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## ***Bicameral Negotiations: The Navette System in France***

GEORGE TSEBELIS AND JEANNETTE MONEY\*

This article investigates the decision-making process in the French bicameral legislature: the navette system. In this system, the legislation shuttles between the two houses until agreement is reached or until a stopping rule is applied. We examine the interaction between upper and lower houses as a bargaining game with complete and one-sided incomplete information.

The complete information model permits us to evaluate the political implications of the navette's various institutional features (where the bill is first introduced, number of iterations, final veto power, etc.). The incomplete information approach permits us to predict the duration of the navette process. Data from the French Fifth Republic in the 1959–86 period corroborate the conclusions of the model. Because the navette system is the most commonly used method of decision making in bicameral legislatures, the model can be usefully generalized to other countries.

The rules of bicameral negotiations in the French Fifth Republic – the navette system – and their impact on the legislative process and outcomes are the subject of this article. In the navette system, a bill is passed from one house to the other until both agree to a single text.<sup>1</sup> If agreement is not reached in a specified number of rounds (which in some cases is infinite), either some alternative

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<sup>1</sup> An alternative method of resolving disagreements between two houses in bicameral legislatures is the conference committee. Although conference committees have received substantial attention, especially in the United States, the navette system – which is also employed in the US Congress – has been overlooked. See, for example, Kenneth A. Shepsle and Barry R. Weingast, 'The Institutional Foundations of Committee Power', *American Political Science Review*, 81 (1987), 85–104; Kenneth A. Shepsle and Barry R. Weingast, 'Why are Congressional Committees Powerful?' *American Political Science Review*, 81 (1987), 935–45; Keith Krehbiel, 'Why are Congressional Committees Powerful?' *American Political Science Review*, 81 (1987), 929–35, and Stephen S. Smith, 'An Essay on Sequence, Position, Goals, and Committee Power', *Legislative Studies Quarterly*, 13 (1988), 151–76. This omission is surprising because over 30 per cent of the world's countries have bicameral legislatures (Inter-parliamentary Union, *Parliaments of the World* (Aldershot, Hants.: Gower, 1986)) and in the overwhelming majority of these, agreement between the two houses is reached through the navette system (Jeannette Money and George Tsebelis, 'Cicero's Puzzle: Upper House Power in Comparative Perspective', *International Political Science Review*, 13 (1992), 25–42.

mechanism is used (conference committee, one house decides) or the bill is aborted.

The usual approach to intercameral relations in France attributes the 'influence' or 'authority' of the Senate to its moderation, independence, considered opinion or constructive criticism.<sup>2</sup> In contrast, we provide an institutional explanation of Senate power. We model the Senate's legislative influence as a function of the particular institutional provisions of the navette system, such as where the bill is first introduced, who makes the final decision, and the prescribed length of the navette. We show that these institutional procedures determine how much input each of the two houses has in the final product, that is, the relative power of the two houses.

An accurate model of intercameral relations is important because we believe that legislators are strategic agents; if this is true, then the interaction between the two legislatures is part of a legislative game tree. Examination of the legislative process in only one house ignores strategic aspects of legislation generated by the existence of the second house. In game theoretic terms, a one-house model of legislation in bicameral legislatures is a truncation of the legislative game tree when this truncation is not permissible. In more ordinary terms, one-house models of bicameral legislatures may be misspecified.

Consider the following (not so hypothetical) example: members of Parliament in the popularly elected house can vote in favour of a particular popular measure of which they disapprove knowing full well that the non-directly elected second house will vote it down; since mutual agreement is required, the legislation will be aborted. In this case, observation of voting patterns in the lower house alone would be completely misleading. In fact, the legislators in the lower house will engage in position taking as opposed to legislating.<sup>3</sup>

To evaluate the French system of intercameral relations, we proceed as follows. Section I describes the French navette system, summarizes the empirical literature on the subject, and raises some questions that cannot be answered inside existing frameworks. Section II presents a model of the navette system: the two houses are considered as unified players in a bargaining game, with complete information. We use an existing model of one-sided incomplete information to investigate further the interaction between the two chambers. Section III tests the incomplete information model with data from the 1959–86

<sup>2</sup> See Jean Grangé, 'L'Efficacité normative du Sénat', *Revue Française de Science Politique* (1984), 32–84; and Jean Mastias and Jean Grangé, *Les Secondes Chambres du parlement en Europe occidentale* (Paris: La Documentation Française, 1987).

