

# Unbundling Polarization

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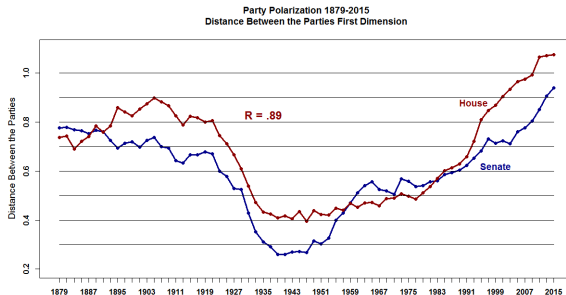
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# Elite Polarization



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*"Political polarization has reached levels not seen in decades, with nearly one-third of people in each party describing the other party as a threat to the nation's well-being. Trust in all institutions, including media, government, and business has fallen considerably." - T. R. Heath (2018)*

<sup>1</sup>[www.voteview.com](http://www.voteview.com)

# Motivation

*"...the party structures, primaries and major donors are getting very polarized, and since all party candidates must depend on these apparatuses to get elected, it's no surprise that candidates are becoming more polarized, too" - Clemmitt, M. (2010)*

- Furthermore, increasing polarization is frequently suggested as a primary cause of a dysfunctional legislative branch (McCarty, 2016; Binder, 2003)

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## This paper...

- We use a structural approach to:
  - (i) quantify the *sources* of polarization
  - (ii) determine how polarization affects policy *outcomes*

# Sources of Polarization

- Two main sources:
  - members' ideological positions themselves
  - party discipline (Snyder and Groseclose, 2000; Cox and McCubbins, 2005)
- Difficulty separating the two is a well known problem (Krehbiel, 1993, 1999, 2000)
  - cohesion/party unity may reflect self-selection into parties
  - parties may only pursue bills on which they agree (Cox and McCubbins, 2005)

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  - cohesion/party unity may reflect self-selection into parties
  - parties may only pursue bills on which they agree (Cox and McCubbins, 2005)
- Source is important:
  - party discipline may be more amenable to change
  - differential effects on outcomes
- Polarization affects outcomes:
  - directly through votes
  - indirectly through **agenda-setting**

# What We Do

- Provide a stylized model of the legislative process from policy selection to roll-call votes
  - policy votes are a result of:
    - 1 Heterogeneous ideologies
    - 2 Party discipline
    - 3 Agenda-setting
- Use internal party records (whip counts) to identify key sources of party control:
  - whip counts provide information on ideology before discipline
  - presence of a whip count indicates the 'value' of a bill
- Estimate the model and perform counterfactual exercises to illustrate how polarization affects outcomes

# Whip Counts

- Informal polls of members typically taken a day or two before the roll call vote
- e.g. Whip counts show that repeal of ACA won't have enough votes:

*With Democrats united in opposition, House Republicans are currently short of the 218 votes they need to pass the bill before the Senate could take it up. They can afford only 22 defections, and the latest whip counts put Republican "no" votes at about 20, with a dozen more undecided. - [BBC](#)*

- e.g. On the Tax Bill, after roll call (it passed with 227 votes vs. 205, with 13 Republicans breaking rank):  
*Ryan and House GOP leaders were confident throughout the week that they'd have the 218 votes needed for passage, even with unified Democratic opposition. In fact, they've felt so good about their whip count they barely called on the White House to twist arms. - [Politico](#)*



# Literature

- Large literature on estimating ideal points ([Poole and Rosenthal, 1984;...](#))
- More closely related to that which attempts to separate out party effects ([Jenkins, 2000; Snyder and Groseclose, 2000; Nokken, 2000; Clinton, 2004](#))
  - we incorporate new data (whip counts) via a new theoretical, estimable framework
- Much smaller literature on the effects of polarization ([Binder, 2003; Mian et al., 2014](#))
  - we provide a theory and quantitative estimates

