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Legislators' actions are influenced by party, constituency, and their own views, each weighted differently. Our survey of state legislators finds that legislator's own views are the strongest influence. We also find that institutions are an important source of party leaders' influence. Legislators in states where members rely more on party leaders – states without term limits, with less professional legislatures, and where the majority party controls the agenda – put more weight on leaders' preferences. Beyond direct party influence, the views of party leaders are preemptively incorporated into legislators' preferences when the rules of the legislature make party leaders more powerful.

How, if at all, do parties and their leaders influence the behavior of legislators? Some scholars posit the potential for strong party influence (e.g., Rohde 1991), while others are skeptical of party influence, suggesting that legislators' own preferences are most important (Krehbiel 1993). The ensuing debate is often framed around direct or indirect party influence (Smith 2007). Direct influence focuses on arm-twisting, pressuring and vote-buying (e.g., Groseclose 1996; Jenkins and Monroe 2012) and assumes that legislators' votes align with the leadership because of the carrots and sticks leaders use to cajole members. In contrast, indirect party influence focuses on how leaders structure the form and content of legislation (Cox and McCubbins 2005; Harbridge 2015; Hartog and Monroe 2011; Lawrence, Maltzman, and Smith 2006).

Although institutions are important in nearly all accounts of party influence, scholars have paid less attention to how institutions that affect leaders' resources may incentivize rank-and-file legislators to put more weight on leaders' positions when forming the preferences on which they will act (though see Sinclair 2002). Institutions that affect the relative balance of resources between leaders and other members can shape how much weight legislators put on their leaders' positions in at least two ways. First, when rank-and-file members have more staff and more time to devote to their jobs, they are less reliant on leaders for information. As a result, they can rely less on leaders' preferences as a signal about what the optimal policy should be (Curry 2015; Krehbiel 1992; Mooney 2012). Second, when leaders can allocate resources that members care about, access to the agenda, financial resources, and committee assignments, members may preemptively incorporate leaders' preference into their own positions as a way to remain in favor with the leaders (Clucas 2001; Herron and Theodos 2004; Lebo, McGlynn, and Koger 2007; Lindstädt and Vander Wielen 2014; Mooney 2012, 2013). As a result, leaders may

not have to actually twist arms; legislators may simply act in anticipation of leaders' power (Cameron 2000; Fox and Rothenberg 2011).

We use original survey data to measure legislators' personal and representational preferences along with their perceptions of voters' and party leaders' preferences on their state's gas tax. We use the term representational preferences to emphasize that this position captures the policy position they would take after taking into account their own preferences, as well as voters' and leaders' preferences. It is a measure of how they would balance representing voters, leaders, and their own personal preference. Because we measure these items on the same numeric scale, we are able to estimate the weights that legislators put on their own preferences, constituents' preferences, and their party leaders' preferences when forming their representational preference on the issue and assess what institutions affect these weights.[i]

These representational preferences have power to predict legislators' roll call votes. In our dataset, about 60 of the surveyed legislators in two states voted on a proposal in the previous session that would raise the gas tax in their state. Using these individuals, we test whether their representational preferences, as reported in our survey, predict their vote on the bill. We find that legislators' representational preferences predict their roll call votes, even when controlling for party. Our measure of legislators' representational preferences captures meaningful information about an attitude that drives legislator behavior on actual roll call votes.

We use legislators' responses on the survey to test how term limits (Carey et al. 2006; Mooney 2012), legislative professionalism (Mooney 1995; Squire 2007), majority leader agenda control (Anzia and Jackman 2013; Jackman 2014), and leader control of committee assignments (Grimmer and Powell 2013) predict changes in the weights that legislators put on leaders' positions when forming their representational preferences.

We are able to provide new insights about the effects of these institutions because we study them at the state level. The advantage of studying the effect of institutions in the American states is the variation in institutions across chambers. Fifteen states have term limits and there is also great variation in the level of state professionalism, majority leadership control over the agenda, and leader control over committee assignments. Focusing on state institutions also allows us to conduct a placebo test on federal Senators, indicating that our results are not driven by unobserved state differences.

We find that legislators in term-limited states and in more professional legislatures put less weight on leaders' preferences. We also find that legislators put more weight on leaders' preferences in legislative chambers where the majority party controls access to the calendar. These results are consistent with the possibility that institutions affect party leaders' power and shape the weights that rank-and-file members put on leaders' preferences. Institutions provide leaders with powerful tools that shape outcomes, even when we never see those tools used.

Party Leaders' Influence on Rank-and-File Members

Many factors influence how legislators vote. Legislators rely on information about constituents' preferences (Kousser, Lewis, and Masket 2007), but also look to party leaders and other legislators (Kingdon 1989), and their own experiences (Burden 2007). One important question is how institutions moderate the impact of these different sources on the weighted positions that legislators use when making decisions.

Work on legislatures, executives, courts, and other elite actors suggests that institutions affect outcomes by affecting the distribution of power and resources (Anzia and Jackman 2013; Clucas 2001; Mooney 2012, 2013; Schickler 2001; Wawro and Schickler 2007). Some institutions are theorized to have an indirect influence on outcomes by shaping how debate and

negotiations are structured (Cox and McCubbins 2005; Hartog and Monroe 2011; Krehbiel, Meirowitz, and Wiseman 2015; Lawrence, Maltzman, and Smith 2006), while other institutions are theorized to have a direct influence by empowering some political powerbrokers to actively pressure other elites (Groseclose 1996; Jenkins and Monroe 2012).

Although this research emphasizes how institutional arrangements affect leaders' resources, scholars have given less attention to how legislators proactively incorporate leaders' policy views when forming the preferences on which they will act. Despite Sinclair's (2002) observation that many tests of party effects omit the ways that parties shape preferences, little research connects this potential form of influence to institutional arrangements. When leaders have the power to reward or punish members, legislators may proactively align themselves with the position of their party's leadership. Similarly, when legislators have few resources that are independent of the party leadership, rank-and-file members may depend on leaders for information. As a result, legislators may rely on leaders' preferences as a signal about the appropriate policy and proactively incorporate leaders' views into their weighted policy preference.

The relative balance of resources between leaders and other members varies across legislatures. Certain institutional arrangements within these legislatures lead legislators to be more reliant on party leaders for information or future success. Others make legislators less reliant on leaders. We focus on how these institutions affect the weight legislators put on the positions of party leaders when forming their representational preference.

Deriving in part from legislators' own perspectives (Fenno 1978; Kingdon 1977), the baseline model of legislative voting behavior posits that voting is a function of party, ideology, and constituency (Fiorina 1974; Ramey 2015; Shapiro et al. 1990; Turner 1951). In this study,

we extend this classic model of voting to investigate how institutions that affect party leaders'
resources shape the relationship between leaders' preferences and legislators' representational
preferences.

