# Legislative Politics <br> Lectures 1 and 2 (revised) 

Higher School of Economics

## Allan Drazen

University of Maryland, NBER, and CEPR
October 12-3, 2015

## Political Economy - Overview

- Basic PE question - choosing policy when individuals or groups have diverse preferences
- Using formal economic models to study political processes
* example - formal bargaining models to study legislative decision making
- Studying the effect of "politics" on the choice of policies and their outcomes
* example - allocation of "pork" (transfers, privileges, favorable legislation)
* example - "gridlock" and inability to adopt policy to address a problem
- Typical place to start is:
- direct democracy - voters choose policies directly
- unitary policymakers - voters choose a policymaker who chooses policies
- I will focus on legislative policymaking
- policies chosen by an elected group of representatives


## Legislatures

- In representative democracy, legislatures play a key role in decision-making
- a specific policymaking system is used (e.g., parliamentary versus presidential system)
- with rules on how legislatures are chosen (majoritarian districts, proportional representation, mixture)
- and rules on how the legislature operates (committee systems, amendment rules, rules on interaction with the chief executive)
- Leading to a large number of questions
(1) Given the preferences of legislators and the legislative rules, what policies will be adopted?
(2) Given the answer to the above question, whom will voters elect?
(1) we won't look at accountability mechanisms, such as reelection
(3) How will legislative rules, etc. affect outcomes?
(9) What general results are there about the effects of different legislative systems, including welfare implications?


## Legislative Bargaining - Baron and Ferejohn (1989)

- Divide a ruble among a group of $m$ members (legislature)
- one legislator makes a proposal which must be vote up or down before another proposal can be made
* "closed-amendment procedure"
- a proposal needs $q$ votes to pass, $1 \leq q \leq m$
* "minimum winning coalition" or MWC
- if it passes, the proposal is implemented and the game is over
- if proposal fails to receive at least $q$ votes, another legislator is chosen to make a new proposal
- process continues until some proposal secures the required $q$ votes
- under full information the process will end after the first round
- Note the importance of the default if a proposal doesn't pass


## Legislative Bargaining (cont.)

- Agenda setter (i.e., proposer or coalition "formateur") gives reservation level $v^{0}$ to $q-1$ (identical) legislators, keeps $1-(q-1) v^{0}$ for herself, and nothing for the remaining $m-q$ legislators
- What is reservation $v^{0}$ ?
- equal probability of recognition of each legislator as proposer
- A legislator knows that in any round of the game he has a $1 / m$ chance of being the proposer and obtaining $1-(q-1) v^{0}$
- $(q-1) / m$ chance of being any other member of the winning coalition and getting $v^{0}$
- $(m-q) / m$ chance of getting nothing
- suppose risk-neutrality and no discounting
- Reservation transfer is

$$
v^{0}=\frac{1}{m}\left(1-(q-1) v^{0}\right)+\frac{q-1}{m} \times v^{0}+\frac{m-q}{m} \times 0=\frac{1}{m}
$$

- proposer gets $\frac{m-q+1}{m}>\frac{1}{m}$ if $q<m$
- her share rises as $q$ falls to $\frac{1}{2}$ (simple majority rule)
- Coalition formateur assembles MWC in cheapest possible wāy


## Modeling Legislatures - Key Issues

- What are issues where legislatures have potentially differing preferences?
- what is utility of a legislator?
- How are proposals to be considered chosen?
- how is the agenda (or agenda setter) chosen?
- What are proposal, amendment, and voting rules?
- can proposals be amended (counter-offers)?
- how many votes needed to pass?
- other legislative rules
- What is default if no proposal passes?
- alternative agenda setter?
- status-quo?