# Setup

- Two parties,  $p \in \{R, D\}$ , compete for votes over a series of bills
  - have preferences of their median members,  $\theta_{m,D}$  and  $\theta_{m,R}$
- One-dimensional ideological space
  - bliss points,  $\theta_i$
- Continuum of members in each party
- Votes, and hence policy outcomes, are stochastic
  - idiosyncratic shocks,  $\delta_{i,t}$ , and aggregate shocks,  $\eta_t$  (normally distributed)
    - with continuum of members, require aggregate shocks so that outcomes are uncertain
    - aggregate shocks capture anything that affects overall perception of a bill (including changes to bill)

# Agenda-setting

- Random recognition model - each party is chosen to be the proposer with some probability
  - required to match empirical fact that a significant number of bills have majority leadership voting 'no' and minority leadership voting 'yes'
- Proposing party:
  - observes a randomly drawn status quo policy,  $q_t$
  - decides whether or not to pursue an alternative policy
  - if so, sets alternative,  $x_t$
  - decides whether or not to conduct a whip count at cost,  $C_w$ 
    - whip count allows it to learn about first aggregate shock and drop the bill if not looking promising
    - dropping the bill saves the cost of pursuing a bill,  $C_b$
    - absent whip count, go straight to roll call

# Timeline



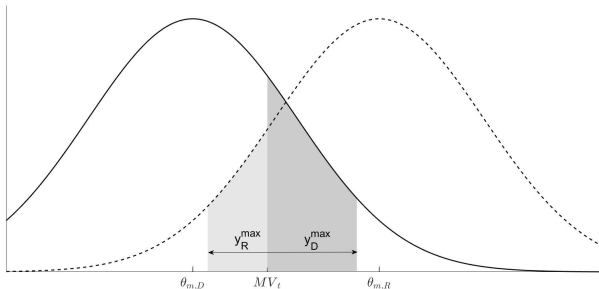
# Voting Decisions

- Discrete-choice model as in DW-Nominate but with two key improvements:
  - Shocks are on bliss points,  $\theta_i$ , instead of utility:
    - no need to specify utility function (other than concavity),
    - likelihood becomes a function of marginal voter,  $MV_t = \frac{x_t + q_t}{2}$ , rather than both  $q_t$  and  $x_t$ .
  - Bliss point is subject to influence from party through whip,  $y_{p,t}$

# Whips

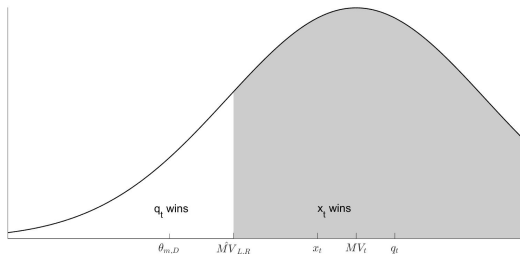
- Vote just as any other member
- Assigned members for which they are responsible:
  - at roll call time, obtain information - know their members' (stochastic) bliss points
  - can exert influence at a personal cost,  $c(y_{p,t})$ , strictly increasing
  - obtain  $r_p$  any time a member votes as the party prefers
- Whips themselves are subject to being whipped

# Party Discipline



- Key parameter of interest is maximum distance a whip is willing to influence members,  $y_p^{max} = c^{-1}(r_p)$

## Optimal Policy Alternatives



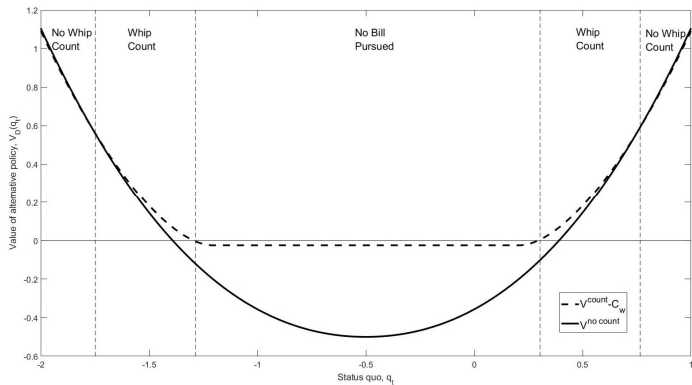
- If a policy alternative,  $x_t$ , is pursued, want to choose it close to the bliss point of the median member  
...but, the closer it is, the less likely the bill is to pass
- Trade-off results in a unique optimal policy ► Formal Proposition
  - always lies between status quo and party's bliss point