First, we assess whether legislators in states with term limits are less responsive to party
leaders. Fifteen states currently have term limits (which vary between six and twelve years).
Term limits shorten legislators' time horizons and make the relationships that facilitate the
legislative process between leaders and legislators more fragile (Mooney 2012, 4), reducing the
power of the party leaders. Without the credible promise of future punishment or rewards,
legislators in term-limited states have less incentive to cater to the leaders' positions. This leads
to hypothesis 1:

> **Hypothesis 1:** Legislators in term limited states put less weight on their party leaders'
> preferences than legislators in non-term limited states.

Second, we consider whether legislators in more professionalized legislatures are less
responsive to their party leaders. In more professionalized legislatures, legislators have more
staff members, higher salaries, and more time on the job (Squire 2007). For example, in a
relatively professional legislature like Wisconsin, legislators have a combined total of 640 staff,
earned $49,943 per year in 2013, and have no limit on the number of days in session. In 2013,
they were in session for 310 days.[ii] In contrast, in a more unprofessional legislature like New
Hampshire, legislators share 197 staff, earn $200 per two year term and are in session for 45
days a year (Ballotpedia 2014; National Conference of State Legislatures 2014b).[iii] More staff
allows legislators to gather information about legislation independently of the party. Similarly,
more days in session allow legislators to acquire expertise at the system of lawmaking and about
the content of policy itself. Higher pay means that legislators can devote their time to the
activities of legislating, including gathering information about policy and about their

constituents, rather than earning a living in another career. By contrast, when legislators lack information, they are more reliant on the knowledge and cues of party leaders (Curry 2015). Further, legislators in more professional legislatures may simply find the job more attractive as a result of the higher salary and therefore may be more willing to go against their leaders' preferences because they are more focused on winning reelection. Any or all of these mechanisms should lead legislators to be less reliant on party leaders for information about policy and put less weight on leaders' policy preferences. These expectations lead to hypothesis 2:

> **Hypothesis 2:** Legislators in more professionalized legislatures put less weight on their party leaders' preferences than legislators in less professionalized legislatures.

Third, we evaluate whether more control of the agenda by the majority party leadership leads legislators to place more weight on the stances of party leaders. State legislatures vary in terms of how much power the majority party has over committee and floor agendas (Anzia and Jackman 2013). While the majority leader or a majority-appointed committee controls the floor calendar in many chambers, there are also a large number of chambers where bills are automatically placed on the calendar in a fixed order. This agenda control is consequential. In those legislatures where the majority party has control over the agenda, the roll call record reflects fewer instances where the majority party was internally divided, indicating that the party leadership was able to structure the agenda to avoid divisive issues that put their party on the losing side (Anzia and Jackman 2013). Moreover, when the majority controls the agenda, the majority party is more likely to obtain its preferred legislative outcomes relative to institutional arrangements without majority agenda control (Jackman 2014). Majority agenda control can also affect the member-party relationship more broadly, making legislators more reliant on the party leadership to schedule votes on bills they sponsor. When the power to control the fate of bills

rests with the party, legislators should seek to cultivate favor with party leadership by proactively

adhering more to the leaderships' views on policy. These expectations lead to hypothesis 3:

> **Hypothesis 3:** Legislators in legislatures with majority agenda control put more weight on their party leaders' preferences than legislators in legislatures without majority agenda control.

Hypothesis 3 may apply only to members of the majority party because minority party

leaders are not empowered to get their members' bills on the schedule. This is one reason that

minority bills are much less likely to receive legislative attention (Volden and Wiseman 2014).

Because minority party leaders have few resources to help move bills forward, their rank-and-file

members have fewer incentives to consider the preferences of their leadership. For example, in

the open-ended question at the end of our survey, one state legislator in the minority noted, "If

you are in the majority caucus, you will face a LOT of retribution from voting against

leadership--loss of chairmanship, bills, campaign support. However, if you are in the minority

caucus, your vote makes almost no difference (the majority only runs bills that will pass with

their votes). Therefore, there is no retribution."[iv] Another legislator in the minority of a different

state wrote that, "With only [redacted] members of [redacted] being Democrats we are pretty

free to do whatever and hardly be noticed. They just ignore us for the most part. Our bills are

pretty much ignored. On the other hand those of the majority must toe the line or none of their

bills will come to the floor, they are threatened with loss of good parking or smaller offices,

removal from committees and just plain meanness." The distinction between majority and

minority members leads to hypotheses 3A and 3B:

> **Hypothesis 3A:** Majority party legislators in legislatures with majority agenda control put more weight on their party leaders' preferences than legislators in legislatures without majority agenda control.

Hypothesis 3B: Minority party legislators in legislatures with majority agenda control do *not* put more weight on their party leaders' preferences than legislators in legislatures without majority agenda control.

Finally, the literature on vote buying suggests that party leaders may be powerful when they can provide direct rewards to legislators. Committee assignments, in particular, are a way to reward legislators (Grimmer and Powell 2013). Knowing that leaders can deny them favorable assignments or reward them with desirable positions, legislators in institutions where the party leadership controls the committee assignment process may be more responsive to leaders' preferences. For that reason we consider party leaders' control over committee assignments as a more direct way of buying votes than control of the legislative agenda.

Hypothesis 4: Legislators in legislatures where leaders control the committee assignment process without being subject to a vote of the majority will put more weight on their party leaders' preferences.

Research Design

In June 2014, we emailed a link for a survey to all state legislators in the United States who had a publicly listed email address on the state's website to invite them to take a 5-minute survey on "how state legislators make policy decisions." The email came from the university account of one of the authors (see Online Appendix 1 for the anonymized version of the invitation text used in the emails). In addition to the initial invitation, we sent two follow up invitations, each spaced a week apart.

Our invitations yielded a sample of state legislators that is about the size that is frequently used to study the behavior of legislators in the U.S. House (in our case 342 legislators). We received more responses overall, about 350,[v] but we restrict the sample to the self-identified state legislators.[vi] Overall, the sample was fairly balanced relative to the national composition of state legislators on party, gender, majority/minority status, and term limited or not. For instance, 27

percent of our sample came from term-limited states (compared to 26 percent nationally),[vii] 61%

of our sample was in the majority party compared to 64% nationally, and 81% of our sample

came from legislatures where the leadership controls committee appointments compared to 83%

nationally. Although our sample skewed slightly Democratic, 47 percent of our sample were

Republicans (compared to 52 percent nationally)[viii] and the difference is not statistically

significant. The sample is slightly less professional than the average in the population of

legislators (mean Squire Index of 0.16 compared to 0.20 nationally) and more of our sample

served in legislatures where the majority sets the agenda (74% compared to 66% nationally).