## What Coalitions Form?

- Basic legislative models have the coalition formateur assemble a minimum winning coalition
- For a purely distributive question such as 'divide-the-ruble' with ex-ante identical legislators, the identity of the legislators is irrelevant
- When legislators have ideology (rather than simply distribution of a pie), composition of MWC reflects the formateur assembling the legislators whose positions are closest to hers (perhaps in exchange for favors)
- ideological composition of legislature matters
- often, looking at a single-dimension "right-left" ordering often predicts very well empirically
- When legislators both care about ideology and "pork" (rubles, "perks", etc.), what do results look like?
- First, let's look at election to legislatures in a simple model of ideological positions


## Election to the Legislature and Coalitions

- Austen-Smith and Banks (1988) present a sequential model of electoral and legislative decision-making in a three-party proportional representation system
- following an election, parties attempt to form a governing coalition, which subsequently chooses a final policy outcome in a bargaining game
- hence, upon observing the platforms $\left(\pi_{\alpha}, \pi_{\beta}, \pi_{\gamma}\right)$ selected by parties, voters can deduce the policy consequences of any distribution of votes and vote accordingly (that is, perhaps strategically)
- this in turn allows the parties to condition their choice of platform on the voters' known responses (and on ultimate legislative implications)
- One obviously solves the model backwards


## Austen-Smith and Banks (1988)

- Legislative stage
- actual policy $\tau$ chosen (formateur's accepted proposal)
- Government Formation stage
- Formateur chosen to form a potential coalition ("proto-coalition") with bargaining over policy and transfers $s_{k}$ to party $k$ where $\sum_{k \in C} s_{k}=S$
- party $k$ 's utility is $U_{k}\left(\tau, s_{k} ; \pi_{k}\right)=s_{k}-\left(\tau-\pi_{k}\right)^{2}$
- party accepts formateur's offer to be in coalition if $U_{k}\left(\tau, s_{k} ; \pi_{k}\right) \geq$ reservation utility
- Election stage
- voter's utility is $u_{i}=-\left(\tau-x_{i}\right)^{2}$ where $x_{i}$ is i's most preferred policy
- voters choose party that gives highest expected utility knowing the policy outcome $\tau$ for any legislature composition
- this determines vote share of each party
- Platform stage
- parties choose platforms to maximize their expected utility knowing implications for electoral outcomes, subsequent probability of being in coalition, and policy outcomes


## Austen-Smith and Banks (1988) - Main Results

- Government consists of parties with highest and lowest vote totals
- parties are invited to form governments in order of their vote shares
$\star$ since second largest party will be the next formateur in round 2 if largest party fails in round 1 , it will have a larger reservation smallest party
* hence largest party will form a coalition with the smallest party
- In a one dimensional issue space, parties' electoral platforms are symmetrically distributed around the median voter's ideal point
- One party stays at the median voter's ideal point, and the other two are symmetric around it
- The party in the middle gets the lowest vote total, but is sure to be in the government
- Some voters may vote strategically (since center party is sure to be in government), though results depend on how votes translate into bargaining power
- votes shares do not reflect distribution of voter preferences


## Baron (1993) - Less Sophisticated Voters

- Austen-Smith and Banks assumes very sophisticated voters (and has a multiplicity of equilibria)
- Baron (1993) doesn't assume that voters are so sophisticated that they can figure out the implications of their vote for bargaining within the legislature
- Voters know platforms, know government formation is result of bargaining, but are not sufficiently sophisticated that they can make predictions about which government will form as a function of how they vote
- Model endogenizes in tractable way:
$\star$ the policies of the parties
$\star$ the electoral support those policies generate
* the government formed
$\star$ the policy implemented by that government


## Voters

- Voters are assumed to believe that party with platform closest to their ideal point will best represent their interests in the bargaining during the government formation process
- policy is a vector $\boldsymbol{\tau}=\left(\tau_{1}, \ldots, \tau_{n}\right)$.
- voter with ideal point $\mathbf{x}$ has a utility function

$$
u(\boldsymbol{\tau}, \mathbf{x})=-\sum_{i=1}^{n}\left(\tau_{i}-x_{i}\right)^{2}
$$

- CDF F (x) of voters' ideal points
- $N_{j} \equiv$ set of voters supporting party $j$ with aggregate utility

$$
v_{j}\left(\boldsymbol{\tau} ; N_{j}\right) \equiv \int_{N_{j}} u(\boldsymbol{\tau}, \mathbf{x}) d F(\mathbf{x})
$$

