Social Interactions and Legislative Activity

Nathan Canen (University of Houston)
Matthew O. Jackson (Stanford, CIFAR, Santa Fe)
Francesco Trebbi (UC Berkeley, NBER, CEPR)

JEEA Teaching Materials

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Motivation

- The functioning of deliberative bodies (e.g., Congress) relies on informal interactions among its members.
  - E.g., to pass and craft legislation.
- However, such environments are rife with strategic behavior:
  - Legislators choose how much/with whom to socialize.
  - Having key allies influences the benefits of such interactions (i.e., quality of a bill, likelihood of it passing).
  - The environment is rife with partisan (identity) based affiliation and preferences.
- Studying the effects of electoral competition, political polarization or counterfactual policies on congressional behavior should accommodate the above.

This Paper

1. Proposes a novel theoretical model accommodating:
   - Endogenous formation of connections (individuals' choices affect whom they work with).
   - Strategic decisions on the resulting network (links affect benefits of legislative effort).
   - Homophily (social interactions are biased along party lines).
2. Results on the effects of electoral competition and (non-linear) effects of polarization on legislative behavior.
   - Closed-form theory, reduced-form and structural results.
   - Such predictions would not be borne out of non-network data.
   - Empirically validated assumptions. Model fit also suggests it outperforms alternatives.
3. New insights on differences in social returns across parties.

Model

- $N = \{1, 2, ..., n\}$ politicians, divided into $k = 1, ..., K$ parties.
- Each politician chooses two types of effort, both affecting reelection/bill approval:
  - x_i: Legislative Effort (e.g., crafting legislation, floor speeches).
  - s_i: Social Effort (e.g., attending social events/networking)
- Each party P_ℓ has a level of partisanship/structural homophily, p_ℓ,
  - Members of P_ℓ spend a fraction p_ℓ of their interactions exclusively at party ℓ events (e.g., party and caucus meetings...)
  - The remainder, $1 - p_\ell$, are at events in which they mix with members of all parties. (e.g., committee or social events...)

Socialization

The network $G = \{g_{i,j}\}_{i,j \in N}$ is given by $g_{ij}(\mathbf{s}) = s_i s_j m_{ij}(\mathbf{s})$, where: if $j \in P(i)$ then

$$m_{ij}(\mathbf{s}) = p(i)\frac{p(j)}{\sum_{k \in P(i), k \neq i} p(k)s_k} + (1 - p(i))\frac{(1 - p(j))}{\sum_{k \neq i}(1 - p(k))s_k},$$

and if $j \notin P(i)$ then

$$m_{ij}(\mathbf{s}) = (1 - p(i))\frac{(1 - p(j))}{\sum_{k \neq i}(1 - p(k))s_k}.$$

- Politicians meet own-party members in two ways: at their own events (same party) and at general events (both parties).
- Politicians are met with the relative frequency with which they are present at events.
- Consistent with qualitative evidence, (some) econometric models of network formation (e.g., Mele, 2017; Graham, 2020)

Preferences

- Following Cabrales et al., 2011, preferences for i are:

$$u_i(x_i, x_{-i}, s_i, s_{-i}) = \underbrace{\alpha_i x_i + \phi_i \sum_{j \neq i} x_i(g_{ij}(\mathbf{s})x_j)}_{returns\ \ to\ \ leg.effort} - \frac{c}{2}x_i^2 - \frac{1}{2}s_i^2.$$

- If G was exogenous and known, it is the problem of Ballester et al., 2006.
- We study Nash equilibria in the limit (simultaneous) game (large n).

The Electoral Motive for Preferences

- In the paper, rationalize these preferences electorally:

$$u_i(x_i, x_{-i}, s_i, s_{-i}) = Pr(reelected) - \frac{c}{2}x_i^2 - \frac{1}{2}s_i^2$$

- Reelection depends on baseline electoral competition ($V_{i,0}$), and passing a bill (increasing in x_i and leg. effort of those i is connected to)

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- Reelection depends on baseline electoral competition ($V_{i,0}$), and passing a bill (increasing in x_i and leg. effort of those i is connected to)
- In this set-up, ϕ_i is:
  - *increasing* in the likelihood of passing a bill conditional on effort, parameterized by $\gamma_{P(i)}$,
  - *increasing* in the electoral returns to passing a bill, measured by $(1 - e^{-\lambda\zeta_{P(i)}})$,
  - *increasing* in electoral competition in i's district, parametrized by $\rho V_{i,0}$.