# Whip Counts as Options

- On observing  $q_t$ , the proposing party can:
  - 1 do nothing
  - 2 pursue an alternative bill with a whip count
  - 3 pursue an alternative bill without a whip count
- Absent a whip count, bill goes straight to roll call and majority party pays  $C_b$
- With a whip count (at cost  $C_w$ ), bill can be dropped avoiding  $C_b$ 
  - provides option value

# Which Bills are Pursued



► Formal Proposition

# Data

- U.S. House roll call voting data comes from the standard source, VoteView
- Whip count data covering 1977-1986 as compiled by [Evans \(2012\)](#)
  - Corresponds to time when polarization starts to rise
  - Democrats are majority over time period, but both parties conduct whip counts
  - Republican (1977-1980) data from Robert H. Michel Collection
  - Democratic (1977-1986) data from Congressional Papers of Thomas S. Foley
- We merge the data following [Evans \(2012\)](#)
  - 5424 roll called bills
  - 340 bills with whip counts
  - 238/340 bills have subsequent roll calls

► Details on Data

# Identification (1)

- Key assumption is that whip counts reveal true ideological positions **on average**.
  - if not, would be uninformative... but parties do rely on them
  - reputation prevents lying
  - whips have knowledge about member's positions (difficult to lie)

► Quote

# Identifying Assumptions

**Assumption 1 (Ideal Point Locations):** *We normalize the ideal point of one member (without loss of generality, member '0'),  $\theta^0 = 0$ .*

**Assumption 2 (Ideal Point Scale):**  *$G_\delta$  is standard Normal, with CDF denoted by  $\Phi(\cdot)$ .*

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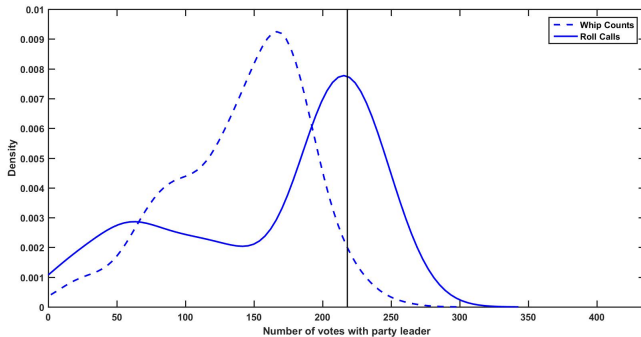
**Assumption 2 (Ideal Point Scale):**  *$G_\delta$  is standard Normal, with CDF denoted by  $\Phi(\cdot)$ .*

Assumptions needed for Agenda Setting only:

**Assumption 3 (Status Quo Distributions):** *The distribution of status quo policies is  $W(q) \sim \mathcal{N}(\mu_q, \sigma_q^2)$ .  $\mu_q$  and  $\sigma_q^2$  may vary by Congress.*

**Assumption 4 (Utility):** *The utility a party derives from a policy,  $k_t$ , is given by a quadratic loss function around the ideal point of its median member,  $u(k_t, \theta_p^m) = -(k_t - \theta_p^m)^2$ .*