Figure O1 in the online appendix presents a map with information on the geographic locations of

respondents and Table O1 in the appendix compares our sample to national numbers on each of

the characteristics discussed above. Our sample's relatively high degree of representativeness

across these characteristics increases our confidence in the generalizability of the findings.

We also used weights in the analysis to make our sample more representative of the

national population of state legislators. In particular, we estimated a logit regression model to

predict whether a legislator was included in our sample.[ix] We then used that model to create

inverse-probability weights (IPWs) for all the legislators who were in our sample. We present

the results of models using those IPWs in our analysis.

(Figure 1 about here)

To assess how institutions affect the weight legislators place on party leaders'

preferences, we asked these state legislators about their state's gas tax. We first reminded the

legislators about their state's current gas tax and then asked them about the preferences of (1) the

voters in their district, (2) their legislative party leaders, and (3) themselves. Figure 1 gives the

text of this question for state legislators in Arkansas, showing how we differentiated voter

preferences, party leader preferences, own preferences, and representational preferences. The same wording was used for legislators from other states, substituting state-specific information about the status quo gas tax. As Figure 1 shows, we then asked the following question designed to measure their representational preference:

"We realize that many factors go into making decisions as a state legislator. Accounting for all of the above considerations (and other factors too), what would you implement if, in your role as a state legislator, you could choose the state gas tax level in your state?"

We emphasized that they should think about their role as a state legislator to capture how they would act in their official representative capacity. The combination of the four preference measures allows us to analyze the weight of party leaders' preferences on the legislator's representational preference and whether this weight changes across institutional arrangements.

We study *state* legislators' preferences because doing so gives us variation in term limits, professionalism, majority agenda control, and leadership control over committee assignments. We focused the survey on the state gas tax in the legislators' respective states because it is a salient issue where the preferences of the legislators, their party leaders, and their constituents can be reported on a single-dimension, numeric scale: the state gas tax given in cents per gallon. Being able to place the preferences of actors on a single-dimension is a crucial advantage for carrying out this research (Krehbiel and Rivers 1988).

The gas tax is also representative of the types of issues facing state legislators and the parties often take divergent stances on this issue.[x] Moreover, many legislators have experience with it, making it similarly salient across states. The topic is salient enough that the National Conference of State Legislatures includes it as part of the searchable database for state legislators (National Conference of State Legislatures 2014a) and NPR recently reported that "gas tax

increases are now on the table in states across the country, from New Jersey to Utah to South Carolina to South Dakota. Democratic governors in Delaware, Vermont and Kentucky, and other states are also looking to possibly raise gas taxes, as has been done in Pennsylvania, Maryland, New Hampshire and Wyoming in the last two years" (Schaper 2014).

Legislators' Representational Preferences and Demonstrated Voting Behavior

Throughout the article we assume that legislators' representational preferences are meaningful and that they predict in part how legislators would behave. However, these preferences are measured using responses to a survey. Perhaps the responses are simply cheap talk. To assess this, we look at how legislators voted on actual proposals to change the gas tax. Because the gas tax is easily mapped on a numeric scale, we can compare legislators' representational preferences with how they voted relative to the status quo and proposal under consideration. We specifically look at how legislators in New Hampshire and Wyoming voted on proposals to raise the gas tax to evaluate whether the legislators whose representational preferences indicated higher gas taxes were the ones who were more likely to have voted to raise the gas tax.[xi]

In 2014, legislators in New Hampshire voted on Senate Bill 367, which proposed raising the gas tax from 18 cents per gallon to 22.2 cents while also eliminating some tollbooths and making a few other changes. The gas tax increase would be used to pay for widening I-93, and the tax would return to 18 cents per gallon once the road improvements are paid off. The bill was introduced at the beginning of the 2014 session with cosponsors from both parties. In both the Senate and the House support for the measure was split (especially among Republicans); it passed by a 15-9 margin in the NH state senate and a 193-141 margin in the state house.[xii]

In Wyoming, House Bill 69, which raised the gas tax from 14 to 24 cents per gallon, was introduced and passed in the 2013 session. The primary purpose of the bill was to increase the gas tax by 10 cents, but the measure also included instructions on how the extra revenue was to be spent. Again, the measure internally split the legislative parties (especially the Republicans). In the Senate the bill passed by a margin of 18-12 and in the House by a margin of 35-24.[xiii]

Although our measure of legislators' representational preference on the state gas tax should predict how they vote on these measures, it should not necessarily predict their votes perfectly. The primary purpose of the bills was to raise the gas tax to increase revenues, but both bills also included other provisions. These other proposed changes to the law may have influenced how legislators voted. Also, we surveyed legislators after these bills had passed. It is possible that their representational preferences were different at the time that the bill was under consideration. In particular, once the bill passed, the new higher status quo may have led some legislators to change their preferences in light of the change or in response to changes in the economic condition of the state. Given these caveats, evidence that legislators' representational preference on this issue predicts their roll call votes would indicate that these preferences are not simply cheap talk but reflect something meaningful to the legislators.

To illustrate that legislators' representational preferences in our survey are significant predictors of their roll call behavior, we estimate a regression model predicting legislators' positions on these roll calls. The dependent variable in our models is a dummy variable that takes a value of 1 when the legislator voted to increase the gas tax and 0 when they voted against the gas tax increase. We regress legislators' roll call on their *representational preference for the proposal over the status quo*. We operationalize legislators' *representational preference for the proposal over the status quo* by taking the absolute difference between the status quo and their

representational preference minus the absolute difference of the proposal and their representational preference (i.e., |SQ - Preference| - |Proposal - Preference|). This measure takes a positive (negative) value when the proposal (status quo) is closer to the legislators' representational preference. Thus, a positive coefficient is consistent with the claim that legislators' representational preferences are predictors of their roll call votes.

(Table 1 about here)

The models are presented in Table 1, with column 1 presenting the results of the bivariate relationship, and column 2 presenting the results controlling for partisanship. The latter captures additional forms of party influence beyond the impact of leaders' preferences on legislators' representational preferences. Legislators' representational preferences predict their roll call votes and the effect remains strong and statistically significant when controlling for the legislators' partisanship (see column 2). Overall, the evidence suggests that legislators' survey responses are meaningful, which gives us more confidence that our analysis can provide insights into how party and legislative institutions affect the preferences that legislators act on when serving in office.