Theoretical Results

Proposition

In any equilibrium of the game above:

1. *An increase in ϕ_i increases both equilibrium effort levels s_i^* and x_i^*.*
2. *An increase in i's type, α_i, increases both s_i^* and x_i^*.*
3. *A decrease in the relative cost of legislative effort, c, increases both s_i^* and x_i^*.*

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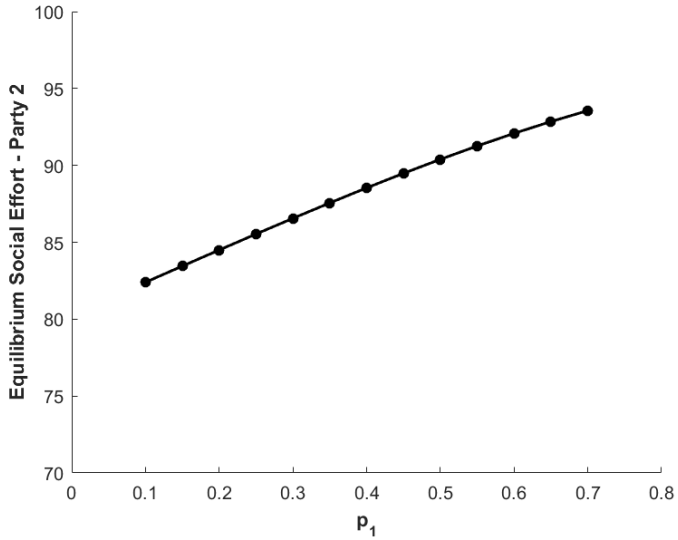
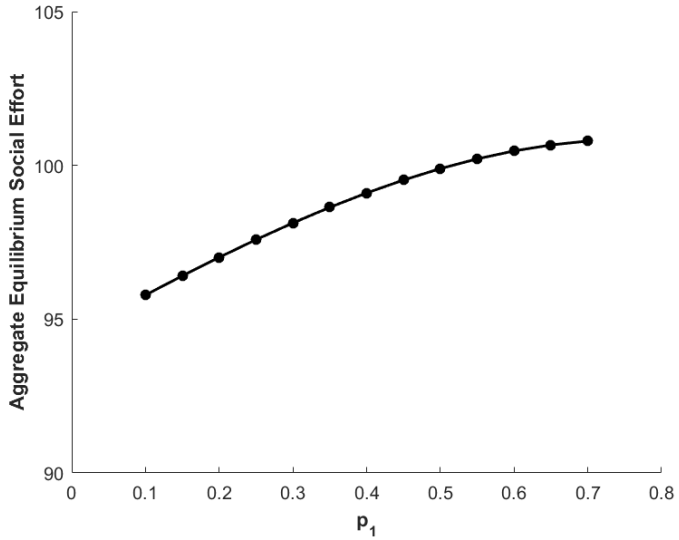
Corollary

Politicians who face greater electoral competition (lower $V_{i,0}$, all else held equal) have higher equilibrium effort levels (s_i^*, x_i^*).

Figure: Numerical Example Where Increases in Partisanship Increases Social Effort



(a) Equilibrium Social Effort, Aggregated across Party 1 Members (Higher Types)