<sup>3</sup> A recent example is the override of presidential veto concerning Chinese students in the United States. The Republicans in the House voted overwhelmingly to override, leaving to their colleagues in the Senate the unpleasant task of sustaining the presidential veto.

period.<sup>4</sup> Section IV finds support for the complete information model in French legislative history.

#### I. THE NATIONAL ASSEMBLY AND THE SENATE: INSTITUTIONS AND PRACTICES

The rules of the French navette system are quite complicated. Bills can be introduced in either house, the number of rounds is variable, and the final decision can be achieved in one of three ways: by voluntary agreement between the two houses, by adoption of a conference committee compromise (which must be approved by both chambers), or by a National Assembly vote of last resort. Because of the richness of institutionalized procedures, France can be singled out as one of the best cases for understanding the consequences of each particular rule of the navette system. Figure 1 presents a schematic description of the navette process.

The constitution of the French Fifth Republic defines the legislative responsibilities of the bicameral legislature.<sup>5</sup> Article 34 proclaims 'the law is voted by Parliament' and, until the last stage, legislative responsibilities of the National Assembly and the Senate are almost identical. Bills can be proposed by either the executive (projects) or by the legislators themselves (propositions). Whereas members of Parliament introduce bills in their respective houses, government bills, with the exception of the annual budget, can be introduced in either house. Bills passed by the originating house are then forwarded to the second house for review. The budget is always introduced first in the lower house. If the second house amends the legislation, it returns to the first house for repassage. If disagreement remains, the navette can continue indefinitely unless the government chooses to intervene.

The budgetary powers of both the National Assembly and the Senate are curtailed by the executive branch of government. The National Assembly has a mere forty days to review financial legislation; the government can then refer the budget to the Senate, which has an additional fifteen days to respond. In case of disagreement, procedures for normal legislation are followed with the proviso that Parliament has a maximum of seventy days from the initial deposit of the

<sup>4</sup> During the period 1959–80 the Gaullist party dominated the National Assembly and Gaullist allies the Senate, so there is sufficient continuity for the usual statistical assumptions to be met. For the Mitterrand period (1981–86), we do not perform statistical tests, but the model helps us form expectations about the interactions of the two chambers when the Left controlled the National Assembly and the Right, the Senate.

<sup>5</sup> See Didier Maus, ed., *Les Grands Textes de la pratique institutionnelle de la V<sup>e</sup> République* (Paris: La Documentation Française, 1987), for the constitutional provisions and Jean Bourdon, *Les Assemblées parlementaires sous la V<sup>e</sup> République* (Paris: La Documentation Française, Notes et études documentaires No. 4463–64, 1978), pp. 109–45, among others, for a detailed description of the process.