# Party Discipline - Reduced Form



## Identification (2)

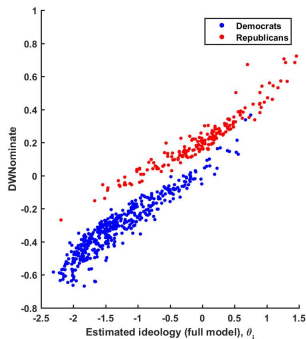
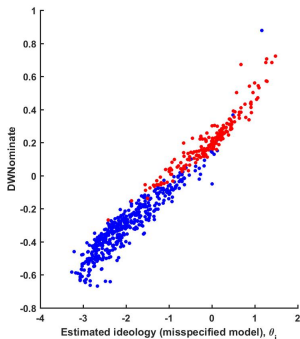
- Ideological positions,  $\theta_i$ , from repeated whip count polls (individual fixed effects)
- Marginal voters at whip count ( $MV_t - \eta_{1,t}$ ) and roll call ( $MV_t - \eta_{1,t} - \eta_{2,t}$ ) from multiple votes on same bill (bill fixed effects)
- Maximum whipping distance,  $y_p^{max}$ , comes from distance between marginal voter at time of whip count and *per party* marginal voter at roll call.
- Distributions of policies ( $q_t$  and  $x_t$ ) come from distributional assumptions together with theoretical results.



# Estimation

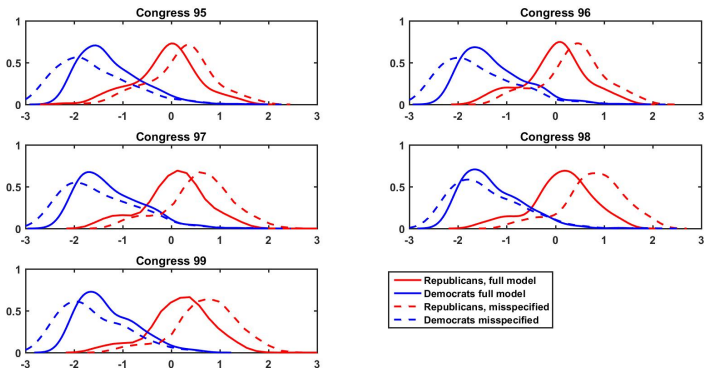
- Two stage process (maximum likelihood in each stage):
  - ① estimate marginal voters, party discipline parameters, and ideological bliss points
    - ▶ Deriving Likelihood
    - ▶ Likelihood
    - we use *all* bills
  - ② estimate flexible status quo distribution to fit estimated marginal voters
    - status quo drawn from Truncated Normal
    - impose model restrictions:
      - leadership votes determine where status quo originated
      - whip counts closer to party median
    - first-order conditions relate  $q_t$  to  $MV_t$  (bills with roll calls only)
    - extensive Monte Carlo simulation to demonstrate truncations are recoverable
      - ▶ Likelihood

# Ideologies (1)



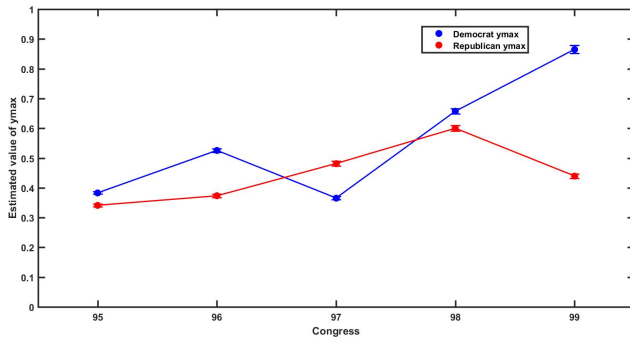
- Correlation between our estimates and DW-Nominate
  - strong, but not perfect, correlation
  - noticeable 'gap' introduced by party discipline (right graph)

## Ideologies (2)



- 34 to 43% of *perceived* polarization is due to party discipline

# Party Discipline Estimates



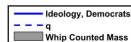
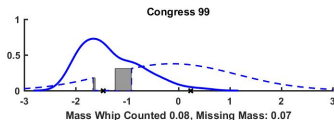
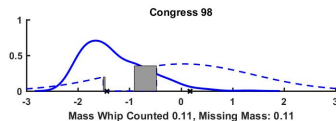
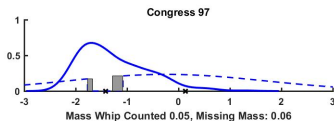
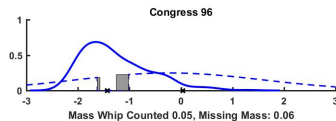
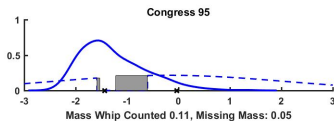
► Estimates