Evaluating State Legislative Institutions and Party Influence

Given that legislators' representational preferences line up well with their behavior, we turn to assessing the degree to which party leaders' positions play into these representational preferences. We use a constrained regression to test how much weight legislators put on their own preference, constituent preference, and leadership preference when forming their representational preference (Levitt 1996). We also present the results from the corresponding unconstrained regression models. For the constrained regression, we estimate the weights that

legislators put on these different factors by using an OLS regression to estimate the following model, with the constraint that $\gamma_V + \gamma_P + \gamma_O = 1$:

$Representational\ Preference_i$

$$= \alpha + \gamma_V\ Voters'\ Preference_i + \gamma_P\ Party\ Leaders'\ Preference_i$$

$$+ \gamma_O\ Own\ Preference_i + \epsilon_i \qquad\qquad (1)$$

The coefficients γ_V, γ_P, and γ_O thus provide the relative weights that legislators put on each of these factors. We also estimate and report the results using an unconstrained regression.[xiv] In both cases we cluster the standard errors by state to help account for the nested structure of the data that might cause legislators from the same state to experience related shocks.

(Figure 2 about here)

Figure 2 shows the results of the constrained regression in a tri-plot. Each side of the triangle ranges from 0 to 1, so that any point within the triangle represents a triplet of weightings on the components that drive legislators' weighted policy preferences. The intersection of the dotted lines shows the estimated weighting legislators use. On average, party leader's preferences have a weight of 10.7%, while voters' preferences receive 27.6% of the weight. The remaining 61.7% comes from legislators' own preferences. This suggests that legislators' own views are a large component of their representational preference, consistent with comments from state legislators that their core beliefs, followed by voter preferences, influence their positions (Hanaway 2014). These results are similar to the weights found by Levitt (1996)[xv] and further increase our confidence that we are measuring legislators' representational preferences. Moreover, the relative influence of party leaders, voters, and own preferences does not change substantially in an unconstrained regression; the coefficients are 0.095, 0.252, and 0.618, each with p<0.05 (two-sided). In the unconstrained regression, the R-squared is 0.772, indicating that

party, constituency, and legislators' own preferences combined predict much of the variation in legislators' preferences over the best policy to implement. While these results point to legislators putting relatively little weight on party leaders' preferences, they reflect the average weighting of our sample under many different institutional configurations of state legislatures.

In order to assess whether legislators systematically vary the weight they attach to leaders' preferences across institutional arrangements that alter member-party relationships, we re-estimate Equation 1, but allow the weights to vary under different institutional configurations.

$Representational\ Preference_i =$

$\alpha + \gamma_V\ Voters'\ Preference_i + \gamma_P\ Party\ Leaders'\ Preference_i + \gamma_O\ Own\ Preference_i +$

$\beta\ Party\ Institutions_i + \delta_V Voters'\ Preference_i * Party\ Institutions_i\ +$

$\delta_P\ Party\ Leaders'\ Preference_i * Party\ Institutions_i\ + \delta_O\ Own\ Preference_i *$

$Party\ Institutions_i\ + \epsilon_i$ (2)

where *Party Institutions* is a vector of institutions that includes term limits, the Squire index of legislative professionalism, majority party control of the agenda, and leadership control over committee assignments. Term limits, majority control over the agenda, and leadership control over committee assignments are binary variables while legislative professionalism is a continuous measure. Majority control over the agenda utilizes the *majority sets the agenda* variable from Anzia and Jackman (2013), which identifies chambers where either the majority leader or a majority-appointed committee sets the calendar. We also used data from Anzia and Jackman, supplemented by information from the 2014 Book of the States to identify legislative chambers where the leaders controlled the committee assignments without being subject to majority vote.[xvi] We estimate Equation 2 using both a constrained regression model[xvii] and an unconstrained regression model. The resulting estimates are presented in Table 2.

(Table 2 about here)

(Figure 3 about here)

Drawing from the analysis of the constrained regression model (column 2 in Table 2), Figure 3 shows how each of the institutions changes the weight legislators place on party leaders' preferences. Consistent with hypothesis 1, legislators in states with term limits place less weight on party leader's preferences. Although this coefficient does not quite reach conventional statistical significance ($p=0.060$, two-sided), the pattern is suggestive that term limits alter the relationship between leaders and their members. Indeed, the coefficient does achieve statistical significance in the unconstrained model (see Column 4 in Table 2). When institutional designs shorten the time horizons of legislators and leaders, leaders' promises of future rewards or punishments are limited and legislators have fewer incentives to curry favor with the leadership.

As predicted in hypothesis 2, legislators in states with more professionalized legislatures place less weight on the preferences of party leaders. For example, a shift in legislative professionalism of 0.10 points, which is equal to the difference between Connecticut and Maine (Squire 2007), would be associated with a decrease of about 9 percentage points in the weight placed on party leaders. While we do not distinguish the exact mechanism by which professionalism alters legislators' reliance on their leaders, the empirical pattern shows that they decrease the weight they give to leaders as professionalism increases.

(Table 3 about here)

Finally, having majority control of the agenda increases the weight legislators place on party leaders' preferences by 0.160. Thus, on average, legislators in states with institutions that facilitate party control of resources place more weight on party leaders' positions. Consistent with hypotheses 3A and 3B, this effect is driven more by legislators in the majority party than

those in the minority party. Table 3 shows the relationship between control of the agenda broken down by whether the legislator is in the majority or minority party of her chamber. Results from the constrained regression show that leadership control over the agenda increases the weight that majority party legislators put on party leaders' preferences by 0.170 (p=0.14), but only increases the weight that minority party legislators place on party leaders by 0.069 (p=62). The results from the unconstrained regression are even starker, suggesting that the effect is driven almost entirely by legislators in the majority party. As one legislator put it in the comments section in the open-ended comment box at the end of our survey, "I serve in the minority. In our state there is much more freedom for minority legislators to vote their 'conscience' with no impact on my relationship with my legislative leader. Often, that is not the case in the majority (especially if it is a thin majority)."

The results for leader control over committee assignments as a means of buying votes are much weaker. While the coefficient on the interaction term with leader preferences points in the expected positive direction, it is small and statistically insignificant. This does not mean that vote buying is not important. It may be that committees are not a very valuable resource for legislators (Broockman and Butler 2015), especially relative to other things that leaders might provide such as campaign funds (Powell 2012). Or vote buying may be carried out on a vote-by-vote basis, making it unobservable in the particular context we are studying (Krehbiel, Meirowitz and Wiseman 2015).

As a whole, these results provide evidence that party leaders influence the representational preferences of legislators. Moreover, they show that the institutional configurations that affect the balance of resources in the member-party relationship also affect the degree to which legislators are attentive to party leaders' preferences. Where the party

leadership has more control over resources and information, legislators are reliant on leaders for legislative success and place more weight on the preferences of party leaders. This pattern is consistent with the argument that legislators anticipate leadership control and respond by weighting leaders' preferences more heavily.

