# Models of Legislative Bargaining

Antoine Loeper

Universidad Carlos III de Madrid

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# Legislative bargaining: a brief historical introduction

- General equilibrium: simple model of markets based only on
  - consumers' preferences
  - firms' technology
- Can we do the same for democratic decision procedures?
- Can we make predictions on voting outcome based solely on
  - voters' preferences
  - set of feasible policies

# Legislative bargaining: a brief historical introduction (ii)

- Social choice theory (SCT) can be viewed as general equilibrium for democratic environments
  - Inherent properties of majoritarian decision making
  - mapping: voters' preferences $\longrightarrow$ majoritarian outcome
- What do we learn from SCT?
  - Under stringent conditions (single-peakedness or single crossing): median voter is pivotal
  - Generally, majority rule is cyclical (Condorcet), and SCT predictions are
    - vacuous: no majority rule equilibrium (Plott 67)
    - useless: any policy can be outcome (chaos theorem, McKelvey's 79).

# Legislative bargaining: a brief historical introduction (iii)

- Not much can be predicted from voting rule alone
  $\Rightarrow$ the details of the voting procedure matters!

- Literature spitted into different branches:
  - Electoral competition
  - **Legislative bargaining**
  - Voting in committee (jury, international fora)
  - Voting in firms (shareholders' meeting)

# Modelling legislative bargaining: procedures and strategies

# Legislative decision making: formal rules

- Legislative decision process is **sequential**: sequence of proposals and binary choices
  - *voting rule* (e.g., majority rule) determines the decision at binary nodes
- Sequence of proposals is called the *agenda*
  - agenda setting rules
  - recognition rule for the proposer (agenda setter)
- Rules that determine the outcome: *voting procedure*
  - How are proposals pitted against each other?
  - What is the *default*?

# Common voting procedure (Rasch, Legislative Studies Quarterly 00)

- Sequence of proposals (agenda): $(x_1, x_2, ..., x_T) \in X^T$
- Amendment procedure:[1]
  - Round 1: vote on $x_1$ versus $x_2$, the winner $x_2^*$ added to the agenda: $(x_2^*, x_3 ..., x_T)$
  - Round $t > 1$: vote on last winner $x_t^*$ versus next alternative $x_{t+1}$, winner added to the agenda: $(x_{t+1}^*, x_{t+2} ..., x_T)$
  - $x_T^*$ is the final outcome
- Successive procedure (Baron and Ferejohn 89 and all its followers):
  - Round 1: vote on $x_1$ versus $x_2$. If $x_1$ wins, it is the final outcome. Otherwise, deleted from agenda: $(x_2, ..., x_T)$.
  - Round $t > 1$: vote on $x_t$ versus $x_{t+1}$. If $x_t$ wins, it is the final outcome. Otherwise, deleted from agenda: $(x_{t+1}, ..., x_T)$.

[1] Miller 77, 80, Banks 85, Baron 96, Kalandrakis 04, 07, Berheim et al. 06, Anesi 10, Diermeier and Fong 11

# Voting procedure: an illustration

- $X = \{a, b, c\}$ with majority preferences:

$$a \succ_{MR} b \succ_{MR} c \succ_{MR} a.$$

- Agenda $(a, b, c)$ with amendment procedure:
    - Round 1: $a$ wins against $b \longrightarrow$ agenda $(a, c)$
    - Round 2: $a$ loses against $c$ so $c$ is the outcome
- Agenda $(a, b, c)$ with successive procedure:
    - Round 1: $a$ wins against $b$, so $a$ is the outcome
- Agenda $(b, c, a)$ with amendment procedure lead to outcome $b$
- Conclusion: both the agenda and the voting procedure matter!