Party maximizes average utility $A v_{j}\left(\boldsymbol{\tau} ; N_{j}\right) \equiv \frac{v_{j}\left(\tau ; N_{j}\right)}{\left|N_{j}\right|}$ of its members where $\left|N_{j}\right|$ denotes number of supporters of party $j$

- A party may prefer to be: 1 ) small, if that can make its members better off; or 2) large, if that makes it more likely to be in the government (and hence more likely to be able to implement policies that serve the interests of its supporters)


## Parties and Platforms

- Parties care only about issues and choose platform $\pi_{j}(j=1, \ldots, m)$ in anticipation of electoral consequences and subsequent government formation process (conceptually as above)
- with uncertainty about policy $\boldsymbol{\tau}$ that will be implemented by the government formed
- $G(\boldsymbol{\tau}, \bar{\pi}, \bar{N})$ denotes the distribution function of the equilibrium policies as induced by the platforms $\bar{\pi}=\left(\pi_{1}, \ldots, \pi_{m}\right)$ of the parties and by their sets of supporters $\bar{N}=\left(N_{1}, \ldots, N_{m}\right)$
- generated by probabilities $p_{i}$ that parties will be asked to form a government
- $p_{k}=$ vote shares (in the first government formation process) meaning seats in parliament

$$
\star \text { (note on "vote-seat curves") }
$$

NOTE: The function makes this model difficult to solve. Baron-Diermeier has easier set of legislative outcomes, but harder electoral equilibria as voters are "sophisticated",

## Parties and Platforms (cont.)

- The expected aggregate utility $U_{j}(\bar{\pi}, \bar{N})$ for a party that chooses a policy position $\pi_{j}$ (when other parties have platforms $\left(\pi_{1}^{*}, \ldots, \pi_{m}^{*}\right)$ )

$$
U_{j}(\bar{\pi}, \bar{N})=\int_{\mathbf{T}} v_{j}\left(\boldsymbol{\tau} ; N_{j}\right) d G\left(\boldsymbol{\tau} ; \boldsymbol{\pi}_{1}^{*}, \ldots, \boldsymbol{\pi}_{j-1}^{*}, \boldsymbol{\pi}, \boldsymbol{\pi}_{j+1}^{*}, \ldots, \boldsymbol{\pi}_{m}^{*}, \bar{N}\right)
$$

- The party is assumed to choose $\pi_{j}$ to maximize the expected average utility of its supporters of its supporters

$$
\begin{aligned}
\max _{\pi_{j}} A v_{j} & \equiv \frac{U_{j}\left(\pi_{1}^{*}, \ldots, \pi_{j-1}^{*}, \boldsymbol{\pi}, \boldsymbol{\pi}_{j+1}^{*}, \ldots, \pi_{m}^{*}, \bar{N}\right)}{\left|N_{j}\right|} \\
& =\int_{\mathbf{T}} A v_{j}\left(\boldsymbol{\tau} ; N_{j}\right) d G(\boldsymbol{\tau}, \bar{\pi}, \bar{N})
\end{aligned}
$$

## Definition of Political Equilibrium

Set of platforms ( $\boldsymbol{\pi}_{1}^{*}, \pi_{2}^{*}, \ldots, \pi_{m}^{*}$ ), votes, and government formation strategies satisfying:
(1) Voter votes for party closest to ideal point, i.e., for party $j$ iff

$$
u\left(\pi_{j}^{*}, x\right) \geq u\left(\pi_{k}^{*}, x\right) \text { for all } k \neq j
$$

(2) Party $j(j=1, \ldots, m)$ chooses $\pi_{j}$ (from which parties bargain in the government formation process).to maximize average expected utility of its supporters:

$$
\pi_{j}^{*}=\underset{\pi}{\arg \max } \frac{U_{j}\left(\pi_{1}^{*}, \ldots, \pi_{j-1}^{*}, \pi, \pi_{j+1}^{*}, \ldots, \pi_{m}^{*}, \bar{N}\right)}{\left|N_{j}\right|}
$$

(3) Proposals $\tau^{*}$ made by a party when it is given the opportunity to form a government, as well as a specification of how parties will vote when a government is proposed. Government formation equilibrium that results implies a distribution $G^{*}\left(\tau^{*}, \bar{\pi}^{*}, \bar{N}^{*}\right)$.