A Placebo Test: The Effect of State Legislative Institutions on U.S. Senators

One alternative explanation is that politicians from the states and chambers with these institutions are simply different. That is, we might be concerned that unobserved differences between states that have nothing to do with member-party relationships are driving these results. We conduct a placebo test to address this. Unless the results are being driven by unobserved attributes of the state, *state* legislative institutions ought not to affect the degree to which *federal* Senators are responsive to the interests of their party leaders in the U.S. Congress. Elected officials in the federal government come from each of the 50 states, but the institutional arrangements differ between the state and federal legislatures. If institutional arrangements drive the member-party relationships and, ultimately, the weights that legislators put on leaders' preferences, state-level institutions should not affect the behavior of federal-level legislators.

(Figure 4 about here)

Following Levitt (1996), we use American's for Democratic Action (ADA) scores between 1997 and 2012 to identify the weights U.S. Senators put on constituents, leaders, and their own preference. Like Levitt, we measure district preferences by the average ADA score among House members in each state,[xviii] individual preferences by a fixed effect for each Senator's ADA score, and leader preferences by the average score of same-party Senators.[xix] As in our primary analysis, we focus on the interaction terms between each state institution and the Senator's representational preferences, leaving further details of this analysis in Online Appendix

2. Results suggest that party leaders have a weight of 0.13 among U.S. Senators, but, as Figure 4 shows, this weight does not change significantly based on the institutional configuration of the Senator's home state legislature. The interaction terms yield point estimates in the wrong direction in three out of four cases and none that are statistically significant. The weight on party leaders' preferences is not significantly different if the state legislature has term limits, majority control of the agenda, leadership control of committee assignments, or is more professionalized. These results give confidence that the observed differences in the analysis of state legislators are driven by the institutions, not by unobserved attributes of the legislators' home states.

Discussion

Party leaders' influence hinges on the institutional arrangements of the legislature. We find that institutional arrangements that centralize information with party leaders or provide leaders with other resources that members value increase leaders' power within the chamber. In contrast, institutional arrangements that allow legislators to acquire their own information and expertise or disperse resources broadly limit leaders' power over their membership. Among the institutions that alter these conditions are term limits, legislative professionalism, and majority control over the agenda.

When institutional arrangements make legislators more reliant on party leaders, they increase the attention legislators give to their leader's preferences, consistent with the view that legislators anticipate party leaders' preferences (and potential influence) and alter their policy preferences accordingly. The resources that parties wield change their degree of influence in expected ways. Institutions that increase leaders' control and resources relative to rank-and-file members (majority control of the agenda) increase the weight that legislators place on party leaders. Institutions that decrease their control and resources (term limits and professionalized

legislatures) decrease the weight. While the classic picture of party leaders twisting arms on a particular vote may occasionally be accurate, this research shows that the influence can occur much earlier in the legislator's decision process. If legislators anticipate party pressure and incorporate leader preferences into their own view of an issue, we need not to see the twisting of arms, because party leaders' views are incorporated into the position that legislators use to guide their decision.

While this anticipatory view is missing in many studies of party influence, it is central to how scholars study the influence of president's veto power (Cameron 2000). Vetoes are uncommon, not because presidents lack power, but because legislators anticipate vetoes and alter the legislation accordingly. Fox and Rothenberg (2011) make a similar argument with respect to campaign contributions. The same logic can hold for the relationship between party leaders and their rank-and-file members. When leaders have the power to reward or punish members, legislators may proactively align themselves with the position of the leadership. To investigate this possibility we ought to pay more attention to opinion formation among elites, and not simply their voting patterns.

One advantage of surveying elites is that we can often connect their responses to real world outcomes. Here, we showed that representational preferences predict how legislators voted on actual roll call votes. Other creative studies have compared legislators' predictions of constituent opinion to actual referenda results to measure how well legislators know their districts (e.g., Erikson, Luttbeg, and Holloway 1975).

Similarly, placebo tests using federal legislators further strengthened our confidence in the estimates of the effects of institutions. Other studies can benefit by taking a similar approach. While states offer institutional variation, there is often a question of whether the results are

driven by the institutions under study or are simply the byproduct of unobserved differences across states. Placebo tests using federal legislators provide a great resource for scholars using state data to strengthen the credibility of the causal effects being studied. Because state level institutions should not affect the behavior of federal legislators, we should not expect those state level institutions to predict the behavior of federal legislators and, in our analysis, they do not.

As with any study, there are limitations. We focused on the state gas tax in part because it was a salient issue across most states during the period of our survey. Our prediction is that the effects would be smaller on less salient issues because party leaders have less stake in those issues. As a result, we would expect legislators to be free to act on their own preferences regardless of the institutions. However, only future research can determine whether salience alters this relationship.

Finally, it is worth noting that we have not studied all of the ways in which institutions can affect leaders' influence. Rather we have shone a light on one understudied way in which institutions strengthen party leaders' influence: by shaping the weight that legislators put on leaders' positions. We can put the importance of institutions into perspective by noting the relative power they have compared to the baseline influence that leaders have on legislators' position. Overall, legislators place relatively little weight on party leaders' preferences relative to their own preference – around 11 percent compared to 61 percent on their own preferences. These state legislators also place more weight on voters (28 percent) than they do on their party leaders. Given that legislators, on average, only put about 11 percent of the weight on leaders' positions, institutions that affect that weight by 15-20 percentage points represent an important tool for leaders trying to influence outcomes. Institutions are strong determinants of party leaders' power. Our work suggests that studies that have not accounted for the role that

institutions play in shaping the preferences on which legislators act have likely underestimated the importance of these institutions.

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[i] See Figure 1 and the discussion on page 11 for more information on how we measure each of these items.

[ii] The Squire index for Wisconsin in 2013 was 0.513. The benchmark of the Squire index is the United States Congress, which receives a score of 1.

[iii] The resulting Squire index for New Hampshire was 0.033.

[iv] All quotes from legislators come from responses to an open-ended question at the end of the survey (survey details discussed below) that simply stated "Thanks for taking the survey. Let us know if you have any feedback."

[v] This represents a response rate of about five percent, a lower response rate than we expected. However, this is consistent with the pattern of decreasing response rates for elite-sample surveys

(see Fisher and Herrick 2013; Maestas, Neeley, and Richardson 2003). While we do not know the reason for this decline, we suspect it is a manifestation of the tragedy of the commons. The advent of the Internet and the ability to easily contact state legislators means that many more people are now conducting national surveys than in previous years (both academic and non-academic). In our case, many legislators explicitly told us that they were turning us down because they received too many of these requests.

[vi] The first question on the survey asked: "Before we start, are you a legislator or staff member?" We used only the self-identified legislators for our analysis.

