5. Bargaining in Legislatures

Spatial models of legislative choice seek to describe or predict how individual legislators make collective choices.
These choices include:
- Policy choices
- Government formation

Types of theories depending on the politicians' objectives:

1. Office-seeking theories:
   - 1.1 Policy blind theories
   - 1.2 Policy as a means to simplify bargaining.
   - 1.3 Bargain over policy as a form of electoral competition.
   - 1.4 Policy bargaining as a means to hold on to the party leadership.
2. Policy driven theories:
   - 2.1 One dimensional policy space.
   - 2.2 Multidimensional policy space.

---

1. Office-seeking theories:

1.1 Policy blind theories

Coalition bargaining is viewed as a constant sum game.
The main objective is to be included in the winning coalition.
This implies that any party not essential to the coalition will be kept out.

1.1.1 Minimal Winning Coalition Theory

Minimal winning coalition (MWC) is a winning coalition such that if one member leaves the coalition, it turns into a losing coalition.
Proposed by von Neumann and Morgenstern.

The prediction that MWC will form is the most frequently cited and best known result in coalition theory. But its predictions may not seem very successful: in Europe between 1945 and 1987 out of 218 governments only 77 (35%) were MWC.

European Coalition Governments by type, 1945-1987:

	Number of cabinets	% of total	% of cabinets in minority
Majority situations			
Single party	14	6	-
Surplus majority coalition	8	4	-
Minority situations			
Surplus majority coalition	46	21	24
Minimal winning coalition	77	36	39
Minority government	73	33	37
Total	218	100	100

But one should also take into account the success of such coalitions.
Consider the results of the general elections in the Netherlands in 1971 and 1972. There were16.383 different arithmetically possible coalitions after each of these elections, of which 8.192 were winning coalitions.
During this period three coalitions actually formed: a MWC, a short-lived minority caretaker government, and a surplus majority government. Thus, the success rate of the MWC theory is 1:3. Furthermore, to succeed in picking the right coalition out of 16.383 in three trials is an important achievement.
In complicated bargaining situations generated by large party systems, the MWC theory is not satisfactory because there are too many MWC.

1.1.2 <u>Minimum Winning Coalition Theory</u>
In an attempt to reduce the large number of predictions of MWC theory, Riker suggested a more precise approach.
Using the assumption that each party expects to receive a larger share of the payoff the greater the weight it brings to a winning coalition, Riker predicted that Minimum winning coalitions would form.
Minimum winning coalition: a subset of the MWC comprising those with the smallest total weight.
Such coalitions maximize the expectations of each coalition member.
Quite often this theory yields a unique prediction, even in complex bargaining situations.

In the real world minimum winning coalitions (bare majorities) may not be good enough. Often parliaments operate with working majorities: a majority that holds out the prospect that the government will be able to govern over most of the expected lifetime of the legislature. Thus, government members are assumed to prefer having a few seats over and above the bare minimum as a cushion against accidental government defeats, and other natural or man-made disasters.

1.1.3 <u>Minimal winning coalitions with the smallest number of parties</u>
Another way to reduce the number of minimal winning coalitions was proposed by Leiserson by focusing on coalitions with the smallest number of parties.
This theory is based on the bargaining proposition: the smaller the number of parties in a coalition, the easier they will find it to reach an agreement.
The bargaining proposition theory tends to make fewer predictions than the MWC theory but more than the minimum winning coalition theory.

Comparing them:
Empirical results show that MWC theory outperforms the other two, and the minimum winning coalition theory does the worst of the three.

1.2 <u>Policy as a means to simplify office-seeking bargaining</u>
Policy compatibility is treated as another type of bargaining proposition: it is assumed that it is easier to reach an agreement between parties closer to each other in terms of policy.
The relevance of policy can take different forms:

Policy is the main motivation (de Swaan). Discussed in the next section.
Policy is only an aid to bargain (Axelrod)

1.2.1 Minimal connected winning coalitions

Axelrod proposes a minimal connected winning coalition theory (MCW).
This theory predicts that coalitions that form will be ideologically connected in the sense that all members of a coalition are adjacent to each other in the policy dimension (unidimensional space).
Minimal connected winning coalitions (MCW) are those such that the loss of a member renders the coalition either no longer winning or no longer connected.
Notice that MCW coalitions might not be MWC and MWC might not be MCW.

