomes within a government that is in place, however, other classifications are more relevant. One example is the number of veto players as described in Tsebelis(2002)[10]:'Veto Players, How Political Institutions Work'. The object of study is change in status quo policies. For there to be change, agents with veto power must agree, these are called veto players. The number of veto players in each regime and the order in which they act allow us to identify the range o possible changes. These two characteristics are given by the institutional features of a regime[4].

The policy change of interest in our case is the average tax rate in a state. Our model can be read as the effect in policy given by a change in the number of veto players in states where line item veto is present. When the powers are not aligned, there are two or three veto players and the status quo should be hard to change. When all chambers and the governorship are aligned we only have one veto player and expect more changes.

We now move on to present the model in Persson, Roland and Tabellini(2000) and our modification to allow for the feature of line item veto.

4 Simple Legislature vs. Separation of Powers

Since our model is an extension of the results in Persson, Roland and Tabellini (2000) [7] we start by presenting those. We focus on the comparison between a simple legislature and the case of separation of powers[5]. In the simple legislature one power may choose the tax level and allocate resources. There is only one veto player, no actual separation and taxes are high. When there are two powers or two veto players, one which can raise taxes and one which allocates them, actual separation is present and taxes are low.

[4]Tsebelis (2002)[10] pg. 5 notes that the USA and Italy, who do not share any of the usual characteristics used to classify regimes, are together when classified by the number of veto players. A high number of veto players implies high policy stability as opposed to countries such as Britain or Greece with only one veto player and, therefore, prone to big policy changes.

[5]In the paper the authors also discuss the case of parliamentarism with a different status quo in the case of a government which fails a vote of no confidence.

4.1 Set-up

There are three groups of voters (or electoral districts) $i = 1, 2, 3$ of size (mass) unity. The preference of voters in group i in period s are given by:

$$u_s^i = \sum_{t=s}^{\infty} \delta^{t-s} b^i(q_t),$$

where δ is a discount factor and q_t is a vector of policies $q_t = [\tau_t, g_t, f_t^i, r_t^i]$. The utility function in each period for a group i is given by:

$$b^i = c^i + H(g) = y - \tau + f^i + H(g),$$

where τ is a percapita lump sum tax,) f^i is a transfer only to group i, g is a public good, $H(\cdot)$ is a concave function[6]. All policy variables are constrained to be nonnegative and individual income y is normalized to1.

Politicians want to appropriate rents, r. Each politician $l = 1, 2, 3$ maximizes her own rents:

$$W_s^l = \sum_{t=s}^{\infty} \delta^{t-s} V^l(q_t) D_t^l,$$

where D_t^l is one if in office in period t and zero otherwise and $V^l(q_t) = r_t^l$.

When choosing policy, politicians face the following government budget constraint:

$$3\tau = g + \sum f^j + \sum r^l = g + f + r.$$

The benevolent central planner maximizes the sum of voters utilities by setting rents to zero, choosing g optimally: $H_g^{-1}(\frac{1}{3})$, and sharing transfers equally. If taxation is somewhat distortionary, transfer are zero. Taxes are set accordingly.

4.2 Simple Legislature

Now, let us consider the following legislative game. Three incumbent politicians are in office. They set policy, and then they face re-election. Each politician is elected in a single member district under plurality rule. Districts coincide with the groups described above; thus, each group decides whether or not to re-elect one of the politicians. Voters in each group i choose a backward looking strategy taking the form: I vote for the incumbent politician running for re-election in my district if my utility is above a given threshold ω^i, which depends on the role my representative plays.

The timing of events is as follows.

[6]Concave and monotonically increasing and $H_g(0) > 1$

1. *Nature* chooses L as the only legislator with proposal power[7].

2. Voters set their reservation utilities, ω^i, contemporaneously to the the other groups and taking into account the subsequent stages of the game.

3. L makes a proposal for the allocation of resources : $[g; r^L, r^2, r^3; f^L, f^2, f^3]$ and a tax level, τ^L.

4. The Legislature votes. If two politicians vote 'Yes', L's proposal is implemented. If two vote 'No', a status quo is implemented. The status quo consists of: $\tau = r^l = \overline{r} > 0$[8] and $g = f^j = 0$.

5. Elections are held.

Since we are only reproducing the results in [7] the equilibrium concept is the same.

An equilibrium of the simple legislature is a vector of policies $q_t^L(b_t)$ and a vector of reservation utilities b_t^L, such that, in any period t, when all players take as given the equilibrium outcomes of periods $t+k, k \geq 1$:

1. for any given b_t at least one legislator $i \neq a$ weakly prefers $q_t^L(b_t)$ to the default outcome;

2. for any give b_t^L, the agenda-setting legislator a prefers $q_t^L(b_t)$ to any other policy satisfying the condition above

3. the reservation utilities b_t^{iL} are optimal for the voters in each district i, when one takes into account that policies in the current period are set according to $q_t^L(b_t)$ and takes as given the reservation utilities in the other regions b_t^{-iL} and the identity of the agenda setter.

There us a unique stationary equilibrium that satisfies these conditions:

$$\tau_L = 1;$$

$$r^L = 3 - \frac{\delta}{1-(\delta/3)} + \overline{r},\ r_j = \overline{r} - \frac{\delta}{1-(\delta/3)},\ r_{-j} = 0\ for\ j = 2, 3;$$

$$g^* = min[H_g^{-1}(1), \frac{2\delta}{1-(\delta/3)}];$$

$$f^L = \frac{2\delta}{1-(\delta/3)} - g^*,\ f_j = 0\ for\ j \neq L;$$

$$\omega^L = H(g^*) + f^L,\ \omega^2 = \omega^3 = H(g^*);$$

and all politicians are reelected.

[7] To simplify exposition let's assume without loss of generality it is legislator 1.
[8] $\overline{r}$ is exogenously given.

From the proposition above we see that in the simple legislature taxes are maximum; rents have to make the legislators indifferent between running away with everything: 3τ, where $\tau = 1$, and being re-elected for the future rents: $3 - 2\delta W$; transfers to group L are positive whenever g^* is not too big. Transfers to the other groups are zero because voters play a bertrand game when trying to be included in the minimum winning coalition. They underbid each other offering lower transfers.

Taxes are maximum because both the voters in L's group and legislator L himself are residual claimants of a tax increase. They dispute only wether it should go to transfers or to rents. It is worth to the voters in L's group to set taxes as high as possible because they only internalize one-third of the cost and receive all the benefit.