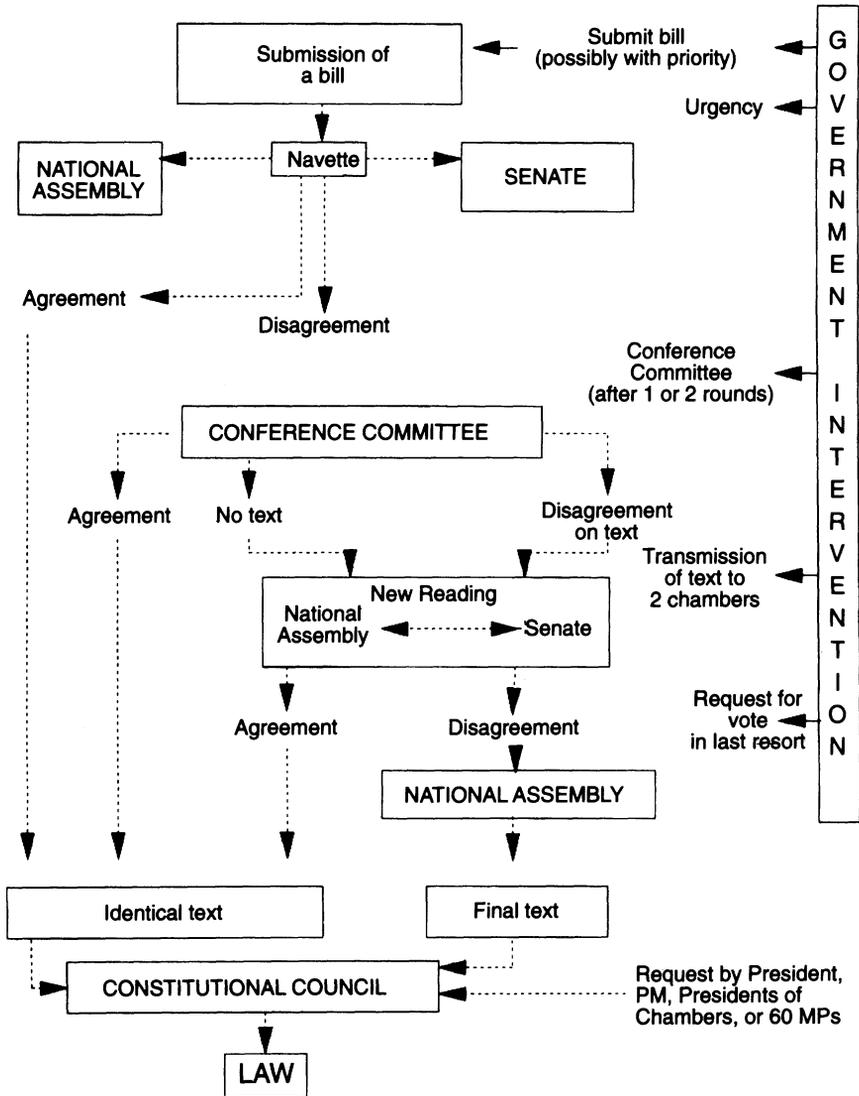


Fig. 1. Passage of a law

bill to reach agreement. After seventy days, the government can enact the budget by ordinance (Article 47 of the constitution).<sup>6</sup>

The executive can intervene in the navette only after the legislation has been reviewed twice by each house, or after a single reading if the government determines that the legislation is 'urgent'. By intervening, the government calls

<sup>6</sup> See François Luchaire and Gérard Conac, *La Constitution de la République Française*, 2nd edn (Paris: Economica, 1987, p. 914.

into play a conference committee, composed of equal numbers of senators and members of the National Assembly.<sup>7</sup> The conference committee attempts to draft legislation acceptable to both houses; if compromise is reached, the new version is resubmitted to both houses for approval.<sup>8</sup> If compromise cannot be negotiated, or if either house rejects the conference committee version, the government can ask the National Assembly to vote in last resort (Article 45.4 of the Constitution).

Regardless of the specific procedure followed by the Parliament, constitutionality of legislation can be challenged in the Constitutional Court *before* the law is implemented. The actors with legal standing in the Court are the President of the Republic, the presidents of the two chambers, the prime-minister and, since 1974, sixty members of Parliament (which, in practice, means a major political party). The role of the Constitutional Court increased significantly after the 1974 reform and spectacularly since 1981, when it became the arbiter between the Right and the Left.<sup>9</sup>

The overall picture is complicated by the many mechanisms with which the government can modify the legislative process. The game between the government and the Parliament includes rules that permit the government to control the parliamentary agenda, to select where to introduce legislation, to modify the length of deliberations via closed rule and urgency, to call a conference committee, and to ask the National Assembly for a definitive vote. An additional measure in the government arsenal is Article 49.3 of the constitution that transforms a vote on a bill into a vote of confidence for the government, thus making it impossible for the majority of the National Assembly to reject the bill.<sup>10</sup>