# Which Bills are Whip Counted?

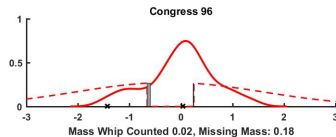
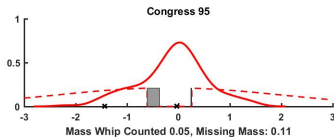
Distance from Marginal Voter to Party Median			
	Whip count	Roll call	p-value
Democrats	0.479	1.234	(0.000)
Republicans	0.910	1.163	(0.010)

- Model predicts whip counts are conducted for policies closer to the party's median (more difficult to pass)

# Agenda-Setting (Democrats)



# Agenda-Setting (Republicans)



# Robustness

- Results within only Final Passage Votes
- Non-constant  $y^{max}$  - no whipping on lopsided bills (based on Snyder-Groseclose)
- Subset of votes that proposer coincides with proxy from Jenkins et al. (2014).
- 2nd dimension of ideology: North-South divisions.

► Robustness Figures

► Robustness Tables



# Salient Bills

- How would the outcomes of votes on important bills have changed if parties exercised no discipline?
  - hold the policies themselves fixed

# Salient Bills - Economic Policies

Bill	Data	Model	No Whipping
Increase of Temporary Debt Limit, (H.R.9290, Congress 95)	<b>221</b>	<b>242</b>	<b>185</b>
Increase of Temporary Debt Limit, (H.R.13385, Congress 95)	<b>210</b>	<b>235</b>	<b>201</b>
Increase of Temporary Debt Limit, (H.R.2534, Congress 96)	<b>220</b>	<b>239</b>	<b>208</b>
Depository Inst. Dereg. and Monetary Ctrl. Act of 1980, (H.R. 4986, Congress 96)	369	404	391
Inc. of Public Debt Limit, Make it part of Budget Process (H.R. 5369, Congress 96)	<b>225</b>	<b>244</b>	<b>217</b>
Economic Recovery Tax Act of 1981 (H.R. 4242, Congress 97)	284	329	276
Garn-St. Germain Depository Institutions Act of 1982 (H.R.6267, Congress 97)	263	279	327
Social Security Amendments of 1983 (H.R.1900, Congress 98)	282	299	230
Tax Reform Act of 1984 (H.R. 4170, Congress 98)	319	370	292

► Non-Economic Policies

# Policies Pursued

- Absent party discipline, the optimal policies pursued would have been different
- Look at two counterfactuals, accounting for change in policies themselves:
  - no party discipline
  - increase in ideological polarization (to DW-Nominate levels)
- Look at average effects because we don't know status quo or alternative for any particular bill

# Bill Approval

	95	96	Congress 97	98	99
<i>Average Change in the Probability of Bill Approval</i>					
<b>Democrats</b>					
Baseline Probability (Main Model)	0.357	0.467	0.421	0.431	0.544
Main Model - No Whipping	0.032	0.060	0.009	0.054	0.011
Main Model - Polarized Ideology	-0.005	-0.011	0.010	-0.013	-0.024
<b>Republicans</b>					
Baseline Probability (Main Model)	0.240	0.220	-	-	-
Main Model - No Whipping	-0.034	-0.042	-	-	-
Main Model - Polarized Ideology	0.028	0.032	-	-	-

- Absent whipping, majority party is less likely to pass a bill, minority party more likely

