Lobbying and Policy Extremism in Repeated Elections

Peter Bils, John Duggan, Gleason Judd
University of Rochester

March 2, 2016

Outline

Motivation

Democratic elections involve voters, politicians, and interest groups.

These actors have heterogeneous preferences over policy, and they optimize in response to incentives.

Voters choose between a known (less risky) incumbent and an unknown (more risky) challenger.

Politicians choose between policies that are good in the short run and ones that are less desirable but offer greater chances of re-election in the long run.

Motivation (cont.)

Lobby groups exert influence on politicians, affecting the trade off between short run and long run policy.

We explore the interaction of these incentives in a dynamic model of electoral accountability featuring:

- infinite horizon, discrete time
- citizen candidates
- adverse selection
- right and left lobby groups.

Motivation (cont.)

We find three main results:

- existence of simple lobbying equilibrium
- when office incentives are high,
  - all equilibria are polarized
  - as effectiveness of money becomes small, equilibria converge to the median ideal point
- as effectiveness of money becomes large, there exist equilibria featuring arbitrarily extreme policy outcomes.

Related literature

Early dynamic models: Barro (1973), Ferejohn (1986)

Dynamic elections with adverse selection: Duggan (2000), Bernhardt et al. (2004), Banks and Duggan (2008), Bernhardt et al. (2009), Bernhardt et al. (2011)

Lobbying: Grossman and Helpman (1994), Snyder and Ting (2008)

Outline

Elements of the Model

$N = [\underline{\theta}, \overline{\theta}]$	space of citizen types
$X = [0, 1]$	policy space
$x(\theta)$	ideal point, increasing in type θ,
	$x(\underline{\theta}) = 0$, $x(\overline{\theta}) = 1$
θ_m	median citizen type
L, R	lobby groups, types $\underline{\theta}, \overline{\theta}$
$h(\theta)$	challenger density, positive on $(\theta_m - \epsilon, \theta_m + \epsilon)$
$\beta \geq 0$	office benefit
$\gamma \geq 0$	effectiveness of money
$\delta \in [0, 1)$	discount factor

Timing

Each period period begins with a citizen-politician in office:

- in the first term of office, **active** lobby group offers (y, m),
  - active group is on the same side of median voter as politician
- incumbent chooses between the offer or proceeding independently, and
  - if the offer is accepted, the incumbent is committed to y,
  - otherwise, the incumbent chooses policy x independently,
- a challenger is randomly drawn,
- voters choose between the candidates,
- the process repeats in all subsequent periods.

Information

Politician types: observed by lobby groups, but not observed by voters.

Lobby offers and acceptance decision: observed by lobby groups and politicians, but not observed by voters.

Policy choices: observed by all citizens.

Payoffs

Stage payoff from x to type θ citizen is

$$u_\theta(x) \quad = \quad \theta v(x) - c(x) + k_\theta,$$

where $v' > 0$, $v'' \leq 0$, $c' \geq 0$, and $c'' > 0$.

Quadratic special case: $u_\theta(x) = -(x - \theta)^2$.

Weak symmetry: $u_m(0) = u_m(1)$.

Payoffs (cont.)

If offer (y, m) is accepted, then payoff to type θ office holder is

$$u_\theta(y) + \gamma m + \beta,$$

and payoff to lobby group with $\tilde{\theta} \in \{\underline{\theta}, \overline{\theta}\}$ is

$$u_{\tilde{\theta}}(y) - m.$$

Streams of stage payoffs are discounted according to δ.

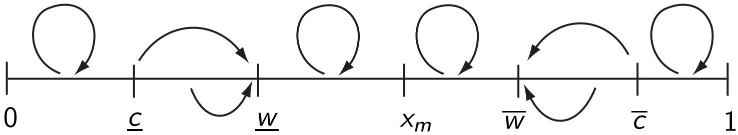
Outline

Example with $\gamma = 0$

Then lobby groups play no role. Equilibrium is characterized by:

$[\underline{w}, \overline{w}]$	**win set** of policies leading to re-election consists of each x that gives the median voter at least the continuation value of a challenger
$[\underline{c}, \overline{c}]$	**compromise set** of politicians who are re-elected, where $x(\theta) \in [\underline{c}, \overline{c}]$ implies choice of winning x closest to the ideal point, all others choose ideal point.

Example (cont.)