If parties are motivated only by the desire to affect policy then coalitions should be connected, regardless of whether all parties within the ideological range of the coalition are needed for a legislative majority. Thus, surplus majority coalitions will be predicted quite frequently.
If parties are mainly office motivated, then there will be a tendency for coalitions to drop non-essential members even if this means that they cease to be ideologically connected.
Thus, the composition of a governing coalition can give us an idea of the relative weight of holding office and policy in the objective function of the parties.

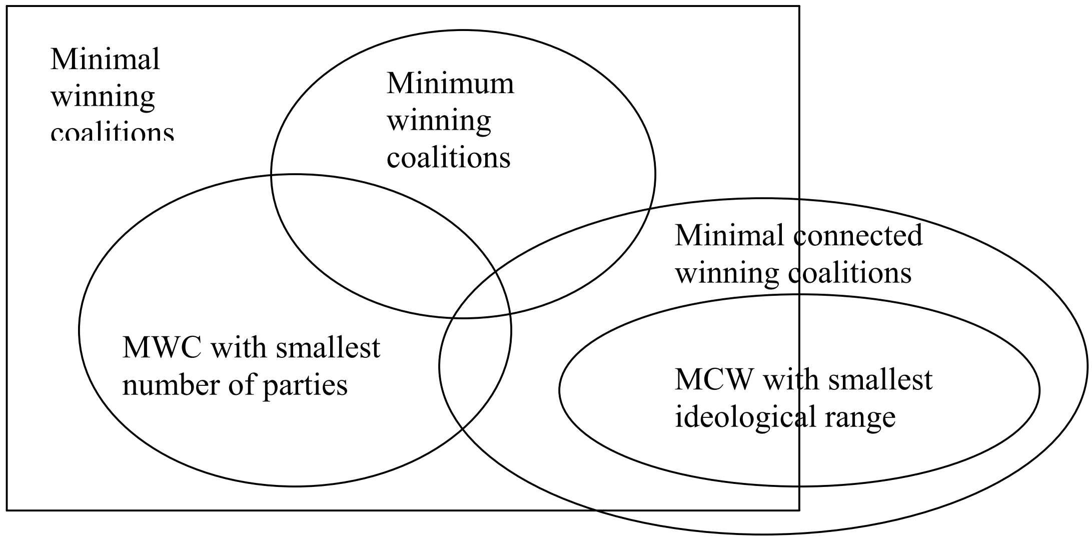
1.3 Bargain over policy as a form of electoral competition

Austen-Smith and Banks explore the interaction between electoral competition and coalition bargaining when parties are concerned only instrumentally with policy.
Voters are assumed to be policy motivated, and choose their vote with the aim to affect the policy outcome.
Parties are assumed to be concerned with their policy positions only to the extend that this helps them to win elections
The game:
There is an election.
Parties win votes on the basis of their policy positions.
No party commands a legislative majority.
A majority coalition must form (since parties are office seeking, there is no room for minority governments forming on the basis of the policy influence of the opposition).
Parties bargain to form government, taking into account the expected policy position of the government.
Parties only care about policy because they will have to face the voters at the next election.
The largest party is asked to form government; if it fails the second largest is asked, and so on.
The predicted outcome is a coalition between the largest and the smallest parties, whatever their policy positions.
Voters can forecast the coalition that forms from each particular election result and can calculate back from this forecast to decide how best to cast their vote.

1.4 Policy bargaining as a means to hold on to the party leadership

"Leaders are motivated above all by the desire to remain party leaders"
Politicians want to get into government and control cabinet portfolios. Typically this positions represent the main goal of a political career. But the desire of party leaders to remain party leaders dominates all else and relegates policy to a secondary role in the process of party competition.

Relying on a view of party leaders as instrumental policy seekers who also have an eye on the next election, Luebbert constructs an argument about policy based coalition bargaining, which results in the prediction that ideologically compact coalitions may be avoided by party leaders who can find partners whose policy concerns are neither the same as theirs nor competing with them, but simply different.
This may be the only policy driven coalition theory that does not predict ideological compactness in coalitions.



2. Policy driven theories

2.1 <u>One dimensional policy space</u>
de Swaan: "an actor strives to bring about a winning coalition in which he is included and which he expects to adopt a policy that is as close as possible ... to his most preferred policy"
He proposes the closed minimal range account of coalition formation defined as a refinement of Axelrod's MCW coalition as a selection with the smallest ideological range.
In one dimension this theory predicts a more or less dictatorial role for the party that controls the median legislator. The core position of the party controlling the median legislator implies that its policies should be enacted whatever he does: governing alone, in a minority coalition, in a minimal winning coalition, in a surplus majority coalition, and in a grand coalition.