The above result is the one we are going to take as a benchmark and compare to when we introduce line item veto. The next result, also reproduced from [7] is just an illustration in their context of separation of powers and the level of taxation.

4.3 Separation of Powers

If we change the model to allow for one agent, L, to set the tax rate and another agent E to choose the allocation the results change.

Now the timing is:

1. *Nature* chooses L to make a tax proposal and E an allocation proposal[9].
2. Voters set their reservation utilities according to the role their representatives play.
3. L makes a proposal τ^L.
4. Congress votes, if τ^L is not approved, the status quo $\tau^{SQ} = \sigma < 1$ prevails.
5. E makes a proposal for the allocation of resources : $[g; r^L, r^E, r^3; f^L, f^E, f^3]$.
6. The Legislature votes. If two politicians vote 'Yes', L's proposal is implemented. If two vote 'No', a status quo is implemented. The status quo consists of: $\tau = r^l$ and $g = f^j = 0$.
7. Elections are held.

The equilibrium[10] is characterized by:

$$\tau^L = \frac{1 - (\delta/3)}{1 + (2\delta/3)} < 1;$$

[9] Without loss of generality we say $L = 1$ and $E = 2$.

[10] A slightly modified definition of equilibrium is needed here. We refer the reader to [7].

$$r^E + r^L = 3\frac{1-(\delta/3)}{1+(2\delta/3} < r_L + r_j;$$

$$g^* = min[H_g^{-1}(1), \frac{2\delta}{1+(2\delta/3)}] \leq g^*;$$

$$f^E = \frac{2\delta}{1+(2\delta/3)} - g^*, \quad f^L = f^3 = 0;$$

$$\omega^E = H(g^*) + f^E, \ \omega^L = \omega^3 = H(g^*);$$

and all politicians are re-elected.

In this case the interest of legislator L and her voters are not aligned. Voters know that in equilibrium they do not receive positive transfers and, therefore, would like taxes to pay only for g^* and r. Legislator L, on the other hand, is the residual claimant of a tax increase. For a given tax rate τ, with probability $\frac{1}{2}$, L in included in the coalition and receives $r = \tau$. Taxes have to be at least as high as to pay L not to run away: $\frac{\tau}{2} + \delta W \geq \frac{1}{2}1$. Voters keep taxes to a minimum given this constraint. That's why separation of powers keeps taxes lower with respect to the simple legislature case.

Fiscal and political institutions in presidential regimes do not always entail such a clear distinction of roles. Besides, actual separation may depend on the extent of political alignment between powers. We take on this issues in the section below. We introduce two formal institutional features present in the American states which deliver actual separation of powers. We focus on Line Item Veto and then briefly discuss Super Majority Requirements for Tax Increases.

5 Institutions in the US states

5.1 Introduction

In American States only the Legislature has the power to propose an increase in taxation. Moreover, all legislatures can amend the budget proposed by the executive at will. We do not observe separation of powers as described above.

The results in Persson, Roland and Tabellini(2000) and [**?**] tell us that in order to have low taxes we must prevent the body which has the power to raise taxes from being the residual claimant of that tax increase. In the above section, this was achieved by giving taxing powers to the legislative and allocation power to the executive. Here the line item veto power of the executive prevents the legislature from being the residual claimant of a tax increase.

We define Line Item Veto as the power to cut any item from the budget[11]. Any funds from the cuts go towards lower taxation. Taxes are as high as the

[11] We follow the Legislative Bargaining literature here in considering the budgetary process up to the point in which the budget is approved. Cross the border cuts, for instance, may affect the size and composition of the budget at the implementation stage.

voters want.

5.2 Super Majority Override

The timing is given by:

1. *Nature* chooses L to make a tax and an allocation proposal and E to veto the proposal
2. Voters set their reservation utilities according to the role their representatives play.
3. L makes a proposal τ^L and $[g; r^L, r^E, r^3; f^L, f^E, f^3]$.
4. Congress votes both the tax and the allocation proposal together. If two politicians vote 'Yes', L's proposal is implemented. If two vote 'No', a status quo is implemented. The status quo consists of: $1 > \tau = r^l = \overline{r} > 0$ and $g = f^j = 0$.
5. E may choose to veto the approved proposal by cutting items.
6. There is an override vote where L's proposal competes against the vetoed version. With the super majority requirement, E can hold back the override alone.
7. Elections are held.

PROPOSITION 1: In equilibrium:

$$\tau^* = g^* + r^* \leq 1;$$

$$f^E = f^L = f^3 = 0;$$

$$r^* = r^l + r^L = 3 - \frac{2\delta}{1+\delta/3},\ for\ l = E\ or\ 3;$$

$$g^* = min[H_g^{-1}(\frac{1}{3}), \frac{2\delta}{1+\delta/3}];$$

$$\omega^i = H(g^*),\ for\ all\ i;$$

and all politicians are re-elected.

Sketch[12] Proof Proposition 1

First, let's determine the outside option for politicians. If L decides to forego reelection, the optimal deviation is to set $\tau = 1$ and pay $\overline{r}$ to any of the other two politicians to have his proposal approved. Since once L decides to run away

[12]We call it sketch because we still have to modify the definition of equilibrium used in [7] to our case.

no reservation utility will be met, E is completely indifferent between vetoing or not. We assume he doe not. Hence:

$$r^L = 3 - \overline{r} - \delta W;$$

$$r^l = \overline{r} - \delta W.$$

The budget constraint facing the voters becomes:

$$g + f + 3 - 2\delta W \leq 3\tau,$$

$$3(\tau - 1) + 2\delta W \geq g + f.$$

LEMMA 1. There are zero transfers in equilibrium.
proof. For the voters in E's group any positive transfers to another group is only a cost and therefore they should set their reservation utilities as to have zero transfers to others. L's voters, on the other hand, have no interest in giving positive transfers to E voters.QED.

All voters, therefore, have the same problem to maximize:

$$max\ H(g) - \tau$$

$$s.t.\ g \leq 3(1 - \tau) + 2\delta W.$$

which yields:

$$\omega_E = g* = min[H_g^{-1}(\frac{1}{3}), 3(1 - \tau) + 2\delta W].$$

Note the interesting result that the first best level of public goods is achieved. The presence of line item veto and the sequential nature of the game allow for no transfers in equilibrium. Voters can ask for the first best level.