# Policies Pursued

	95	96	Congress 97	98	99
<hr/> <i>Average Change in Pursued Policies, <math>x_t</math></i> <hr/>					
<b>Democrats</b>					
Main Model - No Whipping	-0.011	-0.018	-0.003	-0.024	-0.042
Main Model - Polarized Ideology	0.085	0.161	0.107	0.163	0.285
<b>Republicans</b>					
Main Model - No Whipping	-0.011	-0.016	-	-	-
Main Model - Polarized Ideology	-0.057	-0.048	-	-	-

- Increase in ideological polarization results in more extreme policies: farther left for Democrats, right for Republicans

# Conclusion

- We find that approximately 40% of polarization is due to party discipline
  - institutional changes may reduce party power
- The effects of polarization are complex due to the endogeneity of policies
  - a reduction in party discipline reduces the probability of bills passing
  - a reduction in ideological polarization results in less extreme bills
- Our methodology allows us (under some assumptions) to 'de-bias' ideological estimates even in the absence of whip count data
  - results suggest party power has grown over time (in line with the scholarly view)

# Proposition 1

*There exists a strictly positive cutoff cost of pursuing a bill,  $\hat{C}_b > 0$ , such that for all  $C_b < \hat{C}_b$ , the optimal alternative policies,  $x_t^{count}$  and  $x_t^{no\ count}$ , are unique and contained in  $(q_t, \theta_D^m)$  for  $q_t < \theta_D^m$ , contained in  $(\theta_D^m, q_t)$  for  $q_t > \theta_D^m$ , and equal to  $\theta_D^m$  for  $q_t = \theta_D^m$ .*

► Back to Theory

## Proposition 2

Fix  $C_b < \hat{C}_b$  such that the optimal alternative policies,  $x_t^{count}$  and  $x_t^{no\ count}$ , are unique and fix the cost of a whip count,  $C_w > 0$ . Then, we can define a set of cutoff status quo policies,  $\underline{q}_l, \bar{q}_l, \underline{q}_r$ , and  $\bar{q}_r$ , with  $\underline{q}_l \leq \bar{q}_l < \theta_D^m < \underline{q}_r \leq \bar{q}_r$  such that:

- 1 for  $q_t \in [-\infty, \underline{q}_l] \cup [\bar{q}_r, \infty]$ , the optimal alternative policy,  $x_t^{no\ count}$ , is pursued without conducting a whip count.
- 2 for  $q_t \in (\underline{q}_l, \bar{q}_l] \cup [\underline{q}_r, \bar{q}_r)$ , the optimal alternative policy,  $x_t^{count}$ , is pursued and a whip count is conducted.
- 3 for  $q_t \in (\bar{q}_l, \underline{q}_r)$ , no alternative policy is pursued.

► Back to Theory



# Identification (1): Key Assumption

*"One common question about whip counts is whether the responses of members can be trusted...Four points are worth mentioning in response. First, the whip process is a "repeated game" and members develop reputations. There are incentives for them to be truthful. Second, congressional leaders generally know a lot about the constituencies of rank-and-file members and can be very difficult to fool. Third, in a sense it does not matter. If a member claims that she will oppose a bill or amendment unless she receives some concession, then that essentially becomes her position and the polled question and the concession are for all practical purposes inseparable. Fourth, and most important, participants in the whip process believe that whip poll responses are accurate, which is precisely why they base strategic decisions on the results." (Evans (2012), p.13).*

► Back to Identification

# Details on Data

- Categories:

- “Yes, Leaning Yes, Yes if Needed, Undecided, Leaning No, No, Expected to be Absent for Vote” (94% of the sample).
- Split into 2 coarser categories of “Yes” and “No” to match model.

Composition:

- “Yes”(44.2%)
- “Leaning Yes” and “Yes if Needed” (together, 7.2%)
- “Leaning No” and “No” (together, 12.5%)
- “Undecided” (16.7% of the sample), “No Response” (13.0% of the sample), and “Expected to be Absent” (0.8% of the sample)

▶ Back to Data

# Direction of Whipping

- We use party leadership votes to assign the party's preferred direction.
- In order of priority, we use:
  - the (majority/minority) party leader's vote,
  - the (majority/minority) party Whip's vote,
  - the direction in which the majority of the party voted (very few).
- For each roll call, we use the same proxy for the proposing party. It determines:  
region of the status quo, directions each party whips.