Results:

- existence of "simple electoral equilibria"
- when $\delta\beta$ is high, the unique equilibrium features median convergence,

$$\underline{w} = \overline{w} = x_m \quad \text{and} \quad \overline{c} - \underline{c} = 1.$$

Outline

Stationary Perfect Bayesian Equilibrium

Stationary strategies and beliefs, Ψ:

$\lambda_L \colon [\underline{\theta}, \theta_m] \to X$	policy offer of L (likewise, R)
$\mu_L \colon [\underline{\theta}, \theta_m] \to \Re$	money offer of L (likewise, R)
$\alpha_\theta \colon X \times \Re \to \{0, 1\}$	acceptance strategy of type θ politician
$\pi_\theta \in X$	default policy choice of type θ politician
$\nu_\theta \colon X \to \{0, 1\}$	voting strategy of type θ voter
$\kappa \colon X \to \Delta(N)$	voter belief system

Ψ is a **stationary PBE** if strategies are optimal, voting is sincere, and beliefs are consistent with Bayes rule for all histories.

Continuation Values

Given Ψ, the expected discounted payoff of a challenger is

$$V_\theta^C \;=\; \frac{\mathbb{E}_{P^C}[u_\theta(z)]}{1-\delta}.$$

Here, P^C is the challenger **continuation distribution,** which is independent of voter types.

If incumbent chooses x, then the expected discounted payoff to the type θ voter from re-electing is

$$V_\theta^I(x) \;=\; \frac{\mathbb{E}_{P^I}[u_\theta(z)]}{1-\delta}.$$

Win Sets

Median decisiveness: An incumbent who chooses x is weakly preferred to a challenger by a majority of voters if and only if $V_m^I(x) \geq V_m^C$.

The **win set** consists of policies x such that a politician who chooses x is re-elected.

Then we can show that in a stationary PBE,

$$W \subseteq \left\{ x \mid \frac{u_m(x)}{1-\delta} \geq V_m^C \right\}.$$

Dynamic Utility

The **dynamic utility** to the type θ citizen is

$$U_\theta(x) \;=\; \begin{cases} \frac{u_\theta(x)}{1-\delta} & \text{if } x \in W, \\ u_\theta(x) + \delta V_\theta^C & \text{else,} \end{cases}$$

and **dynamic office benefit** for politicians is

$$B(x) \;=\; \begin{cases} \frac{\beta}{1-\delta} & \text{if } x \in W, \\ \beta & \text{else.} \end{cases}$$

Simple Lobbying Equilibrium

A **simple lobbying equilibrium** is a stationary PBE such that:

- for each politician type θ, the active group solves

$$\begin{aligned} &\max_{(y,m)} U_G(y) - m \\ \text{s.t. } &U_\theta(y) + \gamma m + B(y) \ \geq \ U_\theta(\xi_\theta) + B(\xi_\theta) \end{aligned}$$

- for each politician type θ and offer (y, m), we have $\alpha_\theta(y, m) = 1$ if and only if

$$U_\theta(y) + \gamma m + B(y) \quad \geq \quad U_\theta(\xi_\theta) + B(\xi_\theta),$$

Simple Lobbying Equilibrium (cont.)

. . . and

- for each type θ, the default policy ξ_θ solves

$$\max_x U_\theta(x) + B(x),$$

- the win set is

$$W = \left\{ x \in X \mid \frac{u_m(x)}{1-\delta} \geq V_m^C \right\}.$$

Outline

Existence of Equilibrium

Theorem 1: A simple lobbying equilibrium exists.

Given an arbitrary challenger continuation distribution P, we calculate hypothetical continuation values, win set, default policy choices, and lobby offers:

$$\begin{array}{c} P \to V_\theta^C(P) \to W(P) \to \xi_\theta(P) \\ \hfill \downarrow \quad \\ P' \leftarrow (\lambda_G(\theta|P), \mu_G(\theta|P)) \leftarrow \alpha_\theta(\cdot|P) \end{array}$$

By Glicksberg's theorem, this mapping has a fixed point, which yields an equilibrium.

Partitional Form of Equilibrium

A byproduct of the proof is that given any challenger continuation distribution, there are cutoffs $(\underline{c}, \underline{e}, \underline{w}, \overline{w}, \overline{e}, \overline{c})$ with

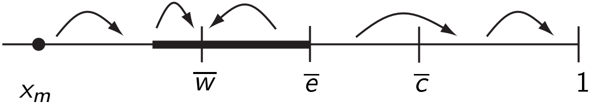
$$\underline{c} \leq \min\{\underline{e}, \underline{w}\} \quad \text{and} \quad \max\{\overline{w}, \overline{e}\} \leq \overline{c}$$

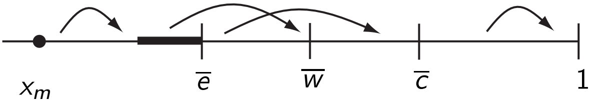
such that

- the win set is $W = [\underline{w}, \overline{w}]$,
- types with $x(\theta) \in C = [\underline{c}, \overline{c}]$ choosing winning policies by default,
- types with $x(\theta) \in E = [\underline{e}, \overline{e}]$ are offered winning policies.