# Voting strategies

- Finite horizon models:
  - Sincere voting:[2] legislators vote naively for the alternative that they prefer at each decision node
  - **Sophisticated voting** (Farquharson 69): legislators foresee subgame equilibrium for each branch of game tree, and vote for the subgame equilibrium they prefer (refinement of subgame perfection)
- Infinite horizon
  - Subgame perfection (Epple and Riordan 87, BF 89, Dixit et al. 00, Jehiel and Gomez 2005)
  - Stationarity + stage undomination (almost all models, see Baron and Kalai 93)

[2] Schepsle 79, Weingast 79, McKelvey 79

# Agenda setting (i)

- Agenda:
  - Exogenous (Miller 80, Banks 85)
  - Endogenous (Romer and Rosenthal 78, Banks and Gasmi 87, BF 89 and their followers): agenda is the strategic choice of the agenda setter
- The agenda setter (proposer)
  - Recognition rule:
    - Probabilistic (BF 89) versus Deterministic (Bernheim et al. 06, Chatterjee et al. 93)
    - Exogenous (almost all models) versus endogenous (Chatterjee et al. 93, Yildirim 07, 10, Querou and Soubeyran 12)
  - Allocation of proposal power:
    - Monopolistic proposer (Romer and Rosenthal 78, McKelvey 79, Diermeier and Fong 11)
    - Neutral recognition rule (BF 89, Baron 1996, Kalandrakis 04, 07)
    - Nonmonopolistic and nonneutral (Eraslan 02, Bernheim et al. 06, Anesi 10)

# Agenda setting (ii)

- Proposal power:
  - Restricted (Schepsle 79) versus unrestricted proposal power
- Amendment:
  - Closed rule: proposal can be turned down, but cannot be amended. (Romer and Rosenthal 79)
  - Open rule: proposal can be amended (Gilligan and Krebhiel 87, BF 89)
- Timing:
  - "Real time" (e.g., BF 89, Bernheim et al. 06) versus "advance" agenda setting (e.g., Miller 80, Banks 85)
  - Finite (Miller 1980, Banks 1985, Bernheim et al. 06) versus infinite horizon (e.g., BF 89, Diermeier and Fong 2011)

# Information structure

- Information of the proposer
  - Division of labor: informational role of committees (Gilligan and Krebhiel 87)
- Information on the proposer
  - Determinstic (Bernheim et al 2006, Anesi 10, Diermeier and Fong 2011) versus random (all the rest) proposer

# Policies and payoff

- Policy space:
    - Finite (Miller 80, Banks 85, Bernheim et al. 06, Anesi 10, Diermeier and Fong 11) versus infinite (e.g., BF 89, Kalandrakis 04, 07)
    - General interest policies (spatial model, Baron 93, 96, Banks and Duggan 00) versus distributive policies (pork barrel)
- Payoffs:
    - Final payoffs (Miller 80, Banks 85, Bernheim et al. 06)
    - Flow payoffs (BF 89, Baron 96, Kalandrakis 04, 07, Anesi 10, Diermeier and Fong 11)
        - impatient players $\delta < 1$ (BF 89, Baron 96, Kalandrakis 04, 07)
        - patient $\delta \to 1$ players (Anesi 10, Diermeier and Fong 11)

# The starting point: Baron and Ferejohn APSR 1989

# Model: multilateral, majoritarian version of Rubinstein 82

- $N$ legislators, infinite horizon, divide a dollar: $X = \Delta^N$
- In each period $t$:
  1. A proposer $p^t \in N$ is drawn randomly
     - *probabilistic proposer, neutral recognition rule*
  2. the proposer $p^t$ proposes a division of the pie $x^t \in \Delta^N$
     - *endogenous agenda, real time agenda setting*
  3. All legislators vote on the proposal $x^t$.
     - *voting rule = majority rule*
  4. If majority approval, $x^t$ is the final allocation. Otherwise, legislators receive $(0, ..., 0)$ in period $t$
     - *voting procedure = successive procedure*
     - *Flow payoff with impatient players*
     - *exogenous status quo* $(0, ..., 0)$