LEMMA 2. $\tau^* \leq 1$.[13]
proof. Voters in L group, given the above result, wish to set just enough taxes so as to pay for g^* and for the price to keep politicians from running away:

$$3\tau = g^* + 3 - 2\delta W.$$

The maximum tax level will be reached when $g^* = 3(1 - \tau) + 2\delta W$. In this case $\tau = 1$. Hence: $\tau^* \leq 1$.QED.

The continuation value of being in office depends on the probability of being assigned to be the proposer, which is $\frac{1}{3}$:

$$W = \frac{1}{3}r_l + \frac{1}{3}r_L + \delta W,$$

that is,

$$W = \frac{1}{3}(3 - \delta W - \overline{r}) + \frac{1}{3}(\overline{r} - \delta W) + \delta W,$$

[13]A maintained assumption is that the economy y is always enough to pay for the optimal level of g, for the rents and for positive transfers. With this assumption the inequality inn Lemma 2 holds strictly.

which yields $W = \frac{1}{1+\delta/3}$. We only have to substitute for W and we have the values in Proposition 1. **QED**.

The main intuition about this result is that at the veto stage rents have already been defined. Legislator work to reach the reservation utilities of their voters. E voters do not receive positive transfers and hence want taxes to be just enough to pay for the optimal level of public good. Legislator E cuts items to reach that utility level, that is, any positive transfers to other groups.

5.3 Simple Majority Override

The timing is identical to the case before. Here, however, L'proposal and its vetoed version compete for a simple majority: two out of three legislators must support it.

PROPOSITION 2: in equilibrium:

$$\tau^* = g^* + r^* + f^{L*} \leq 1;$$

$$f^{L*} = \frac{3 - g^* - r^*}{2};\ f^E = f^3 = 0;$$

$$r^* = r^l + r^L = 3 - \frac{2\delta}{1+\delta/3},\ for\ l = E\ or\ 3;$$

$$g^* = min[H_g^{-1}(1), \frac{2\delta}{1+\delta/3}];$$

$$\omega^i = H(g^*),\ for\ i = E, 3;$$

$$\omega^L = H(g^*) + f^{L*};$$

and all politicians are re-elected.

Sketch Proof.[14] First note that in the case L decides to forego reelection we have the same result as before. L sets taxes to maximum and offers any of the other legislators $\overline{r}$. Since no one will be reelected, E is indifferent between vetoing the proposal or not. In this case, even if he does veto, he may be overridden. Hence the voters face the same budget constraint as above: $3(\tau - 1) + 2\delta W \geq g + f$.

At the veto stage rents have already been allocated and E is indifferent between vetoing rents. We assume he does not veto rents. Voters, when setting their reservation utilities include these rents in the budget constraint.

When choosing their optimal reservation utilities, E voters face an additional constraint: one of the other legislators must be at least indifferent between the vetoed version and the proposed version.

[14] We are currently checking for multiple equilibria.

L's voters also face an additional constraint: for them to be included in the winning coalition with probability 1, L's proposal should make them the least expensive group.

LEMMA 1. L's proposal that maximizes his voter's utilities is $\tau = 1$, $[g^*; f^L = \frac{3-g^*-r^*}{2}, f^3 = \frac{3-g^*-r^*}{2}, f^E = 0, r^*]$.
Proof. Voters in group L choose g^* optimally as before:

$$g* = min[H_g^{-1}(1), 3(1-\tau) + 2\delta W].$$

Their optimal choice of transfers is residually given by:

$$f^L = 3 - g^* - r^* - f^3,$$

condition on $f^3 \geq f^L$, which implies:

$$f^{L*} = \frac{3 - g^* - r^*}{2}.$$

QED.

Note that the reservation utility of L voters is given by g^*, f^{L*} and τ just enough to pay for those and for r^*. The same is true for E.

LEMMA 2. $\tau \leq 1$.
Voters in E group will demand a reservation utility with τ just enough to pay for g^*, f^{L*} and r^*:

$$3\tau = g^* + 3 - 2\delta W + f^{L*}.$$

If $g^* = 3(1-\tau) + 2\delta W$, $\tau = 1$ and $f^L = 0$. If $g^* < 3(1-\tau) + 2\delta W$ and f^{L*} is low enough, $\tau < 1$
If voter in E ask for positive transfers in equilibrium the best response from voters in L's group still is to ask for f^* and just enough taxes. At the veto stage, E will face two proposals. Both deliver the same amount of transfers $f^E = 0$: one with low taxes (the veto) and one with $\tau = 1$. E comes closer to delivering his voters reservation utilities choosing low taxes. Whatever positive transfers E voters ask, it is not a credible threat, L's voters are still able to achieve their optimal.QED.

In this case we also have $W = \frac{1}{1+\delta/3}$. Hence, we have the results in Proposition 2. **QED**.

As we can see, whenever g^* is not binding $\tau_{\frac{2}{3}} < \tau_{\frac{1}{2}} < \tau_{SL}$.

5.4 Supermajority for a Tax Increase

In our model with three groups, a $\frac{2}{3}$ majority to increase taxes implies the vote of all three legislators are needed for the tax increase to be approved. If we are in the simple legislature case, the two groups of voters will no longer compete to be in the winning coalition. They can both ask for positive transfers. The symmetric nash equilibrium is the case in which transfers are divided equally. In that case, however, voters are indifferent between zero or positive transfers, they internalize the cost fully. If taxes are the least distortinary, they should be just enough to pay for r^* and g^*[15].

6 Empirical Analysis

6.1 Introduction

In the previous section we presented a model for the American states in which the tax level depends on the institutional features of each state. We concluded that the existence of line item veto may imply actual separation in a presidential regime in which the legislature has both amendment powers over the budget and taxing powers. In this section we discuss the different estimation strategies to identify the effect of actual separation of powers on the tax level.

We start presenting our variable of interest, alignment of powers, and the data. We move on with a fixed effects estimate, as it has been done in the literature. We than present a regression discontinuity design as a way to deal with the possible endogeneity of our variable of interest. Lastly, we forward a dynamic version of the panel, which captures the high path dependence of the average tax rate. In the dynamic part we also allow our variables of interest to be endogenous and treat it with an instrumental variable approach.