Unipolar systems:
These systems are characterized by a single dominant party that confronts a string of much weaker opponents.
It makes a difference whether the dominant party is located at the median or not.

Examples: Luxemburg, Ireland, Iceland, Norway, Denmark (45-71), Sweden.

Multipolar systems:
The effective size of a party system is a measure that depends on the number of parties and on their relative weights: the effective number of parties is lower when a few parties control nearly all of the seats and higher when all parties are more evenly balanced. Coalition bargaining is more difficult in a system with a large effective number of parties.
Examples: Denmark (after 71), The Netherlands, Belgium, Finland, Italy)

2.2 Multidimensional policy space
Solutions to the chaos-prediction:

2.2.1 US legislative politics
A presidential system implies that the legislative power mainly decides on policy choices.
A two party system.
Party discipline fails.
A fixed term legislature.
Modelling the US system:
- incorporate particular legislative structures:
  Shepsle (1979): structure induced equilibrium.
  Baron and Ferejohn (1987): distributive 'pork barrel'
- introduce uncertainty and imperfect information
  Enelow and Hinich (1983)
- consider the role of party discipline.
  McKelvey and Schofield (1987)

2.2.2 European legislative politics
A parliamentary system implies that the legislative power decides on policy choices and also on government formation.
A multiparty system.
A flexible term legislature.
There is one particularly important legislative coalition: the coalition that sustains an executive in office on the basis of a confidence vote.
The members of this coalition consume all the benefits of office-holding, and have the control of all policy outputs.
There is no binding agreement in this coalition: a non-confidence motion may be proposed at any time.
Party discipline holds.
Most of the work on the politics of coalition in Europe has been empirical, and driven fundamentally by the urge to account for the coalitions that actually form.
A formal model proposed by Aragones (2007).

Models based on US legislative politics

Structure Induced Equilibrium
Shepsle 1979, Kreibel 1988

Ingredients:

Multidimensional policy space.
Single-peaked preferences.
Exogenous institutions: place restrictions on behavior.

Existence of a stable equilibrium:
McKelvey's chaos theorem
Plott's symmetry condition

What are the institutions that induce the equilibrium?

A simple institutional arrangement is a committee system and a jurisdictional system such that divides the decision of the legislative into m separate decisions: by m separate committees in m different jurisdictions (issues).
Committees are assumed to have gate-keeping power and proposal power: only the committee can propose changes in the status quo within its jurisdiction.
If the committee makes a proposal the legislative body accepts, rejects or amends it via majority rule.

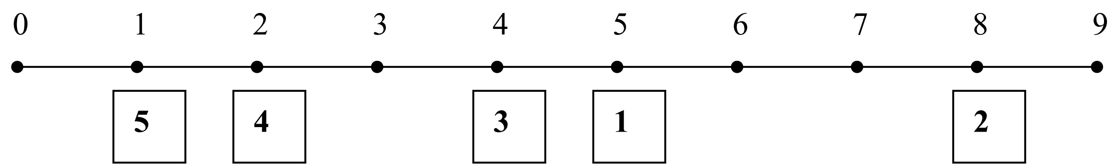
Existence of equilibrium guaranteed by the median voter theorem.

Example in 1 dimension:

Assume that the policy space is the real line. Consider a parliament with 5 members that have single-peaked preferences with ideal points:

$x_1 = 5$
$x_2 = 8$
$x_3 = 4$
$x_4 = 2$
$x_5 = 1$

Assume that the president of the parliament is member 3. Observe that the president is also the median voter of the parliament.
Consider a parliamentary committee with three members: 1, 2 and 3. Assume that the president of the committee is member 1. Observe that the president of the committee is also the median voter of the committee.



Suppose that there is a 'status quo' policy, x_{sq}. In order to implement a policy different from the status quo, the new policy proposal, x_p , has to be approved by the parliament. We assume that all votes are decided by majority rule. Consider the following two procedures:

Closed rule

1. The committee president decides whether to make a proposal, x_p, or keep the status quo, x_{sq}.
2. If there is no proposal from the committee president, the game ends, and the final policy outcome is x_{sq}.
   If there is a proposal from the committee president, x_p, the committee has to vote whether to pass it to the parliament.
3. If the committee does not approve the proposal, the game ends, and the final policy outcome is x_{sq}.
   If the committee approves the proposal, the parliament has to vote x_p against x_{sq}. The winner is the final policy outcome.

