

Lobbying and Legislative Uncertainty

Kristy Buzard ¹ Frank DiTraglia ² Sebastian Saiegh ³

¹Syracuse University and The Wallis Institute

²University of Pennsylvania

³UC San Diego

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 - ⇒ Build a structural model to take to U.S. House data
3. Ultimately, want to identify cross-industry measures of legislative uncertainty

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- ▶ **Vote Buying in Legislatures:** Groseclose & Snyder 1996, Banks 2000, Dal Bo 2007

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Adding uncertainty to standard model captures (2) — (4)



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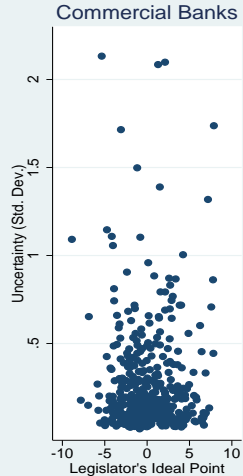
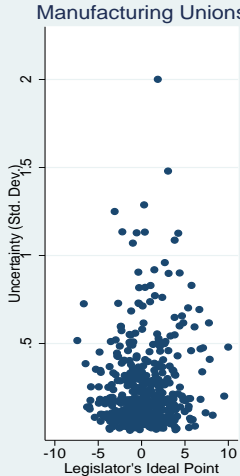
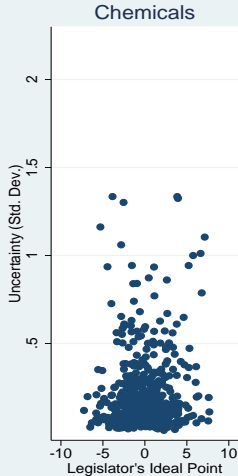
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Use multi-dimensional ideal-point estimation to identify measures of uncertainty



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- ▶ A prefers x , B prefers s

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3. Legislature

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- ii. Uncertainty about preferences realized: $\underline{\theta} = (\theta_{-.5}, \theta_0, \theta_{.5})$
- iii. Each legislator votes for her preferred policy

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$$\Pr[\alpha - \beta i + \theta_i + a_i - b_i \leq 0] = \Pr[\theta_i \leq \beta i - \alpha - a_i + b_i]$$

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$$\Pr[\alpha - \beta i + \theta_i + a_i - b_i \leq 0] = \Pr[\theta_i \leq \beta i - \alpha - a_i + b_i]$$
 - ▶ Assuming $\theta \sim \text{Logistic}(0, 1)$, it's $\frac{1}{1 + e^{-(\beta i - \alpha - a_i + b_i)}}$

The Players

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- ▶ Vote buyer won't spend more than his willingness to pay, W_B
- ▶ In three-seat legislature, max probability that ≥ 2 legislators vote for $s \times W_B$ - bribes

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$$\begin{aligned} \max_{b_{-.5}, b_0, b_{.5}} W_B & \left[\Pr(S(-.5) = 1) \Pr(S(0) = 1) (S(.5) = 0) + \right. \\ & \Pr(S(-.5) = 1) \Pr(S(0) = 0) \Pr(S(.5) = 1) + \\ & \Pr(S(-.5) = 0) \Pr(S(0) = 1) \Pr(S(.5) = 1) + \\ & \left. \Pr(S(-.5) = 1) \Pr(S(0) = 1) \Pr(S(.5) = 1) \right] - \sum_{j \in \{-.5, 0, .5\}} b_j \end{aligned}$$

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- ▶ She wants x to win instead of s

One Vote Buyer

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$$\frac{e^{-Y} + e^{-Z}}{(1 + e^{-Y})(1 + e^{-Z})} \frac{e^{-X}}{(1 + e^{-X})^2} = \frac{1}{W_B} \quad (1)$$

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Two non-negative bribes

When Vote Buyer B pays bribes to exactly two legislators, the bribes are such that the two bribed legislators' ideal points gross of bribes are equalized. Which two legislators are bribed depends on the bias parameter α .

Three Non-Negative Bribes

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No Non-Negative Bribes

When Vote Buyer B has a low willingness to pay, he does not bribe any legislator.

Varying Uncertainty Across Legislators

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Conjecture

When there is no bias in the positions of the legislators ($\alpha = 0$), the bribes of legislators whose ideal points are at the median in terms of uncertainty receive the highest relative bribes.

Two Vote Buyers

No Bribes

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Both Vote Buyers Bribe

It is possible for both vote buyers to bribe legislators on the same vote.

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- ▶ Derive tight identification of empirical estimates from structural model

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- ▶ Derive tight identification of empirical estimates from structural model
- ▶ Provide micro-founded explanations for the variation in uncertainty that lobbies face

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- ▶ helps in understanding lobbying strategies
- ▶ may shed light on why some lobbies are more successful than others
- ▶ will help in the identification of measures of uncertainty that can be used in many applications