[vii] http://ballotpedia.org/State_legislatures_with_term_limits

[viii] http://ballotpedia.org/Partisan_composition_of_state_senate and http://ballotpedia.org/Partisan_composition_of_state_houses

[ix] The model included variables for the professionalism of the state legislature, whether the state had term-limits, whether the leadership controlled committee assignments, and the legislator's gender and partisanship. We present the model used to create the inverse-probability weights in the appendix (see Table O2 in the supplementary materials).

[x] On November 1, 2014, we did a search of bills regarding gas taxes in the states using the searchable database provided by the National Conference of State Legislatures (http://www.ncsl.org/research/transportation/ncsl-transportation-funding-finance-legis-database.aspx). We identified seven bills during 2013-2014 that proposed changes to the state gas tax. Three of the bills enjoyed the support of the majority of both parties (NV-AB413; UT-SB60; WY-HB69), and the other four bills all had the majorities of each party voting against each other (MA: H3535; MD-HB1515; NH-SB367; WA-HB1954).

[xi] We restrict the analysis to these states because they voted on bills to raise the gas tax, the vote was not unanimous or near-unanimous, and we had enough legislators in our survey sample to perform an analysis at the state-level.

[xii] More information about the bill can be found at: http://openstates.org/nh/bills/2014/SB367/.

[xiii] More information about the bill can be found at http://openstates.org/wy/bills/2013/HB69/

[xiv] The constrained regression allows for intuitive interpretation of the results, whereas the unconstrained regression better acknowledges the many factors that can shape legislators' preferences.

[xv] Levitt (1996) found that the weight on party leaders' preferences ranged from 2% to 13%, the weight on voters from 23% to 28%, and the weight on ideology from 52% to 69%. Using a different methodology, Ramey (2015) finds higher weights on party and lower weights on constituency in the time period we consider.

[xvi] This variable is 1 if the leaders made assignments without a majority vote on those assignments and 0 if either they did not control the process or if the majority had to vote on the final approval of the assignments.

[xvii] To ensure that the weights still add up to 1 for all legislators, the estimation also constrains $\delta_V + \delta_P + \delta_O = 0$ for each institution.

[xviii] Like Levitt (1996), we drop Senators in states with three or fewer House districts. Although Levitt uses a longer time-series, we focus on the post-1997 period since the move toward state-level term limits, which is an important predictor for our models, occurred in the 1990s.

[xix] We also ran the analysis using the party leaders' scores (measured as the average of the respective party floor leaders, whip, chairman and secretary of the party committee, President Pro Tempore, and chairman of the policy committee), again following Levitt (1996, 430). The

results with this measure of leader preferences also show no effect of state institutions on the

weight federal legislators place on party leaders' preference.

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Table 1: Predicting Legislators Roll-Call Votes Using their Representational Preferences

Dependent Variable = Vote to Increase Gas Tax	(1)	(2)
Representational Preference for Proposal over Status Quo	0.047*	0.033*
|SQ – Preference| - |Proposal-Preference|	(0.011)	(0.010)
Republican		-0.476*
		(0.104)
Constant	0.450*	0.725*
	(0.064)	(0.081)
Observations	58	58
R-squared	0.249	0.455

Note: Data comes the vote on Wyoming House Bill 69 (in 2013) and New Hampshire Senate Bill 367 (in 2014). The dependent variable is a dummy variable that takes a value of 1 when the legislator voted to increase the gas tax and 0 when they voted against the gas tax increase. Both models are estimated using OLS regressions. Standard errors in parentheses. * $p<0.05$ (two-sided)

Table 2: Institutions and the Relationship between Leader's Preferences and Legislators' Representational Preferences

Dependent Variable = Representational Preferences	Constrained		Unconstrained	
	(1)	(2)	(3)	(4)
Voters' Preferences	0.276*	-0.081	0.252*	-0.219
	(0.089)	(0.099)	(0.083)	(0.191)
Leaders' Preferences	0.107*	0.193*	0.095*	0.157
	(0.046)	(0.092)	(0.045)	(0.090)
Own Preferences	0.617*	0.889*	0.618*	0.793*
	(0.125)	(0.096)	(0.125)	(0.109)
Term Limits		-0.192		1.343
		(1.323)		(3.826)
Own*Term Limits		0.225*		0.244*
		(0.102)		(0.098)
Leader*Term Limits		**-0.180**		**-0.257***
		(0.096)		**(0.110)**
Voters*Term Limits		-0.045		-0.040
		(0.099)		(0.161)
Squire Index		-2.103		-3.673
		(3.569)		(5.364)
Own*Squire		0.020		0.389
		(0.470)		(0.564)
Leader*Squire		**-0.882***		**-0.979***
		(0.278)		**(0.342)**
Voters*Squire		0.862*		0.692
		(0.485)		(0.660)
Majority Sets Calendar		3.389*		-4.812
		(1.345)		(4.116)
Own*Calendar		-0.319*		-0.290*
		(0.081)		(0.074)
Leader*Calendar		**0.160***		**0.244***
		(0.079)		**(0.071)**
Voters*Calendar		0.158		0.294
		(0.098)		(0.170)
Control Committee Assignments		-2.723		-0.743
		(1.519)		(2.038)
Own*Assignments		-0.192*		-0.201*
		(0.078)		(0.086)
Leader*Assignments		**0.041**		**0.014**
		(0.037)		**(0.050)**
Voters*Assignments		0.150*		0.167
		(0.072)		(0.088)
Constant	1.743*	1.396	2.744	8.517
	(0.573)	(1.024)	(1.529)	(4.308)
Clusters	45	44	45	44
Observations	342	313	342	313
R-squared		0.772		0.820

Note: Standard errors clustered by state and shown in parentheses. * p<0.05 (two-sided). The models use inverse probability weights to account for differences in which legislators took the survey.

Table 3: Does Agenda-setting power matter more for Legislators in the Majority?

	Constrained		Unconstrained	
Dependent Variable =	(1)	(2)	(3)	(4)
Representational Preferences	Minority	Majority	Minority	Majority
Voters' Preference	0.071	0.139	0.091	-0.088
	(0.098)	(0.082)	(0.129)	(0.112)
Leader's Preference	0.049	0.031	0.097	-0.069*
	(0.127)	(0.043)	(0.149)	(0.029)
Own Preference	0.879*	0.830*	0.879*	0.718*
	(0.086)	(0.087)	(0.079)	(0.085)
Majority Sets Calendar	-0.277	4.393*	2.767	-9.753*
	(1.428)	(1.602)	(4.851)	(3.738)
Own*Calendar	-0.251	-0.446*	-0.255	-0.336*
	(0.171)	(0.148)	(0.160)	(0.146)
Leader*Calendar	**0.069**	**0.170**	**0.013**	**0.275***
	(0.137)	**(0.117)**	**(0.157)**	**(0.102)**
Voter*Calendar	0.182	0.276*	0.129	0.512*
	(0.165)	(0.096)	(0.204)	(0.133)
Constant	1.178	-1.077	-0.695	12.681*
	(1.234)	(1.341)	(4.553)	(3.504)
Clusters	42	41	42	41
Observations	116	197	116	197
R-squared			0.904	0.767

Note: Standard errors clustered by state and shown in parentheses. * $p<0.05$ (two-sided). The models use inverse probability weights to account for differences in which legislators took the survey. The coefficients on the interaction term with the full model of other controls follow the same pattern (and are actually stronger for the constrained model, achieving statistical significant for the legislators in the majority).