## Baron and Diermeier (2001)

- Model with Ideology and Rents
- Parties are explicitly modeled as having underlying preferences over policies (unlike Baron [1993]) and about rents from holding office (pork, portfolios)
- voters for parties get no rents and only care about policies
$\star$ since voters get no rents, vote shares (party size) doesn't matter in cost of bringing a party into the coalition
- Comparison with Baron (1993)
- easy to solve for equilibrium policies given the coalition that forms
- relatively easy to solve for which coalitions form given seat shares
- voting stategies are more complicated, since, as in Austen-Smith and Banks, voters are fully forward-looking


## Coalitions and Party Size

- Who gets in coalition depends simply on cost to formateur of bringing them in
- not on party size per se as long as government has at least a majority of seats
- the transfer $s_{j}$ could be negative (rents go from legislator $j$ to formateur) depending on status quo
- How then does party size matter?
- whether a single party has a majority (and can enact its most preferred policy)
- probability of being formateur if no party has a majority
- getting into the legislature at all if there are vote threshholds


## Model Set-up

- Two policy dimensions
- preferences of a voter with ideal point $\mathbf{x}$ are represented by a utility function

$$
u(\boldsymbol{\tau} ; \mathbf{x})=-\left(\tau_{1}-x_{1}\right)^{2}-\left(\tau_{2}-x_{2}\right)^{2}
$$

- Voters are assumed to be symmetrically and uniformly distributed about the centroid of the Pareto set of the parties, so no party has a natural electoral advantage
- Three parties, each with preferences for both policies and office-holding benefits $s_{j}$, where $\sum s_{j}=S$ and $s_{k}=0$ if party $k$ is not in government
- preferences of party $j(j=1,2,3)$ are represented by

$$
u^{j}\left(\boldsymbol{\tau}, s_{j}\right)=u^{j}(\boldsymbol{\tau})+s_{j}
$$

where $\mu^{j}(\boldsymbol{\tau})=-\left(\tau_{1}-x_{1}^{j}\right)^{2}-\left(\tau_{2}-x_{2}^{j}\right)^{2}$

## Model Set-up (cont.)

- In the basic model the parties' ideal points are assumed to be symmetrically located so that the governments that form are based on "institutional characteristics and strategies rather than on preference alignments"
- this begs the question of where these preferences come from
* they could represent underlying preferences of the party's core voters
- but they are not simply electorally advantageous electoral platforms as in Baron (or are they for Republican presidential candidates?)
- assymmetric ideal points relative to voter preferences would give some parties inherent electoral advantages
- Instead, status quo $\tau^{S Q}$ is crucial in determining outcomes
- In a dynamic version, $\tau^{S Q}$ when a government is formed is the policy in place under the previous government
- policy chosen by the new government becomes the status quo for the following period
- if a new policy is not enacted, the status quo remains in place


## Most Preferred Policies and Bargaining Outcomes


$\mathbf{x}^{j}=$ most preferred policy of party $j(j=1,2,3)$
$\tau^{i j}=$ adopted policy if $i$ and $j$ in 2-party coalition $\bar{x}=$ adopted policy if $i$ and $j$ in 3-party ("grand")coalition

## Proto-Coalition Bargaining

- Let $C$ be a proto-coalition with a majority of seats. A party $j$ votes for a proposal $\left(\boldsymbol{\tau}^{C}, \mathbf{s}^{C}\right)$ if and only if

$$
u^{j}\left(\tau^{C}\right)+s_{j}^{C} \geq u^{j}\left(\tau^{S Q}\right)
$$

- An efficient government policy $x^{C}$ for $C$ is given by

$$
\left(\boldsymbol{\tau}^{C}, \mathbf{s}^{C}\right) \in \underset{\tau, s}{\arg \max } \sum_{j \in C}\left[u^{j}(\boldsymbol{\tau})+s_{j}\right]
$$