Under myopic committee: the committee always proposes the ideal point of his median voter, except when it coincides with the status quo, in which case it does not make a proposal.
Under sophisticated committee (anticipates the decision of the parliament):

- in the last round, the parliament will approve any proposal from the committee, as long as the distance between the proposal and the ideal point of the median voter of the parliament is smaller than the distance between the status quo and the ideal point of the median voter of the parliament, that is: $|4 - x_P| < |4 - x_{SQ}|$, because the ideal point of the median voter of the parliament is $x_3 = 4$.
- The committee will approve any proposal made by the president as long as the distance between the proposal and the ideal point of the committee median voter is smaller than the distance between the status quo and the ideal point of the committee median voter, that is: $|5 - x_P| < |5 - x_{SQ}|$, because the ideal point of the committee median voter is $x_1 = 5$.
- The president of the committee will make a proposal as long as the distance between his proposal and his ideal point is smaller than the distance between the status quo and his ideal point, that is: $|5 - x_P| < |5 - x_{SQ}|$, because his ideal point is $x_1 = 5$.

Since the committee president is also the committee median voter, both will approve proposals x_P such that $|5 - x_P| < |5 - x_{SQ}|$, but they know that the parliament will only approve policies x_P such that $|4 - x_P| < |4 - x_{SQ}|$. Thus, we have to consider four cases:

1) If $4 \leq x_{SQ} \leq 5$, the winner is x_{SQ}.
2) If $x_{SQ} \leq 3$, the winner is the committee median, 5.
3) If $x_{SQ} \geq 5$, the winner is the committee median, 5.

4) If $3 \leq x_{SQ} \leq 4$, the winner is the policy closest to the committee median among the ones that the parliament approves, $4+\left|4-x_{SQ}\right|$.

Thus, the committee always proposes the policy that maximizes the utility of its median voter, subject to the acceptance by the parliament, except when it coincides with the status quo, in which case the committee makes no proposal.

<u>Open rule</u>

1. The committee president decides whether to make a proposal, x_p, or keep the status quo, x_{sq}.
2. If there is no proposal from the committee president, the game ends, and the final policy outcome is x_{sq}.
   If there is a proposal from the committee president, x_p, the committee has to vote whether to pass it to the parliament.
3. If the committee does not approve the proposal, the game ends, and the final policy outcome is x_{sq}.
   If the committee approves the proposal, the president of the parliament has to decide whether to propose an amendment, x_a, to x_p.
4. If the president of the parliament does not propose an amendment, the parliament has to vote x_p against x_{sq}, and the winner is the final policy outcome.
   If the president of the parliament proposes an amendment, the parliament has to vote x_p against x_a.
5. If the amendment loses, the parliament has to vote x_p against x_{sq}, and the winner is the final policy outcome.
   If the amendment wins, the parliament has to vote x_a against x_{sq}, and the winner is the final policy outcome.

Under myopic committee: the committee always proposes the ideal point of his median voter, except when it coincides with the status quo, in which case it does not make a proposal.
Under sophisticated committee (anticipates the decision of the parliament):

- in the last round, the parliament will approve any proposal from the committee, as long as the distance between the proposal and the ideal point of the median voter of the parliament is smaller than the distance between the status quo and the ideal point of the median voter of the parliament, that is: $\left|4-x_P\right|<\left|4-x_{SQ}\right|$, because the ideal point of the median voter of the parliament is $x_3 = 4$.
- Given this, the president of the parliament would like to propose his ideal point as an amendment, because it coincides with the ideal point of the parliament median voter.
- The committee knows that given any proposal, the president of the parliament will propose an amendment that will defeat the initial proposal and the status quo. Thus, the committee will approve any proposal made by the committee president as long as the distance between the ideal point of the president of the parliament and the ideal point of the committee median voter is smaller than the distance between the status quo and the ideal point of the committee median

voter, that is: $|5-4| < |5-x_{SQ}|$, because the ideal point of the committee median voter is $x_1 = 5$ and the ideal point of the president of the parliament is $x_3 = 4$..

- The president of the committee will make a proposal as long as the distance between the ideal point of the president of the parliament and his ideal point is smaller than the distance between the status quo and the ideal point of the president of the parliament, that is: $|5-4| < |5-x_{SQ}|$, since his ideal point is $x_1 = 5$.