► Back to Data

# Deriving Likelihood

Under Assumption 2, the probability  $i$  from  $D$  votes Yes at the whip count:

$$\begin{aligned}P(\text{Yes}_t^{i,wc} = 1) &= P(\delta_{1,t}^i + \theta^i \leq MV_t - \eta_{1,t}) \\&= P(\delta_{1,t}^i \leq \tilde{M}V_{1,t} - \theta^i) \\&= \Phi(\tilde{M}V_{1,t} - \theta^i).\end{aligned}$$

At the roll call stage:

$$\begin{aligned}P(\text{Yes}_t^{i,rc} = 1) &= P(\delta_{1,t}^i + \delta_{2,t}^i \leq MV_t - \eta_{1,t} - \eta_{2,t} - \theta^i \pm y_D^{\max}) \\&= P(\delta_{1,t}^i + \delta_{2,t}^i \leq \tilde{M}V_{2,t} - \theta^i \pm y_D^{\max}) \\&= \Phi\left(\frac{\tilde{M}V_{2,t} - \theta^i \pm y_D^{\max}}{\sqrt{2}}\right).\end{aligned}$$

# First Stage Likelihood

$$\begin{aligned}\mathcal{L}_D(\Theta_1; \text{Yes}_{t,p}^{i,wc}, \text{Yes}_{t,p}^{i,rc}) = \\ \prod_{t=1}^T \prod_{n=1}^{N_D} \Phi(\tilde{M}V_{1,t} - \theta^i)^{\text{Yes}_{t,p}^{i,wc}} \left(1 - \Phi(\tilde{M}V_{1,t} - \theta^i)\right)^{1 - \text{Yes}_{t,p}^{i,wc}} \\ \times \Phi\left(\frac{\tilde{M}V_{2,t} - \theta^i \pm y_D^{\max}}{\sqrt{2}}\right)^{\text{Yes}_{t,p}^{i,rc}} \left(1 - \Phi\left(\frac{\tilde{M}V_{2,t} - \theta^i \pm y_D^{\max}}{\sqrt{2}}\right)\right)^{1 - \text{Yes}_{t,p}^{i,rc}}\end{aligned}$$

► Back to Estimation

## Second Stage Likelihood

$$\mathcal{L}^{second\ step}(\Theta_1; \tilde{WC}_t, \tilde{MV}_{2,t}) = \prod_{t=1}^T P(WC_t)^{WC_t} P(\tilde{MV}_{2,t})^{RC_t}$$

For example, for a whip count for a status quo to the right of a party's median, we have, using Proposition 2:

$$P(WC_t) = \frac{\Phi\left(\frac{\bar{q}_{r,p} - \mu_q}{\sigma_q}\right) - \Phi\left(\frac{q_{r,p} - \mu_q}{\sigma_q}\right)}{P(WC_t \cup RC_t)}$$

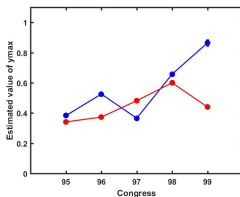
For example, the probability of observing a particular realized marginal voter for a status quo drawn from the right of the Democrats median (conditional on observing either a whip count or roll call) is:

$$P(\tilde{MV}_{2,t}) = \int_{\bar{q}_{r,D}}^{\infty} \phi\left(\frac{\tilde{MV}_{2,t} - MV(q_t)}{\sigma}\right) \frac{\phi\left(\frac{q_t - \mu_q}{\sigma_q}\right)}{P(WC_t \cup RC_t)} dq_t$$

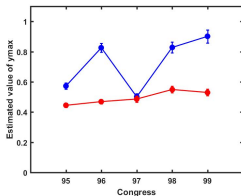
# First Stage Estimates [▶ Back to Results](#)