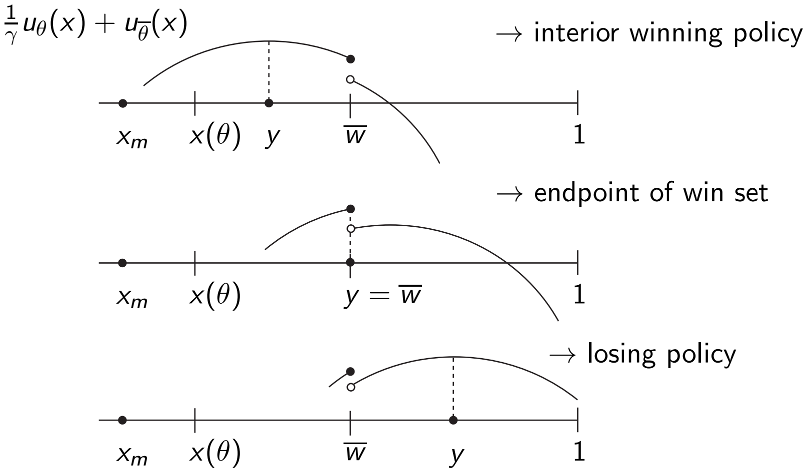
Partitional Form of Equilibrium (cont.)

Theorem 2: Every simple lobbying equilibrium has the partitional form.





Optimal Lobby Offers



Polarized Equilibria

Let $x_R(\theta)$ solve

$$\max_x \frac{1}{\gamma} u_\theta(x) + u_{\overline{\theta}}(x),$$

and likewise $x_L(\theta)$.

An equilibrium is **polarized** if for all θ,

- $\theta < \theta_m$ implies $\lambda_L(\theta) = \underline{w}$,
- $\theta > \theta_m$ implies $\lambda_R(\theta) = \overline{w}$.

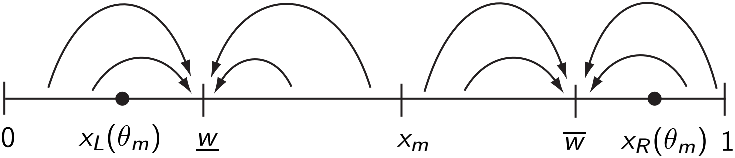
Then $\overline{w} - \underline{w}$ measures the extent of polarization.

Polarized Equilibria

Theorem 3: Fix γ. When $\delta\beta$ is large, every equilibrium is polarized, and there is a polarized equilibrium with win set $[\underline{w}, \overline{w}]$ if and only if $u_m(\underline{w}) = u_m(\overline{w})$ and

$$x_L(\theta_m) \leq \underline{w} \quad \text{and} \quad \overline{w} \leq x_R(\theta_m).$$

Polarized Equilibria (cont.)



Accordingly, the most polarized equilibrium satisfies at least one of the above inequalities with equality.

Polarized Equilibria (cont.)

Idea of proof: Let $\delta\beta$ be large enough that extreme types $\underline{\theta}$ and $\overline{\theta}$ are willing to compromise to the median x_m by default. Also, make cost of compensating for losing prohibitive to lobby groups.

In equilibrium, every politician type is lobbied to the win set, so each type chooses a policy that gives the median voter at least V_m^C.

Since no politician type is strictly below average, this implies no politician type is strictly above average, so all politicians give the median voter the same payoff, V_m^C.

Thus, the equilibrium is polarized.

Dynamic Median Voter Theorem

Theorem 4: Let $\delta\beta$ be large. As $\gamma \to 0$, every equilibrium is polarized, and the win set $[\underline{w}, \overline{w}]$ of the most polarized equilibrium converges to the median policy, i.e., $\underline{w} \to x_m$ and $\overline{w} \to x_m$.

Idea of proof: Let $\delta\beta$ be large enough that the extreme types are strictly willing to compromise to the median by default.

If the result doesn't hold, we can select equilibrium win sets such that $\underline{w} \to x_m - \underline{\epsilon}$ and $\overline{w} \to x_m + \overline{\epsilon}$ as $\gamma \to 0$.

When γ is small enough, every politician type is lobbied to the win set, so no type is strictly below average.