Since the committee president is also the committee median voter, both will approve proposals x_P such that $|5-x_P| < |5-x_{SQ}|$, but they know that if they approve a proposal, the parliament will only approve policies such that x = 4. Thus, the committee will only approve a proposal if $1 = |5-4| < |5-x_{SQ}|$. Therefore, we have:

1) If $4 \leq x_{SQ} \leq 6$, the winner is x_{SQ}.
2) If $x_{SQ} \leq 4$, the winner is the parliament median, 4.
3) If $x_{SQ} \geq 6$, the winner is the parliament median, 4.

Thus, the committee makes a proposal only when its median voter prefers the ideal point of the median of the parliament to the status quo. Otherwise, the committe makes no proposal.

Under what conditions the outcome is different from the status quo?
It depends on the status quo location and on the rule applied.

Definition: the status quo is stable in equilibrium if there is no proposal.

In the previous examples we have that the status quo is stable when:
$4 \leq x_{SQ} \leq 5$ with the closed rule.
$4 \leq x_{SQ} \leq 6$ with the open rule.

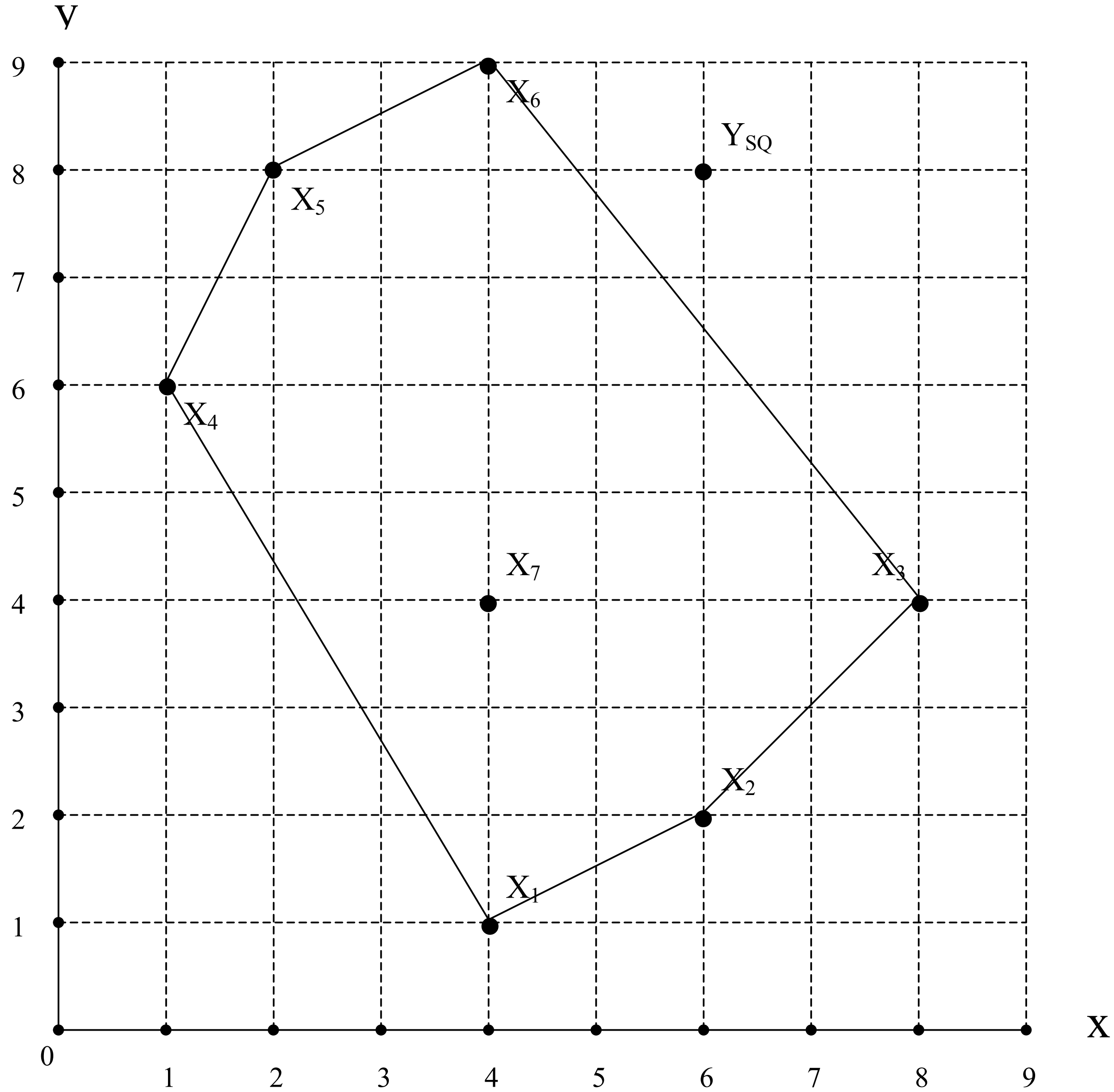
Example in 2 dimensions:

Suppose that there are two issues, and assume that the policy space in each dimension is the real line. Consider a parliament with 7 members that have single-peaked preferences with ideal points:

$x_1 = (4,1)$
$x_2 = (6,2)$
$x_3 = (8,4)$
$x_4 = (1,6)$
$x_5 = (2,8)$
$x_6 = (4,9)$
$x_7 = (4,4)$

Consider a parliamentary committee for issue x with three members: 1, 2 and 3; and a parliamentary committee for issue y with three members: 4, 5 and 6. Observe that the

median voter of the committee for issue x is member 2 with ideal policy x = 6, and the median voter of the committee for issue y is member 5 with ideal policy y = 8.
The overall median policy on issue x is x = 4 and the overall median policy on issue y is y = 4.



Closed rule

If $4 \leq x_{sq} \leq 6$ no proposal.
If $2 \leq x_{sq} \leq 4$ proposal = outcome = $4 + |4 - x_{sq}|$.
Otherwise, proposal = outcome = 6.

If $4 \leq y_{sq} \leq 8$ no proposal.
If $0 \leq y_{sq} \leq 4$ proposal = outcome = $4 + |4 - y_{sq}|$.
Otherwise, proposal = outcome = 8.

Open rule

If $4 \leq x_{sq} \leq 8$ no proposal.
Otherwise, any proposal and outcome = 4.

If $4 \leq y_{sq} \leq 12$ no proposal.
Otherwise, any proposal and outcome = 4.

Example of Pareto dominated SIE

Suppose that there is a 'status quo' policy, $x_{sq}=(6,8)$. In order to implement a policy different from the status quo, the new policy proposal has to be approved by the parliament.
Check that $x_{sq}=(6,8)$ is a SIE.
Notice that is not Pareto optimal.
In order to show the lack of robustness of this equilibrium, check that there are policies close to $x_{sq}=(6,8)$ that are not a SIE.

Extensions:

- It is plausible to think that the ideal point of the parliament median coincides with the ideal point of the parliament president, and that the ideal point of the committee median coincides with the ideal point of the committee president, but what would happen if this is not the case?

- Multidimensional jurisdictions with an ex post veto by the committee. Committees are considered as single actors. Shepsle and Weingast (1987)

- Introducing uncertainty (unknown ideal points) and analyzing optimal decisions (not equilibrium analysis): Denzau and Mackay (1983) in one dimension, Enelow and Hinich (1983) in multidimensions.

Distributive 'pork barrel'
Baron and Ferejohn 1987

Baron and Ferejohn model bargaining among several agents, and assume that the final decision needs a majority of the votes.
Suppose that there are 3 legislators: 1, 2, and 3.
They bargain over the assignment of a unit of a certain good. It can be interpreted as the allocation of a budget. Each legislator has monotone preferences over the size of the part of the good that is allocated to him: he prefers more to less.
We assume that whenever a legislator is indifferent between accepting and rejecting a budget division, he always accepts it.
We assume that the rule that determines who is recognized to make a proposal is random: each legislator has the same probability of being recognized.
We represent a proposal as a vector $x = (x_1,x_2,x_3)$ with $x_1+x_2+x_3=1$, where x_i represents the part of the budget obtained by legislator i if proposal x is accepted. And we assume that δ represents the discount factor.

We consider different procedures that determine the order in which proposals can be offered and accepted, and when amendments can be presented.

Closed rule with 2 rounds

1. A legislator is randomly recognized (each with probability 1/3) to make a proposal x.
2. A vote is taken to accept or reject proposal x. Decision is made by majority voting.
3. If x is accepted, each legislator i obtains x_i and the game ends.
If x is rejected, a new legislator is recognized (each with probability 1/3) to make a new proposal y.
4. A vote is taken to accept or reject proposal y. Decision is made by majority voting.
5. If y is accepted, each legislator i obtains δy_i and the game ends.
If y is rejected, each legislator obtains 0 and the game ends.