## An example:

- 3 legislators must divide \$10
- Suppose equilibrium is efficient (no delay)
- Symmetry $\Longrightarrow$ value of the game is $\left(\frac{10}{3}, \frac{10}{3}, \frac{10}{3}\right)$
- Best strategy for first proposer (say 1):
    - expropriate one legislator, say 2
    - and propose her continuation value $\delta\frac{10}{3}$ to the other legislator
    - immediately accepted by 1 and 3
- Outcome of the game:

$$\left(10 - \delta\frac{10}{3}, 0, \delta\frac{10}{3}\right).$$

# General results:

- Stationary, stage undominated equilibria exist (Banks and Duggan 00)
- Equilibrium outcome is unique (Eraslan 02)
- Interesting predictions:
  - size of the winning coalition:
    Proposer gives their continuation value to a bare majority of legislators (closed rule) and 0 to all other legislators
  - proposal power:
    Proposer gets disproportionate share of the pie, $\nearrow$ with impatience
  - efficiency: no delay (closed rule)

# An application: pork barrel politics (Baron AJPS 1991)

- Same bargaining model as BF 89
- Different policy space:
  - Approval of a project with concentrated benefits and dispersed costs
  - Benefits $B$ freely allocated among $N$ districts
  - Cost $T$ divided equally among all districts (general taxation)
- Equilibrium (with a closed rule):
  - Some inefficient projects ($B < T$) are funded
- Conclusion: majoritarian incentives to collective costs and concentrate benefits lead to inefficiencies

# Legislative decision procedures: The devil is in the details

# Bernheim et al. Ecta 2006
# The power of the last word

# Model:

- $N$ legislators, finite policy space $X$, finite bargaining horizon $T$.
- A sequence of proposer $\left(p^1, ..., p^T\right) \in N^T$.
  - *Deterministic, but non monopolistic proposer*
- Each period $t$ starts with a default policy $d^t \in X$ (exogenous initial default $d^1$):
  1. Legislator $p^t \in N$ proposes a policy $x^t \in X$.
     - *Endogenous agenda, real time agenda setting*
  2. All legislators vote on the proposal $x^t$.
     - *Voting rule = majority rule*
  3. If majority approval, $x^t$ becomes the new default: $d^{t+1} = x^t$. Otherwise, default stays the same: $d^{t+1} = d^t$. Go to period $t+1$.
     - *Voting procedure = amendment procedure*
     - *Final payoff: last default $d^{T+1}$ is the outcome*

# An illustrative example:

- 3 legislators divide \$10 (no decimal), $p^T = 1$, $p^{T-1} = 2$
- in period $T$, given $d^T$, legislator 1 proposes

$$x^T = \begin{cases} \left(10 - d_2^T, d_2^T, 0\right) & \text{if } d_2^T \leq d_3^T, \\ \left(10 - d_3^T, 0, d_3^T\right) & \text{if } d_2^T \geq d_3^T. \end{cases}$$

- In period $T-1$, given $d^{T-1}$,
  - legislator 2 proposes $x^{T-1}$ with $x_2^{T-1} \leq x_3^{T-1}$, and $x_2^{T-1}$ as large as possible, so $x_2^{T-1} = x_3^{T-1}$.
  - Legislator 1 approval requires $x_2^{T-1} \leq \min\left(d_2^{T-1}, d_3^{T-1}\right)$, so

$$x^T = \left(10 - \min\left(d_2^{T-1}, d_3^{T-1}\right), \min\left(d_2^{T-1}, d_3^{T-1}\right), 0\right).$$

- If $p^t = 1$ for some $t < T-1$, then she can propose $x^t = (10, 0, 0)$, legislator 3 accepts

# Main result: the power of the last word

Under mild conditions (sufficiently many different proposers):

- The bargaining game is Condorcet consistent
- But when no Condorcet exists, the last proposer $p^T$ has (almost) dictatorial power!