Dynamic MVT (cont.)

When γ is small, we have

$$x_L(\theta_m) > x_m - \underline{\epsilon} \quad \text{and} \quad x_R(\theta_m) < x_m + \overline{\epsilon}.$$

But then types close to the median are lobbied to the interior of the win set when γ is small, so they are strictly above average.

It cannot be that no types are strictly below average and some are strictly above average, a contradiction.

Outline

Effect of Money

A sequence of equilibria **becomes extremist** if all politician types are offered arbitrarily extreme policies:

$$\lambda_L(\theta_m) \to 0 \quad \text{and} \quad \lambda_R(\theta_m) \to 1.$$

Theorem 6: Fix δ and β. When γ is large, every equilibrium is polarized, and the most polarized equilibria become extremist.

Effect of Money (cont.)

Idea of proof: Consider any sequence of equilibria such that $\underline{w} \to w_*$ and $\overline{w} \to w^*$. We consider two cases.

Case 1: $w_* = 0$ and $w^* = 1$. When γ is large enough, the cost of compromise for the extreme types becomes small, so all politician types are lobbied to winning policies.

Then no politician types are strictly below average, and this implies no type can be strictly above average, so all politician types are lobbied to endpoints $\underline{w}$ and $\overline{w}$.

Thus, equilibria are polarized.

Effect of Money (cont.)

Case 2: $w_* > 0$ and $w^* < 1$. When γ is large, we have

$$x_L(\theta_m) < \underline{w} \quad \text{and} \quad \overline{w} < x_R(\theta_m),$$

and no politician type is lobbied to the interior of the win set.

This means that no type is strictly above average, and this implies no type can be strictly below average. so all politician types are lobbied to endpoints $\underline{w}$ and $\overline{w}$.

Thus, equilibria are polarized.

Effect of Money (cont.)

Now, choose $\overline{w}$ and $\underline{w}$ so that $u_m(\overline{w}) = u_m(\underline{w})$ and extreme enough that (i) we have

$$\frac{u_{\overline{\theta}}(\overline{w})}{1-\delta} \quad > \quad u_{\overline{\theta}}(1) + \delta V^*_{\overline{\theta}},$$

where $V^*_{\overline{\theta}}$ is the expected payoff to $\overline{\theta}$ from the lottery such that $\theta < \theta_m$ choose $\underline{w}$ and $\theta > \theta_m$ choose $\overline{w}$, and (ii) a similar inequality holds for $\underline{\theta}$.

When γ is large, we have $x_L(\theta_m) < \underline{w}$ and $\overline{w} < x_R(\theta_m)$.

And for γ large, inequalities (i) and (ii) imply lobby groups optimally offer the endpoints $\underline{w}$ and $\overline{w}$, so there is an equilibrium with win set $[\underline{w}, \overline{w}]$.

Least Polarized Equilibria

Define the **dichotomous model** so that

- $\beta = 0$

and the distribution of challengers has support on $\{\underline{\theta}, \overline{\theta}\}$ with

- probability $H(\theta_m)$ on $\underline{\theta}$,
- probability $1 - H(\theta_m)$ on $\overline{\theta}$.

Theorem 8: Fix δ and β. When γ is large, the least polarized equilibrium win sets converge to an equilibrium win set $[\underline{w}, \overline{w}]$ of the dichotomous model.

Outline

Extensions

Partisan challengers: Two parties, $\pi \in \{0, 1\}$, with party π challenger drawn from density h^{π}.

An incumbent from π runs against challenger from $1 - \pi$.

In general, win set $[\underline{w}^{\pi}, \overline{w}^{\pi}]$ depends on party of incumbent.

A polarized equilibrium is such that win set is independent of π.

All results go through unchanged.

Extensions (cont.)

Asymmetric lobby groups: Assume $u_m(0) < u_m(1)$. Results are unchanged, except for Theorem 6. Fix δ and β. When γ is large, for every selection of equilibria, we have

$$\limsup V_m^C \quad \leq \quad \frac{u_m(1)}{1-\delta}.$$

Conclusion

The centripetal effect of office incentives is robust to lobbying: when office incentives are high and effectiveness of money is low, equilibrium policies are close to the median.

But money has a centrifugal effect, in a well-defined sense: fixing office incentives, there exist arbitrarily extreme equilibria as money becomes more effective.

The precise mechanism traced here is that of policy concession in exchange for sidepayments to politicians. The channel of campaign financing is not modeled explicitly...

...but our results suggest that loosening of restrictions on political contributions may increase policy extremism and should be the subject of further analysis.