We look for the sub-game perfect equilibrium:

In the last round any proposal is accepted by unanimity since we have assumed that when indifferent, legislators approve the proposal. Thus, the best reply of any legislator i recognized to make the second proposal is $x_i = 1$.
In the first round, legislators have to compare the offer they obtain from the first proposal to their value of the continuation of the game ($\delta/3$). Thus, they accept any proposal that offers them at least $\delta/3$.
The best strategy of the legislator recognized to make the first proposal would be to offer $\delta/3$ to one of the other legislators and 0 to the third one, keeping $1-\delta/3$ for himself, and this proposal will be accepted in the first round.
Observe that $1-\delta/3 > \delta/3$ for all $\delta < 1$.

The results generalize to any finite number of legislators and/or rounds.
With n legislators, the recognized member offers δ/n to $\frac{n-1}{2}$ members and keeps $1-\frac{\delta(n-1)}{2n}$ for himself.

Open rule

1. A legislator is randomly recognized (each with probability 1/3) to make a proposal x.
2. A different legislator is recognized (each with probability 1/2) to make an amendment x' to proposal x.
3. If x = x', a vote is taken to accept or reject proposal x. Decision is made by majority voting.
Otherwise, another legislator (different from the one recognized to make the amendment) is recognized to make an amendment to x'. δ is applied to the payoffs and the game returns to step 3.

In this case it is not enough to secure a majority vote in the first round to guarantee the approval of the first proposal, since a legislator not included in the majority could be recognized to make an amendment.

<u>Stationary proposals that guarantee positive payoffs to all legislators</u>

Suppose that the legislator recognized to make the first proposal offers V to each one of the other legislators, and keeps 1-2V. This value V has to be such that makes legislators at least indifferent between accepting the proposal or making an amendment to it, that is, V = δ(1-2V), and we obtain $V = \frac{\delta}{1+2\delta}$.

Thus, the legislator recognized to make the first proposal will offer $V = \frac{\delta}{1+2\delta}$ to each one of the legislators and will keep $1-2V = \frac{1}{1+2\delta}$ for himself, and the first proposal will be approved in the first round.

<u>Stationary proposals that guarantee positive payoffs to two legislators</u>

Let's define three kinds of players: a legislator recognized to make a proposal (P), a legislator that receives a positive offer (i) and a legislator that is excluded from the majority coalition (e).
Suppose that the legislator recognized to make the first proposal offers y and keeps 1-y for himself.
Suppose that the value of the continuation of the game for each kind of player is V_P, V_i, and V_e respectively.
If e is recognized to make an amendment, he will make a proposal that excludes P. Therefore:
1) in order to avoid an amendment from i, P has to offer him at least $y = \delta V_P$, which is the value of the continuation of the game for i if he is recognized to make an amendment.
2) $V_i = \frac{1}{2}y + \frac{1}{2}\delta V_i$ because with probability ½ he will be recognized to make an amendment and will accept the first proposal, and with probability ½ e will be recognized to make an amendment and he will receive a positive offer from e.

3) $V_P = \frac{1}{2}(1-y) + \frac{1}{2}\delta V_e$ because with probability ½ i will be recognized to make an amendment and will accept the first proposal, and with probability ½ e will be recognized to make an amendment and he will be excluded from the second majority coalition

4) $V_e = \frac{1}{2}0 + \frac{1}{2}\delta V_P$ because with probability ½ i will be recognized to make an amendment and will accept the first proposal, and with probability ½ e will be recognized to make an amendment and he will be able to make a proposal.

So we have a system of 4 equations in 4 unknowns:

$y = \delta V_P$

$$V_i = \frac{1}{2}y + \frac{1}{2}\delta V_i$$

$$V_P = \frac{1}{2}(1-y) + \frac{1}{2}\delta V_e$$

$$V_e = \frac{1}{2}0 + \frac{1}{2}\delta V_P$$

If we solve these 4 equations in 4 unknowns we obtain:

$$y = \frac{2\delta}{4+2\delta-\delta^2}$$

$$V_P = \frac{2}{4+2\delta-\delta^2}$$

$$V_i = \frac{2\delta}{(2-\delta)(4+2\delta-\delta^2)}$$

$$V_e = \frac{\delta}{4+2\delta-\delta^2}$$

Which strategy would the legislator recognized to make the first proposal prefer? Will he decide to include one or two legislators in the first proposal?

The legislator that is recognized to make the first proposal obtains a payoff of $\frac{1}{1+2\delta}$ if he includes the other two legislators in his proposal (as shown before) and he obtains a payoff of $V_P = \frac{2}{4+2\delta-\delta^2}$ if he only includes one legislator.