- subject to

$$
\sum_{j=1}^{3} s_{j} \leq S \text { or } \sum_{j \in C} s_{j}=S
$$

- since non-coalition members get $s_{k}=0$


## Bargaining Outcomes - Policy

- With transferable utility ( $s_{j}$ enters utility linearly) the formateur maximizing her own utility is equivalent to maximizing utility of the coalition $-\sum_{j \in C}\left[u^{j}(\boldsymbol{\tau})+s_{j}\right]=\sum_{j \in C} u^{j}(\boldsymbol{\tau})+S$
- with transferable utility, the maximizing bargaining solution must be efficient
- Given quadratic utility the policy chosen is simply

$$
\tau_{h}^{C}=\frac{1}{|C|} \sum_{i \in C} x_{h}^{i} \quad h=1,2
$$

which is independent of the aggregate office-holding benefits and the seat shares of the parties

## Bargaining Outcomes - Transfers

- When the formateur makes a take-it-or-leave-it offer to obtain $j$ 's support, she offers just enough to bring him in

$$
\left(s_{j}^{C}=u^{j}\left(\tau^{S Q}\right)-u^{j}\left(\boldsymbol{\tau}^{C}\right)\right)
$$

- hence, utility of a coalition member other than the formateur is simply $\omega^{j}\left(\tau^{S Q}\right)$
- $s_{j}^{C}<0$ if $u^{j}\left(\tau^{S Q}\right)<\omega^{j}\left(\boldsymbol{\tau}^{C}\right)$
$\star$ formateur uses her position to extract rents
- The utility of the formateur $i$ is

$$
u^{i}\left(\tau^{C}\right)+S-\sum_{j(\neq i) \in C} s_{j}^{C}=\sum_{j \in C} u^{j}\left(\tau^{C}\right)-\sum_{j(\neq i) \in C} u^{j}\left(\tau^{S Q}\right)+S
$$

- Parties not in coalition get $s_{k}=0$ and utility $u^{k}\left(\tau^{C}\right)$


## Government Formation

- Given the formateur's utility from each potential (or proto-) coalition, the choice of a potential coalition is a straightforward maximization problem
- The formateur's choice depends on the number of parties represented in parliament and whether some party commands a majority of seats
- Majority Parliaments
- In a three-party parliament, a majority party may form one of three types of governments - surplus (with one other party), consensus (with both of the other parties), or single-party, in which case the policy is at its ideal point
- the first two options would occur if it can extract sufficient rents


## Minority Parliaments

- Minority Parliaments
- no party commands an absolute majority.
- the formateur may either select one of the other parties to form a minimal winning government or may form a consensus government that includes all three parties
- minimal winning coalition government is with the party whose ideal point is farther from the status quo $\tau^{S Q}$,
- best bargain for formateur is with party in the weaker bargaining position
» party that is most disadvantaged by the status quo - that is, party that would be worst off if no new government formed and the status quo persisted
- A consensus government is attractive when both government partners seek substantial policy changes from the status quo and make office-holding concessions $\left(s_{j}^{C}<0, s_{k}^{C}<0\right)$ to the formateur to obtain these changes


## Examples - Two Party Government



- Party 1 as formateur forms a government with party 2
- party 2 as formateur would join with party 3 and vice-versa
- Formateur seeks the best bargain and that is with the weakest party
- the party that would be worst off if the status quo persisted


## Examples - Two Party Government or Consensus



- Party 1 as forms a consensus (3-party) government

$$
W^{1}(\bar{x})>W^{1}\left(\mathbf{x}^{13}\right) \text { and } W^{1}(\bar{x})>W^{1}\left(\mathbf{x}^{12}\right)
$$

- Parties 2 or 3 as formateur from two-party governments


## How and When is "Pork" Distributed?

- An MWC will give benefits to its members - "business as usual"
- When will BAU be observed?
- Will legislators still take pork in "national emergencies"?
- Battaglini and Coate (2008) - dynamic model of pork
- how a standard feature of legislative policy-making (pork-barrel politics) distorts fiscal policy