Figure 1: Questions eliciting preferences for the gas tax as seen by legislators in Arkansas[xx]

Sometimes state gas taxes are proposed as a way to encourage fuel conservation and reduce carbon emissions (in addition to being a source of funding). Currently the gas tax in Arkansas is about 22 cents per gallon.

We want to ask you about the following three groups' preferences over the optimal state gas tax level.

[Note: As you answer these question, be sure that the number you've selected appears on the right side of the slider. If a number does not appear on the right, you have not yet answered this question. If the answer is more than 150 cents/gallon, enter 150 here and we'll give you a chance to enter the larger number.]

	0	15	30	45	60	75	90	105	120	135	150
The preferred level for **voters** in your district											
The preferred level of your legislative **party leaders**											
Your preferred level											

We realize that many factors go into making decisions as a state legislator. Accounting for all of the above considerations (and other factors too), what would you implement if, in your role as a state legislator, you could choose the state gas tax level in your state?

[Note: As you answer these question, be sure that the number you've selected appears on the right side of the slider. If a number does not appear on the right, you have not yet answered this question. If the answer is more than 150 cents/gallon, enter 150 here and we'll give you a chance to enter the larger number.]

|	0	15	30	45	60	75	90	105	120	135	150
Your chosen level as a state legislator											

>>

Note: This is a screen shot taken from our survey given to state legislators. The number giving the current gas tax in the respondent's state in the first paragraph was updated to reflect the status quo in the legislator's state.

Figure 2: Weights of Voter, Party Leader, and Individual Preferences in Legislator's Preferences
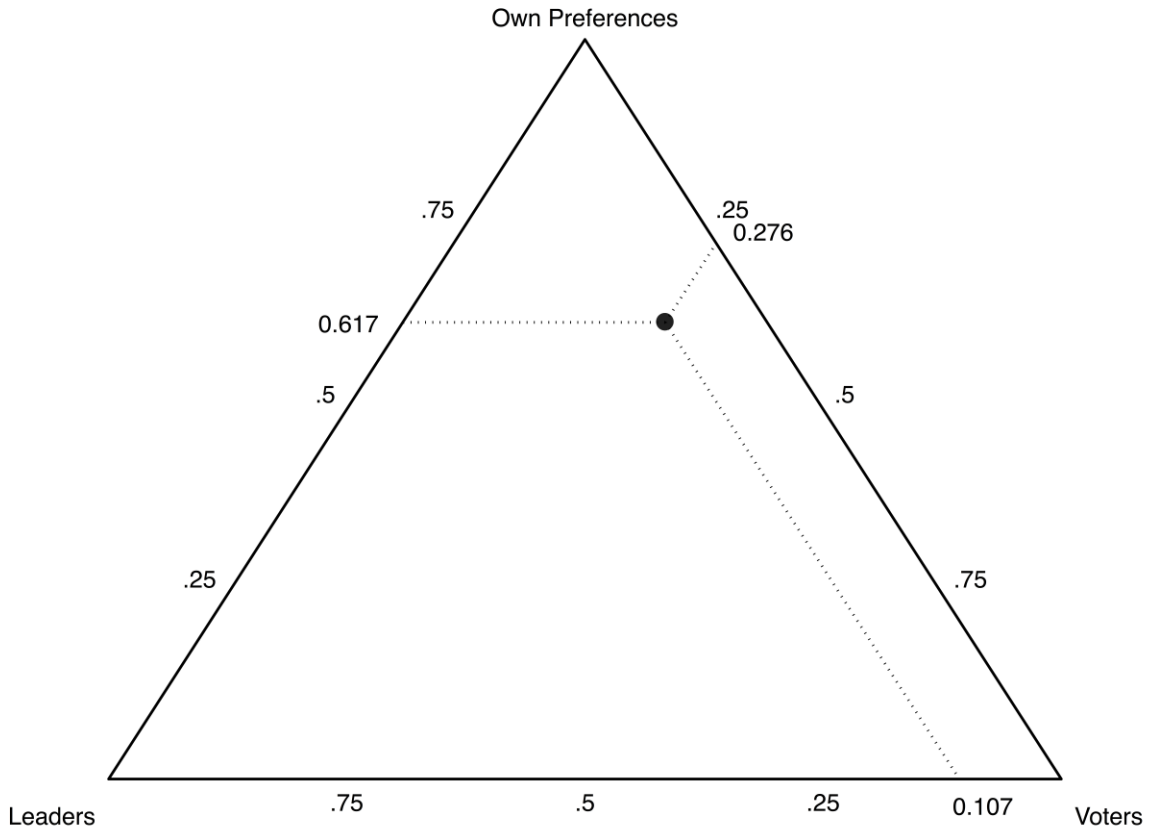

Note: The point estimate from the constrained regression suggests that legislators use the following weights when deciding their representational preferences: 0.617 for their own preference, 0.276 for voters' preferences, and 0.107 for leaders' preferences. Each side of the triangle represents weight given to the respective components of legislators' representational preferences. Each corner of the triangle represents full weight on one of the components. Specific values for weights are given by following the dotted lines parallel to the sides of the triangle to where they intersect with each side.