6.2 The alignment variables

Line Item Veto is not a time variant feature in the American states. We interact it with a non partisan variable we call the *strength of the governor*, that is, the proportion of the governor's party members in the chamber (House or Senate) in which her support is smaller. The immediate implication is that parties are the empirical counterpart of groups in our model; we assume parties to be monolithic.[16]

A second implication is that groups are of varying sizes. We interpret the two active groups as Democrats and Republicans, while the third group is merely

[15] Brian Knight(2000)[5] has found a significant negative effect on supermajority requirements on the tax level controlling for the endogeneity arising from self selection into treatment.

[16] More loosely, we can interpret parties as mechanisms for reducing costs in political transactions. This latter interpretation fits better a continuous interpretation of government strength.

instrumental and can be thought of as Independents (or Moderates). Their interaction is structured by the formal division of powers and existence, or not, of the veto authority. There are two Powers: Legislative and Executive. If one group-party controls both powers, we are back to Simple Legislature and expect high taxes. If different groups control different powers we expect low taxes only if line item veto is present.

When line item veto is not present, all the powers over the level of taxation and over the allocation of resources are on the hand of the legislature. The governor plays no role and the alignment of the powers is of no relevance for the tax level. Note that even when the chambers in a state are controlled by different parties taxes are high. If they play simultaneously both parties are residual claimants of a tax increase and if they play sequentially, the last one is.

On the other hand, when line item veto is available to the executive, it is effective only when one group controls the Executive and another group controls the Legislative. Following our model, we define three regions: the *alignment* region, in which the governor has at least simple majority in both chambers; the *nonalignment* region, in which the governor does not control one or both chambers; and the *override* region, in which the governor's opposition has enough votes to override his veto in both chambers.

We can visualize these alignment areas with Figures 1 to 4. In Figure 1 we have on the y-axis the percentage of members in the upper house that support the governor and on the x-axis the percentage of members in the lower house that support the governor. In Figure 1 we have the whole sample.

In Figure 2 we limit the sample to the five states in which line item veto is present with an override requirement of one half of the votes in both chambers[17]. The graph is separated in four regions. The North-East region is the part of the sample in which there is alignment of powers: the governor's party has more than 50% in both houses. In the South-West region we have a minority governor. In both the NW and SE regions one of the chambers is not controlled by the governor's party, that is, not all the veto players are aligned. Our variable of interest in this case, *alignedliv12*, will have value 1 if the observation is on the NE region and zero otherwise.

In Figure 3 we do the same for the 7 states without line item veto[18]. Our variable *alignedvov* will also take value 1 on the NE region and zero otherwise. We may take this variable as a control to make sure the effect we are measuring is one of the presence of the line item veto institution and not of alignment of powers by itself.

The remaining 36 states plotted in Figure 4 need a more subtle division. Since the override requirement in these states is a two-third majority in both houses, there are two distinct non-alignment areas. In the smaller South-West square the veto can be overridden: the party opposing the governor has more than two-thirds majority in both chambers. In the area between the SW-square

[17]Alabama, Arkansas, Illinois, Kentucky and Tenesse.

[18]Indiana, Maine, North Carolina, New Hampshire, Nevada, Rhode Island and Vermont.

and the NE alignment area the veto sticks. The variable *notalignedliv23* will have value 1 in the SW-square and zero otherwise and the variable *alignedliv23* will have value 1 in the NE alignment area and zero otherwise.

It is important to stress that in our model the only power the governor has is veto power. The model is silent on all other forms: implementation, political costs from override, being closer to the state's median voter and so on. This is a clear theoretical omission. When the governor's opposition is able to override the governor's veto our model tell us we are in a Simple Legislature case with high taxes even though the executive is controlled by another party. This would be the case in the SW region in Figure 2 and on the SW-square in Figure 4. Empirically, however, as we showed in the above paragraphs we treat the areas of full alignment and override differently.

This last consideration is particular important for the 5 states with simple majority override requirement. As the results show, there is a significant difference for the tax rate between being in the alignment area or in the override area. So far our model is silent on this matter.

6.3 Data

For the empirical analysis we use a sample of 48 US states for the period 1960-98. Fiscal and control variables were taken from Besley and Case (2002). Some institutional and procedural variables, instead, have been collected from the National Association of State Budget Offices (NASBO) and the National Conference of State Legislatures (NCSL). We conducted three surveys directed to state budget officers and legislature public officials to clarify ambiguous information and a few inconsistencies in the data.

Our variables proxing for government strength are built assuming a monolithic party. The first one focuses on the strength of the governing party to pass preferred bills through Congress. We name this variable $gs\_\min$, formally, defined as

$$\begin{aligned} gs\_\min \quad = \quad & \min\{share\ of \text{ dem. in the house}, share \text{ of dem. in senate}\} \cdot \gamma_D + \\ & + \min\{share\ of \text{ rep. in the house}, share \text{ of rep. in senate}\} \cdot \gamma_R. \end{aligned}$$

The second variable refers to the override requirement. Once the opposition party controls more than $\frac{2}{3}$ in both chambers, it can override vetoes and therefore it becomes inactive.

$$\begin{aligned} gs\_\max \quad = \quad & \max\{share\ of \text{ dem. in the house}, share \text{ of dem. in senate}\} \cdot \gamma_D + \\ & + \max\{share\ of \text{ rep. in the house}, share \text{ of rep. in senate}\} \cdot \gamma_R \end{aligned}$$

We define two dummy variables: S_{st}^A, takes value 1 in state s if and only if it has veto power and there is party alignment between formally divided powers, and S_{st}^O takes value 1 if and only if the veto authority is weak enough to be

overridden. Formally,

$$S_{st}^{A} = \begin{cases} 1 & \text{iff } gs\_\min \geq \frac{1}{2} \text{ and line item veto } 2/3 \\ 0 & \text{otherwise,} \end{cases}$$

and

$$S_{st}^{O} = \begin{cases} 1 & \text{iff } gs\_\max \leq \frac{1}{3} \text{ and line item veto } 2/3 \\ 0 & \text{otherwise.} \end{cases}$$

The outcome variable is the tax level. We use two measures: the *average tax rate* defined as the sum of state sales, corporate and income taxes over state income, and *tax percapita* defined as same measure of tax revenues over state population.

6.4 Fixed Effects

To start with, we assume strict exogeneity holds for all explanatory variables. Thus, we begin using standard fixed effects, ignoring potential pitfalls[19]. In the next subsection, we discuss why we consider that our variables of interest may not be orthogonal to the error term and how we go about this problem.