Parameter	Congress				
	95	96	97	98	99
$y^{max}$ , Democrats	0.383 (0.002)	0.526 (0.003)	0.366 (0.003)	0.658 (0.005)	0.865 (0.007)
$y^{max}$ , Republicans	0.342 (0.003)	0.373 (0.003)	0.482 (0.004)	0.600 (0.005)	0.440 (0.004)
Aggregate Shock, $\sigma_\eta$			0.859 (0.230)		
Party Median - Democrats, $\theta_D^m$	-1.431 (0.038)	-1.431 (0.038)	-1.420 (0.042)	-1.435 (0.040)	-1.462 (0.095)
Party Median - Republicans, $\theta_R^m$	-0.036 (0.049)	0.042 (0.138)	0.134 (0.139)	0.181 (0.034)	0.236 (0.049)
N: 711, T: 315 Whip Counted bills, 5424 Roll Called bills					

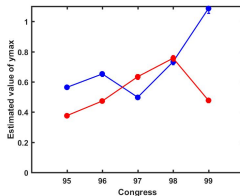
# Robustness



(a) Baseline

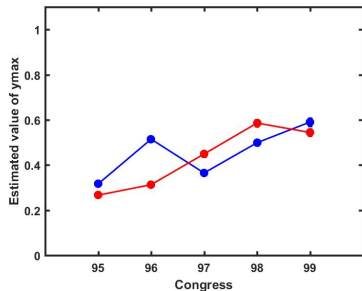


(b) Only Final Passage  
Votes

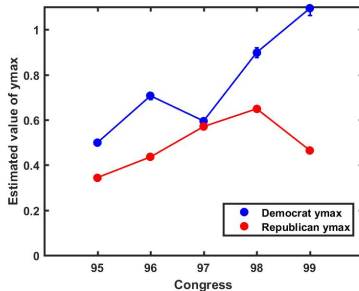


(c) Proxies Coincide





(a) No Whipping on Lopsided Bills



(b) Votes that Split  
Northern/Southern Democrats  
Dropped

► Back to Results

## Robustness (2)

### Table: Decomposition of Polarization

	95	96	Congress 97	98	99
<i>A: Polarization due to ideology (<math>\theta_R^m - \theta_D^m</math>)</i>					
Baseline	1.395	1.473	1.554	1.615	1.698
Only Final Passage Votes	1.135	1.308	1.355	1.401	1.441
Proposer Proxies Coincide (Model & Sponsorship)	1.346	1.423	1.490	1.569	1.645
No Whipping on Lopsided Votes	1.615	1.713	1.796	1.895	2.031
Without Votes that Split Northern/Southern Democrats	1.170	1.306	1.335	1.419	1.471
<i>C: Share of Perceived Ideological Polarization due to whipping (<math>B/(A+B)</math>)</i>					
Baseline	0.342	0.379	0.353	0.438	0.435
Only Final Passage Votes	0.473	0.498	0.422	0.496	0.498
Proposer Proxies Coincide (Model & Sponsorship)	0.411	0.442	0.432	0.487	0.487
No Whipping on Lopsided Votes	0.265	0.326	0.312	0.364	0.358
Without Votes that Split Northern/Southern Democrats	0.419	0.467	0.466	0.522	0.515

# Salient Bills - Other

Bill	Data	Model	No Whipping
Aid to Turkey/Lifting of Arms Embargo (H.R. 12514, Congress 95)	212	193	147
Foreign Intelligence Surveillance Act of 1978 (H.R. 7308, Congress 95)	261	283	280
National Energy Act, 1978 (H.R. 8444, Congress 95)	247	271	258
Panama Canal Treaty, 1979 (H.R. 111, Congress 96)	<b>224</b>	<b>243</b>	<b>180</b>
Contra Aid, 1984 (H.R. 5399, Congress 98)	294	279	343

► [Back to Results](#)