## Battaglini and Coate - Simplified Static Version

- Legislature consisting of 3 districts, each of size 1
- Preferences

$$
u\left(c^{i}, l, g\right)=c^{i}-\frac{l^{\frac{1}{\varepsilon}+1}}{\varepsilon+1}+A g^{\gamma}
$$

- $A$ is the realization of a random variable with range $\left[A_{0}, A_{1}\right]$ with a cumulative distribution function $F(A)$
- realization $A$ is common knowledge
- Households maximize utility over budget constraint

$$
c^{i}=(1-\tau) /+s^{i}
$$

pre-tax wage $=1 ; \tau=$ (distortionary) labor taxes; $s^{i}$ are transfers from the government (pork)

- Indirect utility function (from $\left.I(\tau)=[\varepsilon(1-\tau)]^{\varepsilon}\right)$

$$
U\left(s^{i}, \tau, g ; z\right)=\hat{u}(\tau)+A g^{\gamma}+s^{i}
$$

- where $\hat{u}(\tau)\left(\equiv \frac{\varepsilon^{\varepsilon}[(1-\tau)]^{\varepsilon+1}}{\varepsilon+1}\right)$ is utility from leisure and consumption financed by labor income


## Fiscal Policy

- The public good is provided by the government
- Government can raise revenue by levying a proportional tax on labor income.
- Fiscal policy is a choice of a policy vector $\left\{g, \tau, s^{1}, s^{2}, s^{3}\right\}$ subject to the budget constraint

$$
g+\sum_{i} s^{i}+X \leq R(\tau)
$$

- Government revenue $R(\tau) \equiv 3 / \tau=3 \tau \varepsilon^{\varepsilon}(1-\tau)^{\varepsilon}$
- $X=$ pre-existing revenue needs (e.g., debt service)
- this will play role of debt service requirements in the B-C dynamic model
- Net of transfer surplus denoted by

$$
B(\tau, g ; X)=R(\tau)-g-X
$$

- such that $B(\tau, g ; X) \geq \sum_{i} s^{i}$
- such that $s^{i} \geq 0-$ no lump sum taxation.


## Legislative Decisions

- Closed-amendment procedure with probability $1 / 3$ of being the proposer where $q=2$ votes need to pass a proposal
- "transferable utility" - due to linearity of utility in $c^{i}$ and transfers $s^{i}$
- total utility determined by total amount available for transfers $\sum s^{i}$ with exact distribution determining who gets utility be leaves total unchanged
- since $g$ and $\tau$ affect all equally, the proposer is effectively making decisions to maximize the utility of 2 legislators in coalition
- as if a randomly chosen MWC of 2 representatives is selected in each period and this coalition chooses a policy choice to maximize its aggregate utility


## Types of Equilibria

- In any state $(A, X)$, there are two possibilities
- either the MWC will provide pork to the districts of its members or it will not
- providing pork requires reducing public good spending or increasing taxation
$\star$ when $A$ and/or $X$ are sufficiently high, the marginal benefit of spending on the public good and the marginal cost of increasing taxation may be too high to make this attractive
- In this case, the MWC will not provide pork and the outcome will be as if it is maximizing the utility of the legislature as a whole
- If the MWC does provide pork, it will choose a $(\tau, g)$ that maximizes coalition aggregate utility under the assumption that they share the net of transfer surplus


## "Business as Usual" - BAU

- $(\tau, g)$ solves the problem:

$$
\max _{g, \tau} \hat{u}(\tau)+A g^{\gamma}+\frac{B(\tau, g ; X)}{q}
$$

for $B(\tau, g ; X)=R(\tau)-g-X=$ what is left over for transfers

- Optimal tax rate $\tau^{B A U}$ satisfies first-order condition that

$$
\frac{1}{2}=\frac{\left[\frac{1-\tau}{1-\tau(1+\varepsilon)}\right]}{3}
$$

- benefit of raising taxes in terms of increasing the per-coalition member transfer $(1 / 2)$ must equal the per-capita cost $(1 / 3)$ of the increase in the tax rate


## "Business as Usual" - BAU (cont.)

- Optimal public good level $g^{B A U}(A)$ satisfies FOC

$$
\gamma A g^{\gamma-1}=\frac{1}{2}
$$

- per-capita benefit of increasing the public good must equal the per-coalition member reduction in transfers it requires
- MWC will choose pork if the net of transfer surplus at the optimal policy, that is, $B\left(\tau^{B A U}, g^{B A U}(A) ; X\right)>0$
- if not ...