# Application: pork barrel projects

- Policy space:
  - One pork barrel project $\Pi_n$ for each legislator $n \in N : \Pi_n$ has benefits only for district $n$, paid by general taxation
  - Collective decision: which projects $\Pi_1, ..., \Pi_N$ should be funded?
- In the last round, the last proposer
  - will exclude at least $\frac{N-1}{2}$ project (needs only a majority approval)
  - will include only those necessary to get majority approval (cheapest minimal coalition)
- In previous rounds, the legislators of these $\frac{N-1}{2}$ excluded districts and the last proposer prefer to exclude all other projects (lower taxes) $\Longrightarrow$ only the project of the last proposer is funded!

# Diermeier and Fong QJE 2011 Legislative bargaining with reconsideration

# Model:

- $N$ legislators, finite policy space $X$, infinite bargaining horizon
- Legislator 1 is the proposer in all periods (*monopolistic proposer*)
- Each period $t$ starts with default policy $d^t \in X$ ($d^1$ exogenous)

1. Legislator 1 may propose a policy $x^t \in X$.
    - *Endogenous agenda, real time agenda setting*
2. All legislators vote on $x^t$.
    - *Voting rule = majority rule*
3. If majority approval, $x^t$ becomes new default: $d^{t+1} = x^t$.
   Otherwise, default stays the same: $d^{t+1} = d^t$.
    - *Voting procedure = amendment procedure*
    - *Flow payoffs with patient players* $\delta \to 1$

# An example:

- 3 players must divide \$10, initial default $d^1 = (3, 3, 4)$
- Without reconsideration ($T = 1$), $x^1 = (7, 3, 0)$ approved by 1 and 2 (Romer and Rosenthal 1978)
- With reconsideration ($T > 1$):
  - If in $t = 1$, $x^1 = (7, 3, 0)$ approved by legislator 2, then in $t = 2$, proposer reconsiders $x^1$ and propose $x^2 = (10, 0, 0)$, approved by 1 and 3.
  - So $(7 - x_3, 3, x_3)$ approved by legislator 2 in $t = 1$ only if $x_3 \geq 3$ $\Longrightarrow$ the best the proposer can do is $x^1 = (4, 3, 3)$, no further reconsideration

# General results:

Stationary Nash equilibria exist (in pure strategies), and equilibrium distribution of benefits is more equal than ...

- ... without reconsideration (Romer and Rosenthal 78):
  - If legislator 2 is expropriated today, legislator 3 will be expropriated in the next period
  - With reconsideration, legislators protect each other to avoid being expropriated in the next period
- .... with a non monopolistic proposer (Kalandrakis 04, 07, Bernheim et al. 06):
  - If legislator 2 is expropriated and legislator 3 is next proposer, she gets the full surplus
  - With non monopolistic proposer, legislators expropriate each other in case they become next proposer

# Dynamic Models of Legislative Bargaining

# What do you mean by dynamic?

- Almost all aforementioned models of legislative bargaining are sequential but not dynamic!
  - Legislature adjourns once a decision is taken
- Diermeier and Fong 11, Baron 96, Kalandrakis 04, 07, Anesi 10 have more than one policy period, but underlying environment is static (preferences do not evolve over time)

# Dynamic linkage

- Adding dynamics is interesting only if there is a dynamic linkage across bargaining periods
- Dynamic linkages in legislative bargaining:
  - direct policy linkage: current fiscal policy affect future public debt (Battaglini and Coate 07, 08...)
  - indirect policy linkage: current policy affect private investment decisions, which affect future preferences
  - endogenous status quo: current policy determines next status quo (Riboni and Ruge Murcia 08, Diermeier and Fong 09, Duggan and Kalandrakis 11, Dziuda and Loeper 11)