The estimating equation is given by

$$\tau_{st} = \zeta_s + \delta_t + \beta' x_{st} + \lambda_A S_{st}^{A} + \lambda_B S_{st}^{B} + \varepsilon_{st},$$

where τ_{st} is the average tax rate (tax revenues over state income) for state s at time t, ζ_s is a state fixed effect that allows us to control for time invariant state characteristics that can be correlated with institutional variables. δ_t is a time dummy. x is a vector of controls, including socioeconomic and demographic characteristics, as well as other fiscal institutions. Finally, S_{st} is a vector with the variables of interest.

As it is well known, fixed effects cannot include time constant explanatory variables. The time invariant feature of most institutional variables represents a drawback in this context. However, there are at least two main channels through which fixed effects can play a key role in identifying more precisely the effects of budgetary institutions on the outcome variable. First, being time invariant, institutional characteristics can be correlated with state specific features stable over time, such as, voter preferences, history and path dependence, and the like. Controlling for state effects, rule this source of biases out.

Second, specific institutions matter but their functioning depends on the actual forces at play. In our case, not only do we need to focus on the existence of a formal separation between the group with tax powers and the residual claimant, but also with the extent of alignment or cooperation between these two groups. Our theoretical results point in that direction. If groups are allowed to have varying sizes, for example, the voting stage outcome will depend on the relative costs of building coalitions and so will the extent to which veto power is effective.

[19]The fixed effect estimation is the closest to what the literature has done with line item veto. See Holtz-Eakins(1988) and Besley and Case(2003)

The results from the fixed effects strategy can be seen in the **Fixed Effect Table**. From columns 1 to 4 we run our whole sample of 48 states, which overtime gives us 1872 observations. We control for state fixed effects and year dummies, for population characteristics[20]. As we move from column 1 to 4 we introduce institutional[21] and political controls[22] that have an effect on the tax level.

Our results go against Holtz-Eakins (1988) and corroborates the results in Besley and Case(2003). We find a statistically significant positive effect of having the legislative and executive powers aligned in the states with line item veto. There is no effect on the 7 states without it. Our contribution in this strategy is that we allow for different coefficients for line item veto with simple and super majority override requirements. We also create an alignment variables for the states without the veto. Since most of the identification comes from within variation this last variable is important in so far as it shows that alignment alone (without line item veto) has no effect on the tax rate.

A draw back seems to be the results on the nonaligned area where the governor is so week that the veto can always be overridden. We find a negative sign and expected it to be positive. This is related to our discussion on the powers the governor has other than the veto. These powers should make it possible to keep taxes lower even when the opposition controls both chambers[23]. As we move to more adequate estimation strategies this results looses significance. The right way to identify it would be with regression discontinuity design, but as we will see, there isn't enough data. There is data for the alignment variable in the two-thirds case, and there the result is strong.

6.5 Discontinuity design

A fixed-effects strategy assumes that $\mathbf{E}(\varepsilon_{st}|\mathbf{z}_s) = 0$, for all time periods and all controls including state fixed effects ($\mathbf{z}_s$)—strict exogeneity assumption. In particular, it implies that no omitted variable is correlated with explanatory variables of interest, and that there is no (significant) reverse causality or feed backs from τ to, say, *governor strength*.

Omitted variable means that a state and time dependent variable not included in the controls is correlated with l.An omitted variable is voter preferences over taxation. In this specification, we assume that they do not affect government strength but affect taxes directly—for example, by shifting representatives ideologies symmetrically.

Regression discontinuity design (RDD) allow us to reduce the size of the bias due to unobservables. This strategy consists in reducing the sample size to those observations near the exogenous *eligibility requirement* for treatment. In our

[20]State population, state income, percentage of kids and aged, square od state population and of state income.

[21]Supermajority requirements for a tax increase and binding restrictions on the tax level.

[22]Identity of the governor, either democrat or independent

[23]This may be due to the small number of observations in that area or to some continuous and non linear effect of the governor's strength on the tax level.

context, the exogenous requirement is given by the simple majority alignment line of $\frac{1}{2}$, and the override requirement that defines exogenously the $\frac{1}{3}$ line. Observations near these lines are likely to have similar values for unobservables, therefore reducing the biases.

We take all the observations around the border of the North-East corner on figures 1, 2 and 3, that is, all the observation in which the governor's party had from 45 to 55 percent of the seats in both houses. We can only identify the alignment effect in states with line item veto and super majority override requirements, *alignegliv23* or without line item veto, *alignednov*. There is not enough data for the states with simple majority override or for the override effect.

On the **Discontinuity Table** we can see the results are strong and significant for robust and clustered errors even though we only have 160 observations. We also control for fixed effects, time dummies and the usual controls. Interestingly the level effect of the coefficient for *alignedliv23* is much higher and in the same order of magnitude of the coefficient for *alignedliv12* in the fixed effect panel.

6.6 Dynamic Panel

Strict exogeneity rules out an important feedback effect: variations in taxes in $t-j$ affect voters's decisions at time t, either changing the size of a governor's support in the legislature, or changing the party identity of a governor for a given composition of the legislature. This a clear violation that can bias our estimates systematically, and one major concern. More formally, l can be predetermined (weakly exogenous) since it can be correlated with the error component in previous periods through the feedback:

$$S_{st} = \xi' \mathbf{z}_{st} + \sum_{j=1}^{4} \rho_j y_{s,t-j} + \psi \zeta_s + v_{st}. \tag{1}$$

Both sources of biases can be addressed combining dynamic panels and instrumental variables estimates for our treatment variables.

We use the standard Arellano and Bond (1991) Generalized Method of Moments estimator for the dynamic specification in (2). The approach requires us to specify the set of strictly and weakly exogenous variables, remove ζ_s by first differencing (2), and define the set of instrumental variables. The equation to estimate is:

$$\tau_{st} = \zeta_s + \delta_t + \beta' x_{st} + \lambda_A S^A_{st} + \lambda_B S^B_{st} + \sum_{j=1}^{4} \rho_j \tau_{s,t-j} + \varepsilon_{st}, . \tag{2}$$

With sequential or weakly exogenous variables $\mathbf{x}$, the implied moments conditions are $E\left(\mathbf{x}'_{sj} \Delta \varepsilon_{st}\right) = 0$, for $j = 1, 2, ..., t-1$.These conditions open up a variety of estimation procedures, with $\mathbf{x}_s^{t-1} \equiv (x_{s1}, x_{s2}, ..., x_{st-1})$ and its linear

combinations as potential instruments for Δx_{st}, for the equation in first differences.[24] With other forms of endogeneneity, the set of potential instruments made up of lags (and leads), varies according to the maintained assumptions. Instruments not in the structural equation can be included as a source of exogenous variation.