## "Responsible Policy Making" - RPM

- If $B\left(\tau^{B A U}, g^{B A U}(A) ; X\right) \leq 0$ the coalition will provide no pork and its policy choice will then maximize aggregate legislator (and hence citizen) utility $\hat{u}(\tau)+A g^{\gamma}$
- In this case, $\left(\tau^{B A U}, g^{B A U}(A)\right)$ is not feasible given $X$
- $\tau^{R P M} \geq \tau^{B A U}$ and $g^{R P M}(A) \leq g^{B A U}(A)$
- Boundary $\hat{A}(X)$ defined by $B\left(\tau^{B A U}, g^{B A U}(A) ; X\right)=0$ that is, solution to

$$
R\left(\tau^{B A U}\right)-g^{B A U}(A)=X
$$

- $A \geq \hat{A}(X) \Rightarrow s^{i}=0$ RPM
- $\hat{A}(X)$ is downward sloping: higher is $X$ the lower the $A$ that yields RPM
- $\tau^{R P M}$ is increasing in $A$ and $X, g^{R P M}$ is increasing in $A$ and decreasing in $X$.


## Legislator Heterogeneity and Asymmetric Information

- Legislators are homogeneous
- Unlike earlier models, all legislators agree on policy
- All legislature have full information about the value of public goods
- $\Rightarrow$ not surprising that when $A$ is high, there is agreement to forgo pork
- What happens when legislators differ in these regards?
- Legislators are heterogeneous in value assigned to public good

$$
u\left(c^{i}, l, g\right)=c^{i}-\frac{l^{\frac{1}{\varepsilon}+1}}{\varepsilon+1}+\left(\alpha^{i}+z\right) v(g)
$$

- $\alpha^{i}+z$ is value of public goods to district $i$
- $z$ is the same across districts - factors that affect the valuation of $g$ identically
- $\alpha^{i}$ is idiosyncratic to the specific district - ideological differences in the valuation of public goods


## "Kosher Pork"

- Suppose only formateur knows the value of $z$ - the social welfare benefits of pork
- Cukierman and Tommasi AER "When Does It Take a Nixon to Go to China"
- formateur uses policy and allocation of pork to signal the state (say z is high or low)
- When pork transmits information about the value of legislation, its use can increase welfare
- formateur forgoes pork to signal how important legislation is
- Pork can lead to a better equilibrium for exactly the reason it is condemned - it is crucial that a transfer can be made that benefits a specific district or interest at the expense of general welfare
- When pork conveys information, whether pork is welfare-improving depends on
- Level of pre-determined expenditures or indebtedness (cost of pork)
- Relative importance of ideology vs. economic conditions


## Legislatures - "Pivots"

- Why can't legislation be passed if all you need is MWC?
- Krehbiel $(1996,1998)$ - In the U.S. Senate you need "super-majorities" $>50 \%$
- "Filibuster" pivot
- A bill can be discussed until there is a vote for closure of the discussion - 60 votes
- Hence, a minority of $40 \%$ can block a bill
- Presidential veto pivot
- The president can veto any bill which needs a two-thirds majority to override
- Hence, a majority of $67 \%$ is needed
- In short, bills need a "super-majority" to pass


## Legislatures - "Pivots" (cont.)

- Suppose the legislature is made up of 11 legislators on a $L-R$ scale
- median legislator is at $m$
- veto "pivot" at $v-3$ legislators to right and 7 to left
- filibuster "pivot" at $f-6$ legislators to right and 4 to left
- President is an $L$



## Legislatures - Gridlock and Veto Players

- What sort policy change is possible?
- Consider a status quo in regions I or $V-m$ would defeat them
- In contrast, if the status quo were in region III - no policy could defeat the status quo


Figure 2.7
Equilibrium policies in the pivotal politics theory

- More generally, institutions create "veto players"