# Dziuda and Loeper 2011

# Dynamic voting with endogenous status quo


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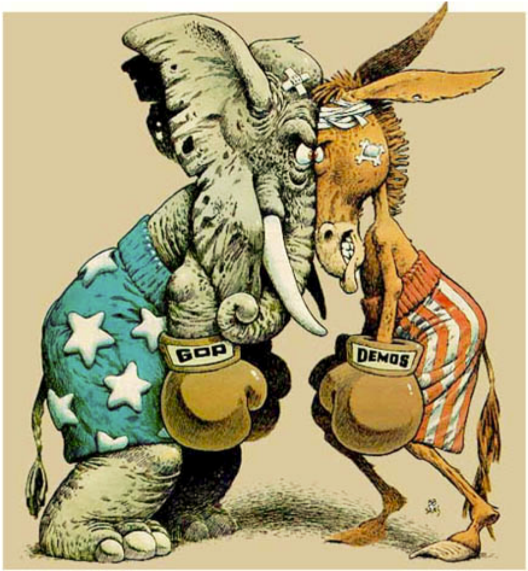
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# Preview of the results

- We build a tractable model which isolates the effect the endogenous the status quo
- We show:
  a) endogenous status quo generates behavior resembling partisanship
     $\longrightarrow$ exacerbates players' conflict of interests
  b) endogenous status quo decreases the responsiveness of policies to the environment
     $\longrightarrow$ can lead to complete gridlock
  c) the institution of the endogenous status quo is generally inefficient:
     $\longrightarrow$ mitigated by sunset provisions and concentrating decision rights

# The Basic Model

# The Game

- Two players $i$ and $j$
- Infinite horizon
- In each period $t$, one of two alternatives $y^t \in \{L, R\}$ is adopted
- Utility of player $k \in \{i, j\}$ in period $t$ from alternative $y^t$ is

$$U_k^t(y) = \begin{cases} -\theta_k^t \text{ if } y^t = L \\ \theta_k^t \text{ if } y^t = R \end{cases}$$

- $\boldsymbol{\theta}^t = \left(\theta_i^t, \theta_j^t\right)_{t=1..T}$ follows a Markov process

# The Leading Example

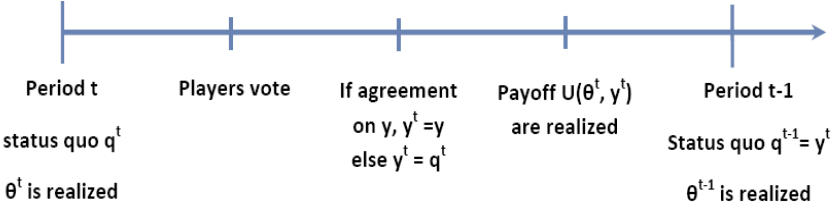
- For all $t \geq 1$,

$$\begin{aligned} \theta_i^t &= \bar{\theta}_i + \varepsilon^t \\ \theta_j^t &= \bar{\theta}_j + \varepsilon^t \end{aligned}$$

- $\varepsilon^t$ is the common shock, $\bar{\varepsilon} = 0$
  - i.i.d. over time
  - p.d.f. $f$
- $\bar{\theta}_k$ is the ideology of player $k \in \{i, j\}$
  - by convention, $\bar{\theta}_i > \bar{\theta}_j$

# Timing

- $q^t$ : status quo at the beginning of period $t$




- Solution concept: stage undominated Markov equilibrium (Baron and Kalai 93)

# The Equilibrium

# The equilibrium: characterization

## Proposition (1)

- *Equilibria are in cutoff strategies:* *player* $k \in \{i, j\}$ *votes for R if* $\theta_k^t > c_k$ *and for L if* $\theta_k^t < c_k$
- *Equilibrium cutoffs* $\mathbf{c}$ *are the fixed points of* $\mathbf{H}$ *where*

$$H_k(\mathbf{c}) = \delta \int_{c_i - \bar{\theta}_i}^{c_j - \bar{\theta}_j} (c_k - \theta_k(\varepsilon)) f(\varepsilon) d\varepsilon$$

- *For all equilibrium cutoffs,* $c_i < 0 < c_j$

▸ Proof

# Voting bias

- $c_k$ can be viewed as the **voting bias** of player $k$
  - when $c_k \neq 0$, player $k$ votes against his preferences to secure a favorable status quo
  - direction of the bias of player $k$ depends only on her **relative** ideological position ($\bar{\theta}_i \gtrless \bar{\theta}_j$)