This account indicates that the French navette system is composed of several different games. One is a bargaining game between the two houses; the others include the eventual intervention of the government (which chooses the rules, and/or permits the National Assembly to ultimately decide) and the Constitutional Council (which, if requested, may reverse the outcome of the legislative

<sup>7</sup> In practice, the Senate selects its representatives through proportional representation, while the National Assembly is represented by its own majority. After the victory of the Left in 1981, the National Assembly regulations were modified to resemble those of the Senate (Jean Grangé, 'L'Éfficacité normative du Sénat').

<sup>8</sup> The government, if displeased with the joint committee compromise, is not required to submit the joint text to Parliament for final approval. After fifteen days, the house which last read the bill can restart the legislative process (see Bourdon, *Les Assemblées parlementaires*, p. 125).

<sup>9</sup> See Alec Stone, *The Birth of Judicial Politics in France: The Constitutional Council in Comparative Perspective* (Oxford: Oxford University Press, 1992).

<sup>10</sup> For a more detailed analysis of the way Article 49.3 operates, see George Tsebelis, *Nested Games: Rational Choice in Comparative Politics* (Berkeley: University of California Press, 1990), chap. 7. The government has used this method to impose its will against the majority of *both* houses five times over the course of the Fifth Republic (Maus, *Les Grands Textes*, pp. 193–264).

process). In this article we focus mainly on the legislative game and only mention the intervention of other actors when appropriate.<sup>11</sup>

In the empirical literature on the Senate's legislative role, there are three distinctive explanations of senatorial influence, although, in many analyses, the three explanations are intertwined. The first attributes senatorial influence to the characteristics of the executive; the second argues that senatorial expertise and wisdom are critical; the third suggests that the degree of political congruence between the two houses is important. We examine and criticize each one in turn.

The first type of analysis divides the legislative history of the French Fifth Republic into periods coinciding with the tenure of different presidents who, according to the constitution, are part of the government and preside over the meetings of the council of ministers.<sup>12</sup> Accounts of the role of the Senate generally divide the period between 1959 and 1986 into five sub-periods.<sup>13</sup>

- (1) 1959 to 1962: institutional elaboration. Immediately after the installation of the Fifth Republic, there was a period of political uncertainty and constitutional elaboration. Most laws (95.6 per cent) were adopted without the use of a conference committee, and a mere 1.7 per cent were voted by the National Assembly in last resort.
- (2) 1963 to 1969: de Gaulle's ostracism of the Senate. The break during de Gaulle's presidency (which ran from 1958 to 1969) is marked by two events. A referendum in October 1962 modified the constitution and transferred the presidential elections from an electoral college to the general electorate; parliamentary elections held in November of the same year provided de Gaulle with a (near) majority in the National Assembly. De Gaulle's prestige was further enhanced by his re-election in 1965, this time by popular vote. During this seven-year period, thirty-two of the seventy-two bills examined in conference committee were referred to the national Assembly for final approval. As Table 1 (see p. 116) indicates, this is an extraordinarily high frequency of government intervention. Moreover, the government asked the Senate to vote under closed rule seventy-one times, fifty-six of which ended in rejection by the Senate.

<sup>11</sup> For a discussion of the role of government in the selection of procedures to influence legislative outcomes, see John Huber, 'Restrictive Legislative Procedures in France and the United States', in *American Political Science Review*, 86 (1992), 675–87. For a discussion of the role of the Constitutional Council see Stone, *Judicial Politics in France*.