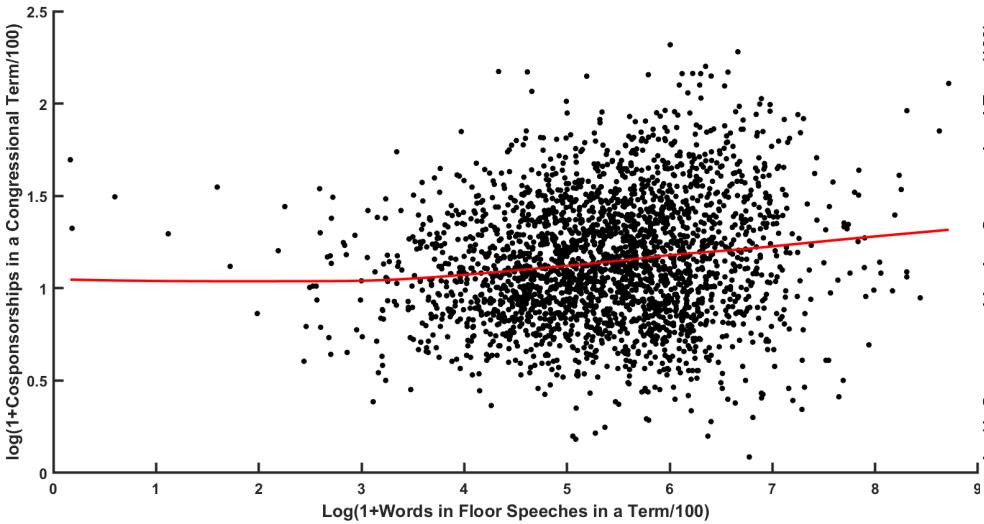


(b) Aggregate Equilibrium Social Effort Across All Legislators

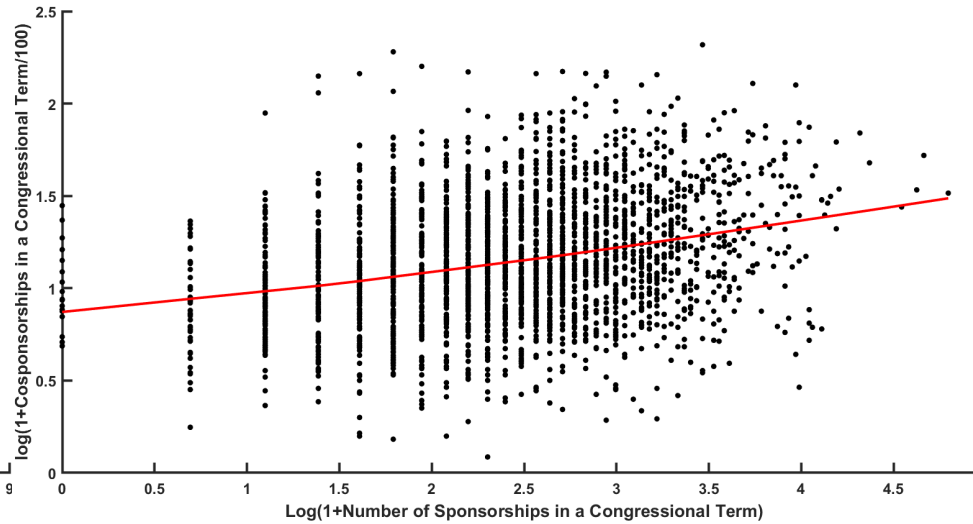
- Consistent with increasing cosponsorships and partisanship in Congress.

Validating Key Model Assumptions

Figure: Correlation between Raw Measures of Legislative Effort and Social Effort.



(a) Cosponsorships and Floor Speeches



(b) Cosponsorships and Bills Sponsored

Empirical Evidence Consistent with the Corollary

TABLE 2. Evidence on lower (past) winning margins being positively correlated with social effort.

	Outcome: Log(1+Cosponsorships in a Congressional Term/100)				
	(1)	(2)	(3)	(4)	(5)
$V_{i,0}$—Previous winning margin	−0.088***	−0.064***	−0.078***	−0.077***	−0.114***
	(0.022)	(0.022)	(0.021)	(0.023)	(0.031)
Ideology controls	Yes	Yes	Yes	Yes	Yes
Additional individual controls	No	Yes	Yes	Yes	No
Congress fixed effects	No	No	Yes	Yes	No
State fixed effects	No	No	No	Yes	No
N	2,580	2,580	2,580	2,580	2,424

Notes: Robust standard errors are in parentheses. The outcome is the log of (1+the Number of Cosponsorships in a Congressional term/100). Ideology controls are the politician's DW-Nominate score and its DW-Nominate score squared. Additional individual controls include party fixed effects, tenure, and a Grosewart score to measure the value of Committee assignments (see the Data Section). The last column drops candidate-Congress observations whose previous election was uncontested (i.e. winning margins above 0.9). ***denotes $p < 0.01$.

Model (Structural) Estimation

- However, many questions of interest depend on quantifying model parameters.
  - Returns to social effort (ϕ_i).
  - Party types (α_i), etc.
- In the paper, we show how those parameters are:
  - Statistically identified, and
  - Consistently Estimated using equilibrium equations.

(Some) Structural Results

TABLE 4. Heterogeneity: differences in the distributions of α_i and φ_i across parties.

Congress	105	106	107	108	109	110
			Types, α_i			
Democrats:						
Mean α_i	1.218	1.183	1.210	1.256	1.249	1.156
Standard deviation of α_i	0.091	0.077	0.082	0.100	0.095	0.067
Republicans:						
Mean α_i	1.292	1.345	1.343	1.416	1.360	1.230
Standard deviation of α_i	0.078	0.076	0.074	0.103	0.081	0.103
			Returns to social effort, φ_i			
Democrats:						
Mean φ_i	0.037	0.043	0.047	0.046	0.045	0.045
Standard deviation of φ_i	0.001	0.002	0.0002	0.0001	0.0004	0.0003
Republicans:						
Mean φ_i	0.031	0.033	0.034	0.033	0.034	0.037
Standard deviation of φ_i	0.001	0.001	0.0001	0.0001	0.0003	0.0001

Notes: We show the mean and the standard deviation of the (estimated) distributions of α_i and of φ_i for each party, highlighting the differences in those distributions. They are computed using the estimates from Table 3.

Final Remarks

- Our model allows for: network formation, strategic actions, homophily, statistical identification and practical estimation.
- Its assumptions and theoretical predictions are consistent with the data.
- In the paper, we further show that this model:
  - with interior partisanship p_1, p_2 outperforms fully partisan alternatives.
  - fits legislative effort better than existing alternative networks (e.g., alumni, committee).
  - fits bill passage better than simple "regression" fits.

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Thank you!