Therefore, since $\frac{1}{1+2\delta} > \frac{2}{4+2\delta-\delta^2}$ iff $\delta \le \sqrt{3}-1$, we have that whenever $\delta \le \sqrt{3}-1$ he prefers to include two legislators and otherwise ($\delta \ge \sqrt{3}-1$) he prefers to include only one legislator.

In the first case, when $\delta \leq \sqrt{3}-1$, we have that the first proposal is approved in the first round and the payoffs are: $1-2V = \frac{1}{1+2\delta}$ for the legislator recognized and $V = \frac{\delta}{1+2\delta}$ for each of the other legislators.

In the second case, when $\delta \leq \sqrt{3}-1$, the payoffs are: $V_P = \frac{2}{4+2\delta-\delta^2}$ for the legislator recognized and $V_i = \frac{2\delta}{(2-\delta)(4+2\delta-\delta^2)}$ and $V_e = \frac{\delta}{4+2\delta-\delta^2}$ for the other two legislators; the first proposal is approved in the first round with probability ½, thus with probability ½ there is a delay in equilibrium.

Observe that:

The open rule results in a more equal division than the closed rule.
The open rule may last longer than the closed rule (1 session).
The open rule is more flexible, since it offers the possibility of amendments. But it also produces delays with positive probability.
Delays may be avoided with generalized proposals, but this reduces the payoffs.
The closed rule guarantees maximal payoffs and proposals are accepted without delay, but it does not allow amendments.
Closed rules are the way to make fast decisions.

Bargaining with asymmetric information

Austen-Smith and Riker introduce uncertainty in the mapping from policies to outcomes.
They model a three stage game:

1) deliberation stage: legislators strategically reveal all, some or none of their private information.
2) Each legislator makes a proposal.
3) Legislators vote the proposals.

<u>Conclusion</u>
agendas are not generally coherent because strategic revelation of information is such that a majority, upon observing all available information, prefers to have made and voted for a different proposal.

Summary

	SIE models	Bargaining models
Behavior	sincere	strategic
Full information	Shepsle 1979 Kreibel 1988	Baron and Ferejohn 198?
Partial information	unknown ideal points Enelow and Hinich 1983	uncertainty in the function that maps bills into outcomes Austen-Smith and Riker 1987
Equilibrium	stability	Nash

References:

Aragones, Enriqueta (2007) "Government Formation in a Two Dimensional Policy Space" *International Journal of Game Theory*, 35 (2): 151-184.
Austen-Smith, David and Jeffrey Banks (1988) "Elections, Coalitions and Legislative Outcomes" *American Political Science Review* 82: 405-22.
Austen-Smith, David and William Riker (1987) "Asymmetric Information and the Coherence of Legislation" APSR 81:897-918.
Axelrod, Robert (1970) *Conflict of Interest*, Chicago: Markham.
Baron, David and John Ferejohn (1989) "Bargaining in legislatures" APSR 83: 1181-1206.
Denzau Arthur and Robert Mackay (1983) "Gatekeeping and Monopoly Power of Committees: An Analysis of Sincere and Sophisticated Behavior" AJPS 28:587-597.
de Swaan, Abram (1973) *Coalition Theories and Cabinet Formation*, Amsterdam: Elsevier.
Diermeier, Daniel, Hulya Eraslan and Antonio Merlo (2003) "A Structural Model of Government Formation" *Econometrica* 71(1):27-70.
Enelow, James and Melvin Hinich (1983) "Voting One Issue at a Time: The Question of Voter Forecasts" *American Political Science Review* 27: 435-45.
Krehbiel, Keith (1988) "Spatial Models of Legislative Choice" *Legislative Studies Quarterly* 13(3): 259-319.
Laver, Michael and Norman Schofield (1990) *Multiparty Government: The Politics of Coalition in Europe*, Oxford University Press.
Leiserson, Michael (1966) *Coalitions in Politics*, Yale University, PhD Thesis.
McKelvey, Richard and Norman Schofield (1987) "Generalized Symmetry Conditions at a Core Point" *Econometrica* 55: 923-33.
Riker, William (1962) *The Theory of Political Coalitions*, New Haven: Yale University Press.
Shepsle, Kenneth (1979) "Institutional arrangements an equilibrium in multidimensional voting models" *American Journal of Political Science* 23: 27-60.
Shepsle, Kenneth and Barry Weingast (1987) "The Institutional Foundations of Committee Power" *American Political Science Review* 81:85-104.
Von Neumann, John and Oskar Morgenstern (1953) *Theory of Games and Economic Behavior,* Princeton University Press.