Figure 3: The Effect of Select State Legislative Institutions on State Legislators'
Representational Preferences
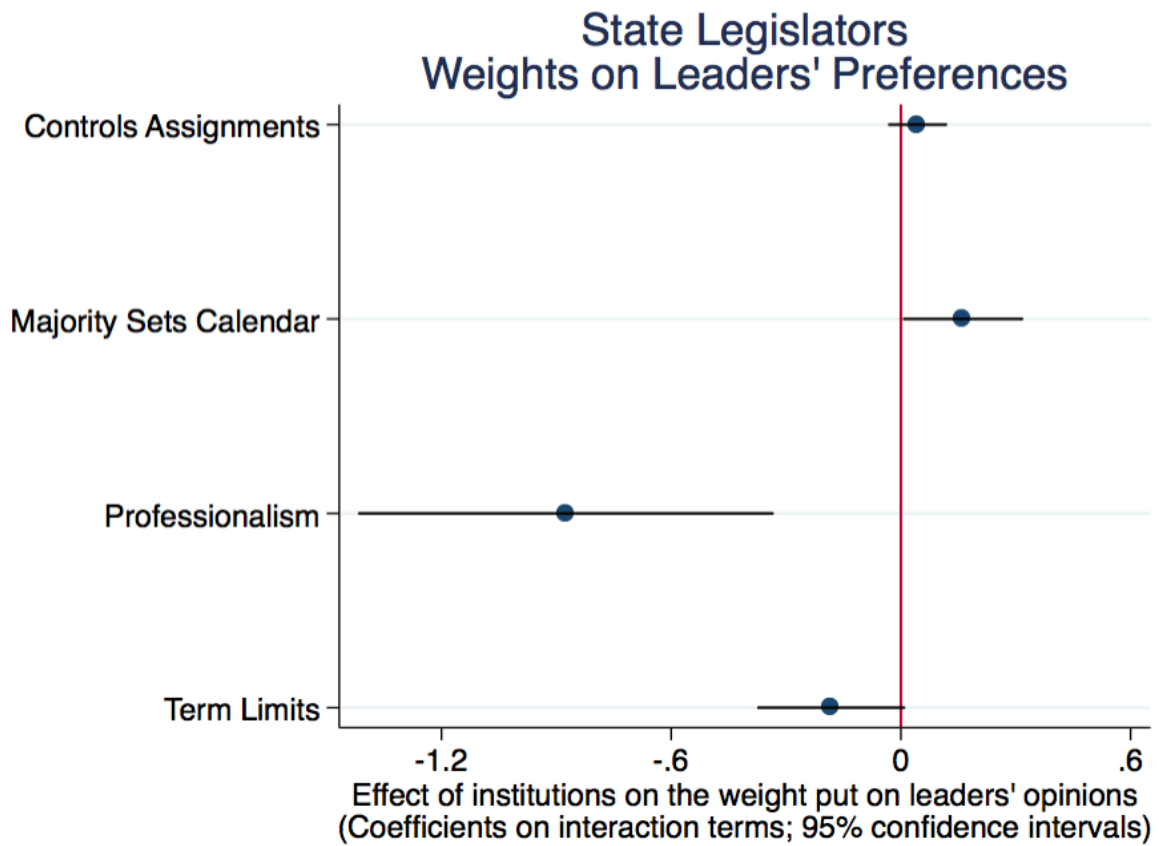
Note: The results are based on the constrained regressions displayed in column 2 of Table 2. The
figure displays the point estimate on the interaction terms associated with each institution listed
on the y-axis and the corresponding 95 percent confidence interval.

Figure 4: The Effect of Select State Legislative Institutions on U.S. Senators' Representational Preferences
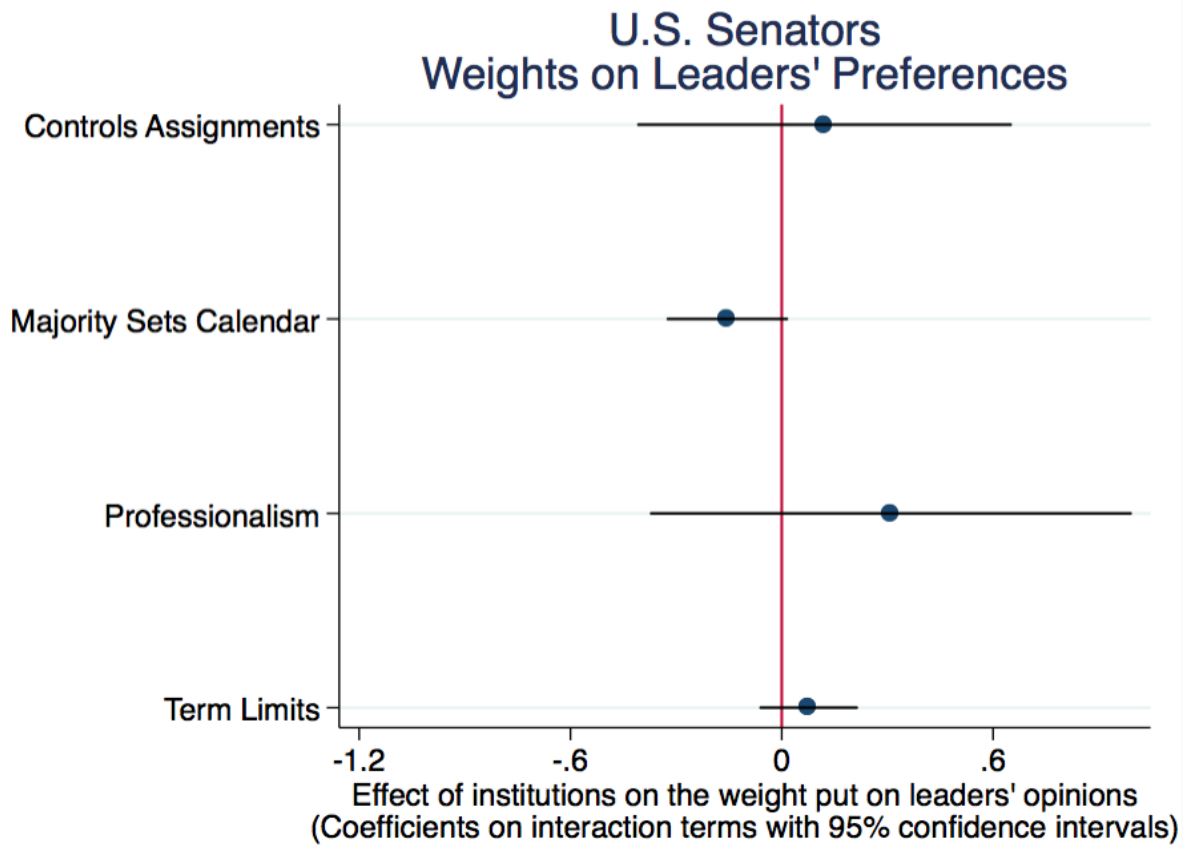
Note: These results present a placebo test that looks at the effect of state legislative institutions on the roll-call voting records of U.S. Senators. Data comes from the 1997-2012 period. Following Levitt (1996), we measure district preferences by the average ADA score among House members in each state, individual preferences by a fixed effect for each Senator's ADA score, and leader preferences by the average score of same-party Senators. For the analysis, we regress the Senator's ADA scores and the interaction between these measures and the institutions listed on the y-axis. The figure displays the point estimate and the corresponding 95 percent confidence interval for the interaction terms associated with each institution.

[xx] The state name and status quo gas tax seen by each legislator matched their respective state.