## Remark

*With an exogenous status quo, equilibrium voting thresholds are* $(0, 0)$
*With an endogenous status quo,* $\mathbf{c} = (0, 0)$ *is an equilibrium only when* $\bar{\theta}_i = \bar{\theta}_j$

# Partisanship and disagreement

- With an endogenous status quo, players disagree in $t$ iff $\theta_i^t$ and $\theta_j^t$ are on opposite side of $c_i$ and $c_j$, i.e., when

$$\varepsilon^t \in \left[c_i - \bar{\theta}_i, c_j - \bar{\theta}_j\right],$$

- With an exogenous status quo, players disagree in $t$ iff

$$\varepsilon^t \in \left[-\bar{\theta}_i, -\bar{\theta}_j\right].$$

## Proposition (2)

*The endogeneity of the status quo exacerbates ideological differences*

$\longrightarrow$ *increases probability of disagreement* $\Rightarrow$ *status quo inertia*

$\longrightarrow$ *decreases responsiveness to shocks*

- We call $|c_k|$ the **partisanship** of player $k$ Example

# Determinants of partisanship

**Proposition (3)**

*At the least (most) partisan equilibrium*

a) *Partisanship increases with* **patience***: if* $\delta < \delta'$,

$$c_i\left(\delta'\right) < c_i\left(\delta\right) < 0 < c_j\left(\delta\right) < c_j\left(\delta'\right)$$

b) *Partisanship increases with* **preference polarization***: if* $\bar{\theta}'_j < \bar{\theta}_j < 0 < \bar{\theta}_i < \bar{\theta}'_i$,

$$c_i\left(\bar{\boldsymbol{\theta}}'\right) < c_i\left(\bar{\boldsymbol{\theta}}\right) < 0 < c_j\left(\bar{\boldsymbol{\theta}}\right) < c_j\left(\bar{\boldsymbol{\theta}}'\right)$$

$\Rightarrow$ Policy responsiveness decreases with patience and preference polarization

# Polarization and gridlock:

**Proposition (4)**

*There exists $M_i, M_j$ such that if $\bar{\theta}_i \geq M_i$ and $\bar{\theta}_j \leq M_j$,*

$$\begin{aligned} \lim_{\delta \to 1} c_i(\delta) &\to -\infty, \\ \lim_{\delta \to 1} c_j(\delta) &\to +\infty \end{aligned}$$

$\Rightarrow$ Endogenous status quo leads to complete gridlock

**Remark**

*Gridlock occurs for modest degrees of polarization:*

- *If $\varepsilon \sim N(0, \sigma_\varepsilon)$, $\bar{\theta}_i = -\bar{\theta}_j = 0.35\sigma_\varepsilon$ is enough*

# Welfare Analysis

# Mitigating the effect of the endogenous status quo

(i) Exogenous status quo: designating $q = R$ or $L$ as a fixed status quo in every period

(ii) Concentrating decision rights

# Exogenous versus endogenous status quo

**Proposition (5)**

*There exists $q \in \{L, R\}$ such that fixing the status quo at $q$ is socially better than having an endogenous status quo*

**Bottom line:** support for institutions that sever the link between today's decision and tomorrow's status quo

**Exogenous status quo:** not the norm in legislative bargaining, but is quite common (discretionary spending or farm bills in the US)

# Sunset provisions:

- An automatic sunset provision is strategically equivalent to an exogenous default
- Sunset provisions are usually advocated for:
  - legislative oversight of executive agencies (e.g. U.S. State Sunset Laws)
  - ex-post evaluation of policies with uncertain effects (e.g. R&D subsidies)

- The paper provides a new, strategic rationale for automatic sunset provisions:
  sunset provisions unbundle today's policy and tomorrow's status quo
  - $\Rightarrow$ softens the conflict of interests between legislators
  - $\Rightarrow$ increase responsiveness of policies to the environment