As shown in the **Dynamic Table**, the predictions of our model are also supported in a dynamic specification. The Table provides preliminary results of tests for the effect of separation of powers in US states. The regressors include state income and state population, in levels and squared, share of the population aged between five and seventeen years old and share of population aged older than sixty five years old; to control for political preferences, we include the party identity of the governor, with republican being the omitted catergory; and, finally we also include dummies for fiscal institutions as additional controls: one for supermajority requirements for tax increases, and another for (restrictive) tax-expenditure limitations.

In columns (1)-(2), (4)-(5) and (7)-(8) , we treat all regressors but the lagged dependent variables as strictly exogenous. In this version, we use the complete set of available instruments under the maintained assumptions: for τ_{st-j}, we use $(\tau_{s1}, ..., \tau_{st-j-1})$ as instruments. We allow for four lags of our dependent variable and, on columns (7)-(8), we test our predictions with a distributed lag model with one lag in our variables of interest. The four lags refer to the four year intervals between gubernatorial elections. The one lag for the two-year intervals for the lower house elections.

The results in **Dynamic Table** show that, on impact, the effect of non-separation of powers under alignment with line item veto and two-thirds override requirement (*alignedliv23=1*), is always positive an significant. These results are robust to different sets of controls. The short-run effect ranges from 0.07 to 0.13 percentages of state taxes over state GDP. This implies that, for an average state with 6% of taxes over state GDP, taxes increase up to 2.2% on impact when switching status from separation to alignment—once the dynamic structure, other economic, political, demographic and time-invariant unobserved characteristics have been controlled for.

The dynamic specification allows us to compute the expected long-run effect of non-separation of powers due to party alignments. In steady state, the multiplier $\widehat{m} = \frac{1}{1-\sum_{j=1}^{4} \widehat{\rho}_j}$ ranges from 3.13 to 4. Under the maintained assumptions, the long run increase ranges from .22 to .52 per cent of state GDP, and from 4 to 9 per cent of state taxes.

As for the other variables of interest, in the override region with two-thirds requirement, the effect is not significantly different from zero for all specifications. Only in lags it appears economically and statistically significant, with a positive sign (Column 7). This implies that interactions between the Legislature and the Executive with line-item-veto do not produce different results in the override region with respect to other regions in which powers are not

[24] As a practical matter, GMM estimators using many overidentifying restrictions are known to have poor finite sample properties (see Wooldridge, pp. 305, 2002).

politically aligned. Under one-half override requirement, the effect of alignment (*alignedliv12=1*) is also positive and sizeable, although less significant and not robust. A similar pattern results in the absence of veto power.

As it is generally the case, some exogenous factors from outside the structural equation are needed for a convincing analysis. This is particularly relevant when concern arises over possible contemporaneous correlation between S and ε. In columns (3) , (6) and (9) , we add the *share of votes for democrat candidates* in low office elections, such as, Attorney General. We follow Besley and Persson (2005) and argue that this variable have no direct effect on local taxes but is correlated with the extent of political competition in a given state.

Our results with the additional instrument, while statistically significant and robust, are economically weaker. This points to the potential upward bias in the previous set of results, yet, this results are very preliminary. Besides, in our preferred specification in Column (9), the point estimate for aligned governments with line-item-veto and two-thirds override requirement is .07, and its long run effect is .28—along the intervals of the previous results.

The Sargan tests of over-identifying restrictions are always very high. That is, the null that all instruments used are exogenous is rejected. Being the number of overidentifying restrictions too high, this is not surprising and requires revision. Another issue is the autocorrelation of order two test, which is not always rejected at the 5 per cent. This can be an additional source of biases for our estimates.

Overall, in the dynamic specification, the results go in line with the predictions of our model. Our main variable of interest, *alignedliv*23, is always positive and significant, with sizeable effects, particularly in the long run. By the same token, *alignedliv*12 is also positive and less precisely estimated. *Notalignedliv23* and *alignednov* are not significantly different from zero. However, there still some econometric issues of concern that may cause important biases in our estimates.

7 Conclusion and Further Research

Our theoretical and empirical results give us evidence that actual separation of power, that is, that the agent setting the tax level is not the residual claimant of the tax increase, is the relevant characteristic we should look for when studying differences in tax level across regimes, be it countries or states.

For the literature that deals with comparative studies the main point of this paper is that the classifications used in political science may not be adequate when comparing the role of institutions on economic outcomes. The mechanism must be identified and regimes should be classified by such.

For the literature in the American states tax institutions this paper brings new evidence supporting the thesis that the institutional feature of line item veto has a negative effect on the tax level. It makes the point that the effect also depends on the level of political control.

For further research it would be interesting to classify countries according to actual separation and test the same hypothesis.

On the study of American states tax institutions, the role of the executive has to be studied more closely. Here we have limited it to its veto power, but other powers such as implementation or drafting the budget may play an important role.

Lastly, the model gives rise to distribution predication on how tax revenues are allocated across groups, a next step is to try and identify the redistribution according to regimes and political control.