# Concentrating Decision Rights

In the 2-player game, the only way to concentrate decision power is dictatorship

**Proposition**

*Dictatorship of $i$ or $j$ socially dominates the endogenous status quo*

More surprisingly, both players may prefer to give up their veto power

▸ C

# N players and voting rules

# N player and supermajority rule

- As in the 2 player game:
  - Preferences of player $k \in \{1..N\}$ in period $t$:

$$\theta_k\left(\varepsilon^t\right) = \bar{\theta}_k + \varepsilon^t$$

  - $\bar{\theta}_1 > .. > \bar{\theta}_N$ are the ideologies of the voters
  - $\varepsilon^t$ is the common shock, i.i.d. over time, p.d.f. $f$, and $\bar{\varepsilon} = 0$

- To change the status quo, at least $M$ players must vote for the other alternative, $(N/2 < M \leq N)$

# The equilibrium

## Proposition (6)

- *Equilibria are in cutoff strategies*
- *When* $M > \frac{N+1}{2}$
  - *for all equilibria,* $c_1 < .. < c_N$ *and* $c_M < 0 < c_{N-M+1}$
  - *the* $M^{th}$ *most rightist and* $M^{th}$ *most leftist players are always pivotal*
  - *the equilibrium cutoffs* $\mathbf{c}$ *are the fixed points of* $\mathbf{H}$ *where*

$$H_k\left(c_1, .., c_N\right) = \delta \int_{c_{N-M+1}-\bar{\theta}_{N-M+1}}^{c_M-\bar{\theta}_M} \left(c_k - \theta_k\left(\varepsilon\right)\right) f\left(\varepsilon\right) d\varepsilon$$

- *When* $M = \frac{N+1}{2}$ *(majority rule),* $c_1 = .. = c_N = 0.$

# Partisanship and supermajority:

**Proposition (7)**

*As the supermajority $M$ increases, the disagreement region*

$$\varepsilon^t \in \left[c^t_{N-M+1}(M) - \bar{\theta}_{N-M+1}\ ,\ c^t_M(M) - \bar{\theta}_M\right],$$

*increases via*

- *the preference polarization of pivotal players:* $\bar{\theta}_M \downarrow, \bar{\theta}_{N-M+1} \uparrow$
- *but also via their partisanship:* $c^t_M(M) \uparrow, c^t_{N-M+1}(M) \downarrow$

$\Rightarrow$ As $M$ increases, more disagreement because:

- more voters have to agree
- voters become more partisan

# Welfare and Supermajority

In the $N$-player game, concentrating decision power can be done by decreasing supermajority $M$

## Proposition (8)

*If the distribution of preferences is not too skewed ($\sum_k \bar{\theta}_k \simeq \bar{\theta}_{\frac{N+1}{2}}$), welfare is decreasing in supermajority $M$*

- More generally, more checks and balances generates more partisanship and lower welfare ▸ TJ

▸ C

# CONCLUSION

# To take home

Despite its pervasiveness, the endogenous status quo

- exacerbates the conflict of interests between players
- can lead to a complete gridlock
- is inefficient

The detrimental effect of the endogenous status quo can be mitigated by

- Sunset provisions
- Concentrating decision rights

# Open questions and future research

- Why is the endogenous status quo so common in practice?
  - what should the law revert to after a provision has expired?
- Strategic sunset provisions
- More than 2 alternatives
  - Omnibus bills: combining expiring (pork) and lasting (entitlements) policies
  - Allow for policy compromise
- Policy affect future state of the economy (e.g. monetary policy over the business cycle)
- Policy uncertainty

# Thank you

# Thomas Jefferson on Sunset Provisions

**[T]he power of repeal is not an equivalent [to mandatory expiration]**. *It might indeed be if [...] the will of the majority could always be obtained fairly and without impediment. But this is true of no form. [...] Various checks are opposed to every legislative proposition. [...] and other impediments arise so as to prove to every practical man that* **a law of limited duration is much more manageable than one which needs a repeal.**

Back

# The equilibrium

- Stage undominated strategy: player $k$ votes for $R$ when

$$\begin{aligned}\theta_k + \delta V_k(R) &> -\theta_k + \delta V_k(L) \\ &\Leftrightarrow \theta_k > \frac{\delta}{2}\left[V_k(L) - V_k(R)\right]\end{aligned}$$

  and for $L$ when

$$\theta_k < \frac{\delta}{2}\left[V_k(L) - V_k(R)\right]$$

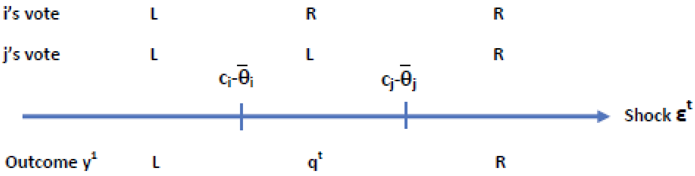
- Player $k$ uses voting cutoff

$$c_k = \frac{\delta}{2}\left[V_k(L) - V_k(R)\right]$$

- $c_k$ is player $k$'s preference over the next status quo

# The equilibrium (continued)

- Player $k$ uses voting cutoff $c_k = \frac{\delta}{2}\left[V_k\left(L\right) - V_k\left(R\right)\right]$
- Players' vote:

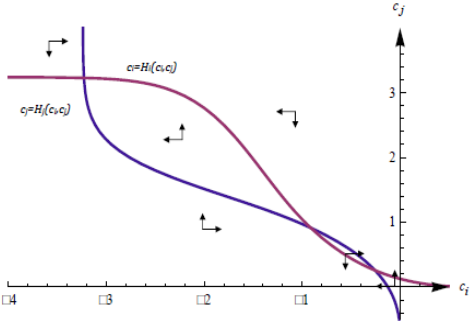



- Status quo matters only in case of disagreement in next period:

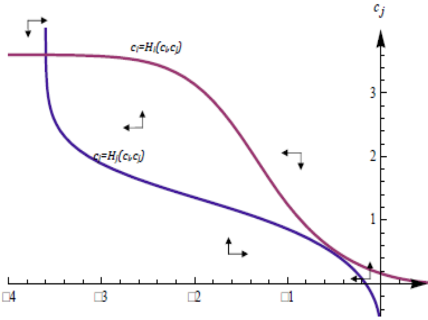
$$V_k\left(L\right) - V_k\left(R\right) = \int_{c_i-\bar{\theta}_i}^{c_j-\bar{\theta}_j}\left[\left(-\theta_k + \delta V_k\left(L\right)\right) - \left(\theta_k + \delta V_k\left(R\right)\right)\right] f(\varepsilon)d\varepsilon$$
$$\Rightarrow c_k = \delta \int_{c_i-\bar{\theta}_i}^{c_j-\bar{\theta}_j}\left[c_k - \theta_k\left(\varepsilon\right)\right] f(\varepsilon)d\varepsilon$$

Back

# Example




$\varepsilon \sim N(0,1)$ and $\bar{\theta}_i = -\bar{\theta}_j = 0.35$




$\varepsilon \sim N(0,1)$ and $\bar{\theta}_i = -\bar{\theta}_j = 0.4$

# Strategic interaction

- Players' partisanships are strategic complements:
  more partisanship $\Rightarrow$ more disagreement $\Rightarrow$ status quo is more important $\Rightarrow$ more partisanship
  - $\longrightarrow$ Partisanship feeds on itself
  - $\longrightarrow$ Equilibrium multiplicity

- Players' partisanships have negative spillovers: $U_k(c_k, c_{k'})$ is decreasing in $|c_{k'}|$
  - $\longrightarrow$ Equilibria are Pareto ranked
  - $\longrightarrow$ The least (most) partisan equilibrium is the Pareto best (worse)

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