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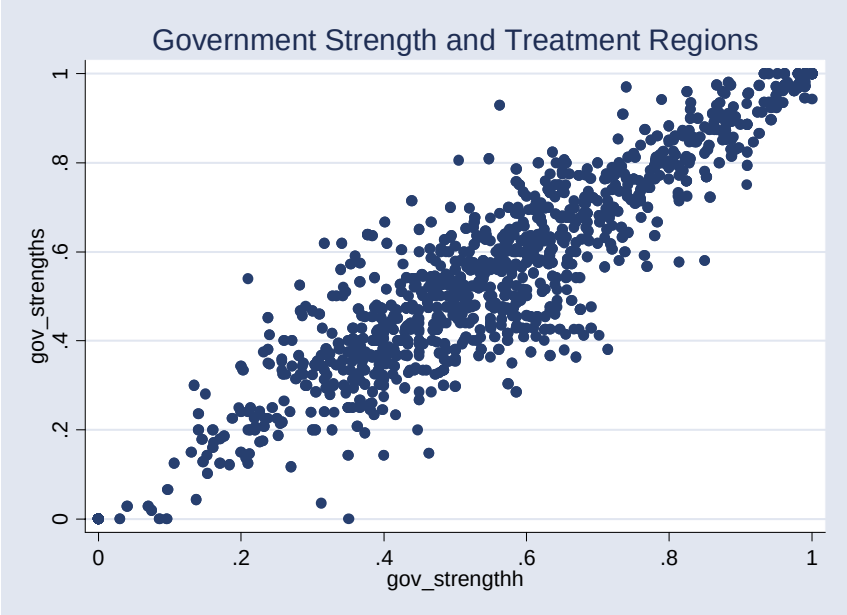
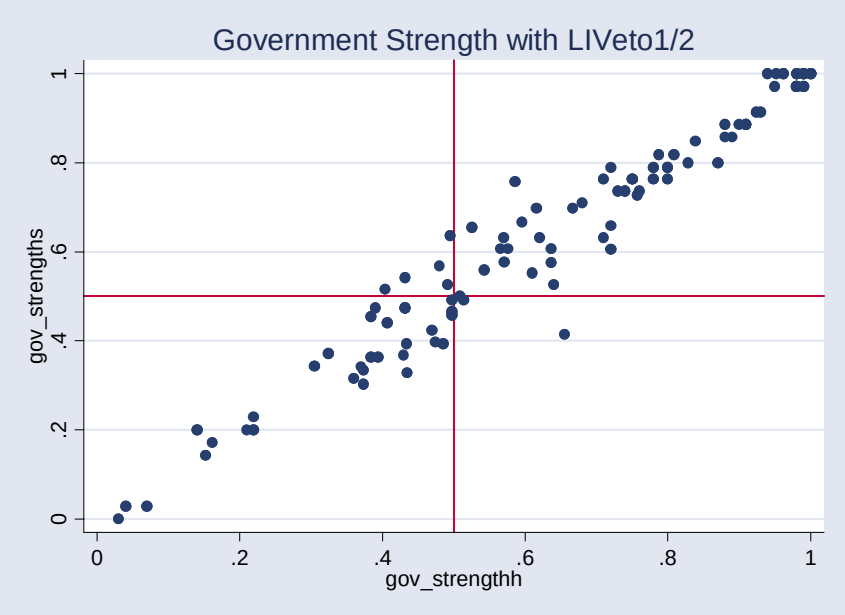
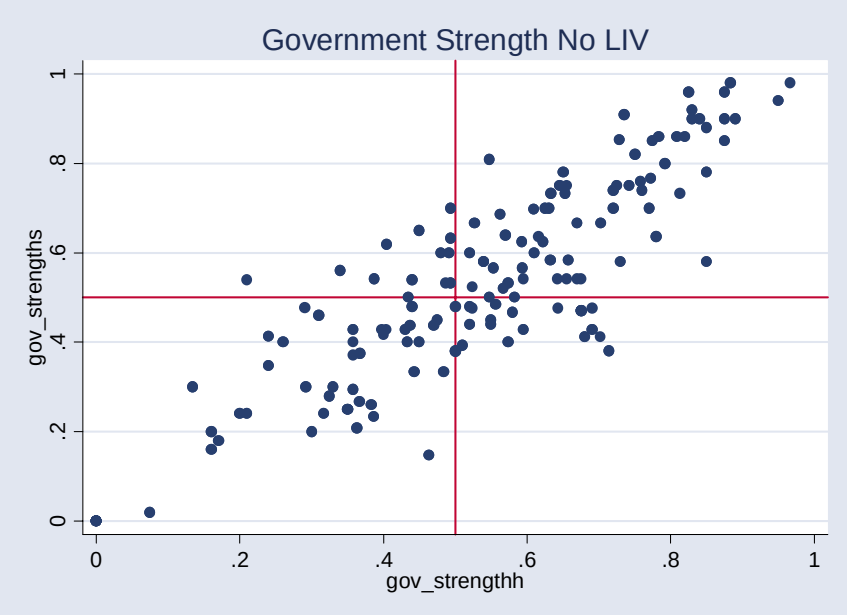
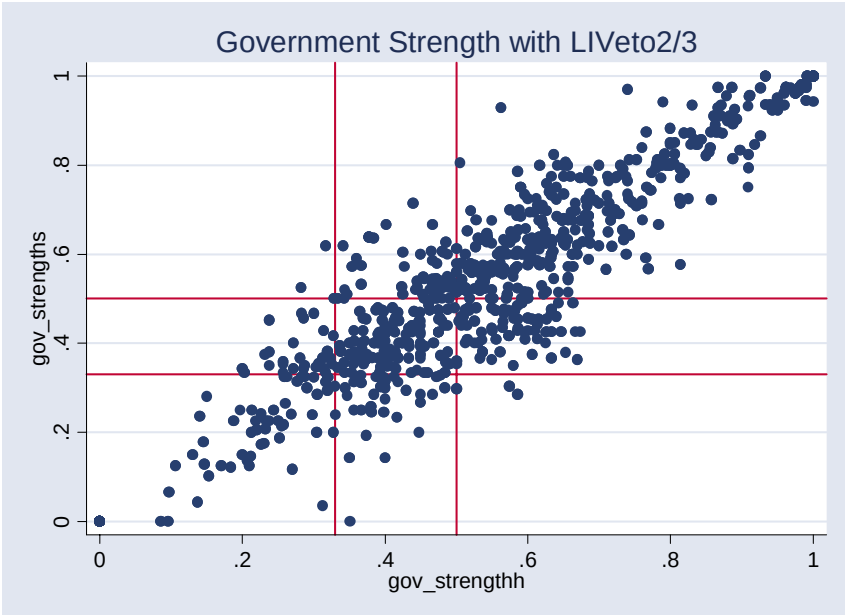
Figures 1 to 4









Fixed Effects Table

	(1)	(2)	(3)	(4)
	ttax_gdp	ttax_gdp	ttax_gdp	ttax_gdp
alignedliv23	0.08	0.08	0.09	0.09
	(0.04)** (0.04)** (0.06)	(0.04)** (0.04)** (0.06)	(0.03)** (0.04)** (0.06)	(0.03)*** (0.04)*** (0.06)*
notalignedliv23	-0.15	-0.15	-0.16	-0.18
	(0.06)** (0.07)** (0.18)	(0.06)** (0.07)** (0.18)	(0.06)*** (0.07)** (0.18)	(0.06)*** (0.07)*** (0.18)
alignedliv12	0.36	0.36	0.37	0.41
	(0.09)*** (0.09)*** (0.19)*	(0.09)*** (0.09)*** (0.18)*	(0.09)*** (0.09)*** (0.18)**	(0.09)*** (0.09)*** (0.18)**
alignednov	-0.07	-0.07	-0.06	-0.06
	(0.07) (0.07) (0.09)	(0.07) (0.07) (0.09)	(0.07) (0.07) (0.09)	(0.07) (0.07) (0.10)
supmaj			-0.37	-0.37
			(0.07)***	(0.07)***
restrict			0.14	0.15
			(0.03)***	(0.03)***
Demgov				0.05
				(0.03)*
Indgov				0.26
				(0.19)
Stpop, stinc, aged, kids	YES	YES	YES	YES
Stpop_sq, stinc_sq	NO	YES	YES	YES
Observations	1872	1872	1872	1872
Number of state_code	48	48	48	48
R-squared	0.62	0.62	0.63	0.64

Standard errors in parentheses / Robust /Cluster by state

- significant at 10%; ** significant at 5%; *** significant at 1%

Discontinuity Table

Discontinuity at the 5% level

	(1)	(2)	(3)	(4)	(5)
	ttax_gdp	ttax_pc	ttax_gdp	ttax_gdp	ttax_gdp
alignedliv23	0.35	40.47	0.43	0.42	0.43
	(0.14)** (0.15)** (0.24)	(15.67)** (15.14)*** (21.99)*	(0.13)*** (0.14)*** (0.18)**	(0.11)*** (0.13)*** (0.17)**	(0.11)*** (0.12)*** (0.15)***
notalignedliv23	.	.	.	.	.
alignedliv12	.	.	.	.	.
alignednov	-0.23	-19.00	-0.17	-0.11	0.02
	(0.27) (0.15) (0.17)	(30.10) (18.56) (19.04)	(0.24) (0.15) (0.17)	(0.20) (0.14) (0.16)	(0.21) (0.17) (0.22)
stpop, stinc, aged, kids	YES	YES, stincpc	YES	YES	YES
Stpopsq, stincsq	NO	NO	YES	YES	YES
Supmaj, restrict	NO	NO	NO	YES	YES
Demgov, indgov	NO	NO	NO	NO	YES
Observations	160	155	160	160	160
Number of state_code	32	32	32	32	32
R-squared	0.75	0.94	0.81	0.87	0.87

Standard errors in parentheses/ Robust /Cluster by state
* significant at 10%; ** significant at 5%; *** significant at 1%

Controls: stpop, stpopsq, stinc, stincsq, aged, kids, supmaj, restrict, demgov, indgov

Dynamic Table

	ttax_gdp	ttax_gdp	ttax_gdp	ttax_gdp	ttax_gdp	ttax_gdp	ttax_gdp	ttax_gdp
Alignedliv23	.05	.04	.05	.04	.06	.06	.13	.12
	(.02)** (.02)*	(.02)* (.02)*	(.02)** (.03)*	(.02)* (.03)*	(.02)** (.02)***	(.02)** (.02)**	(.03)*** (.04)***	(.03)*** (.04)***
alignedliv12			.08	.10	.09	.11	.10	.14
			(.07) (.05)*	(.07) (.05)**	(.07) (.05)*	(.07) (.05)**	(.07) (.05)	(.07)* (.08)*
notalignedliv23			-.00	-.00	-.00	-.01	-.04	-.06
			(.04) (.04)	(.04) (.04)	(.05) (.04)	(.05) (.04)	(.05) (.07)	(.05) (.06)
indgov					-.12	-.18	-.27	-.34
					(.14) (.23)	(.14) (.25)	(.15)* (.28)	(.15)** (.31)
demgov					-.02	-.02	-.06	-.06
					(.02) (.03)	(.02) (.04)	(.02)*** (.05)	(.02)** (.05)
supmaj					-.20	-.20	-.28	-.25
					(.06)*** (.07)***	(.06)*** (.08)**	(.07)*** (.08)***	(.07)*** (.09)***
Restrict					.09	.11	.13	.15
					(.03)*** (.04)**	(.03)*** (.04)	(.03)*** (.05)***	(.03)*** (.05)***
L1D	.66	.65	.66	.65	.65	.65	.61	.62
	(.03)*** (.03) ***	(.03)***	(.03)*** (.04)***	(.03)*** (.04)***	(.03)*** (.04)***	(.03)*** (.03)***	(.03)*** (.04)***	(.03)*** (.05)***
L2D	.02	.02	.02	.02	.02	.02	.03	-.04
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)
L3D	.03	.03	.03	.03	.03	.03	.06	.05
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)**	(.03)
L4D	.07	.07	.07	.07	.07	.07	.10	.09
	(.02)*** (.03)**	(.02)***	(.02)*** (.03)**	(.02)*** (.03)**	(.02)*** (.03)**	(.02)*** (.03)**	(.02)*** (.03)**	(.02)*** (.03)***
Controls	Stinc, stpop, aged, kids	+ stincsq and stpopsq	Stinc, stpop, aged, kids	+ stincsq and stpopsq	Stinc, stpop, aged, kids	+ stincsq and stpopsq	+ lagged alig-nedliv23/12 not	++ stincsq stpopsq
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs	1632	1632	1632	1632	1632	1632	1632	1632
Number of groups	48	48	48	48	48	48	48	48
Observations per group	34	34	34	34	34	34	34	34
AR Test ar(1)	-32.68	-32.84	-32.61 -5.90	-32.76	-32.29	-32.39 -6.01	-26.20 -5.98	-26.88
AR Test ar(2)	0.53	0.18	0.55 0.67	0.19	0.75	0.34 0.44	4.81** 2.01**	4.68**
Sargan test	chi2(693) = 783.74	chi2(693) = 844.20	chi2(693) = 782.05	chi2(693) = 842.90	chi2(693) = 770.95**	chi2(693) = 832.65	chi2(693) = 919.06	chi2(693) = 950.12
Wald chi2(42-44)	3131.33 17150.66	3169.70 36452.74	3129.60 30224.39	3170.24 42159.22	3174.02	3238.05	Wald chi2(52) = 2773.82	Wald chi2(53) = 2780.47

Arellano-Bond dynamic panel-data estimation. Group variable (i): state_code One-step results.