<sup>12</sup> Jean Grangé, 'Attitudes et vicissitudes du Sénat (1958–1980)', *Revue Française de Science Politique* (1981), 32–84; Grangé, 'L'Efficacité normative du Sénat'; Mastias and Grangé, *Les Secondes Chambres*; Arnaud Tardan, 'Le Rôle législatif du Sénat', *Pouvoirs*, 44 (1988), 104–10; Didier Maus, 'Le Sénat', *Pouvoirs*, 44 (1988), 119–30; and Jean Mastias, 'Histoire des tentations du Sénat de la v<sup>e</sup> République', *Pouvoirs*, 44 (1988), 15–34. For a more detailed history with additional sub-periods, see Jean Mastias, *Le Sénat de la V<sup>e</sup> République: réforme et renouveau* (Paris: Economica, 1980).

<sup>13</sup> The legislative analyses begin in 1959 because the first legislature under the constitution of the Fifth Republic was elected in late November 1958 and only began its work in 1959.

Towards the end of the period, de Gaulle again attempted to restrict the role of the Senate constitutionally, without success. The failure led to de Gaulle's resignation and Pompidou's election to the presidency.

- (3) 1969 to 1973: the Pompidou years of normalization. During this period, the average percentage of agreement between the two houses was 85.2 per cent, and Article 45.4 (recourse to the National Assembly) was used only 3.4 per cent of the time.
- (4) 1974 to 1980: Senate support by Valéry Giscard d'Estaing. The number of eventual disagreements between the Senate and the National Assembly dropped to 0.8 per cent, while the use of the conference committee increased to 21 per cent.
- (5) 1981 to 1986: Victory of the Left and the Senate in the political opposition. Government intervention in the conciliation process increased, but few compromises were reached in conference committee. Almost 70 per cent of the legislation referred to the conference committee were eventually voted by the National Assembly alone; this represents 26.2 per cent of all legislation submitted for consideration.<sup>14</sup>

This periodization of French legislative history tends to emphasize the role of the executive intervention and attributes senatorial influence to specific presidential traits: de Gaulle was intransigent, while Pompidou was conciliatory; Giscard found support in the Senate, Mitterrand opposition. It focuses mainly on the game between legislative and executive, and not sufficiently on the game between the two houses.

The second type of explanation attributes senatorial influence to wisdom, moderation, independence, legislative expertise and constructive criticism.<sup>15</sup> It tends to stress the number of disagreements between the National Assembly and the Senate (that is, the number of times Article 45.4 is applied) as the politically important dependent variable. There is, however, an interesting problem of internal coherence in explanations that begin with the claim that upper houses play an important role in decision making *because* their opinions are more considered and then study the disagreement of the two houses: if upper houses are so wise, why is it that they remain intransigent up to the last moment, instead of exercising the maximum amount of influence? Why do they not compromise?

Moreover, by treating parliamentary decision making as a dichotomous variable (either the two houses agree or the National Assembly prevails), the empirical literature is open to the following criticism. It is possible that some cases of disagreement would have been resolved if the navette was sufficiently

<sup>14</sup> Our analysis ends with the 1986 National Assembly election when the Socialist majority was replaced by a conservative coalition of Gaullists and Giscardians. This period marks the so-called *cohabitation* of the socialist president with a prime minister and National Assembly of the Right.

<sup>15</sup> Grangé, 'L'efficacité normative'; and Mastias and Grangé, *Les Secondes Chambres*.

prolonged, as is the case in Switzerland.<sup>16</sup> Obviously, there have been bills in the history of the Fifth Republic for which agreement was impossible, as was the case in the 1981–86 period, when the Left dominated the National Assembly and the Right the Senate. But how are we to discriminate between bills where agreement was impossible and bills that were not sufficiently discussed?

Furthermore, as these analysts themselves note,<sup>17</sup> the frequency of disagreement should be interpreted with caution, because agreement between the two houses does not indicate who prevailed in the bargaining process. Conversely, disagreement does not mean that Senatorial amendments were rejected. As evidence, Grangé notes an unusual occurrence in the 1963–68 period: when the tension between the government and the Senate was at its peak, the number of agreements in the conference committee increased. Similarly, during the period 1963–68, when the Senate was called a ‘useless assembly’,<sup>18</sup> because Article 45.4 was used with high frequency, the number of immediate agreements between the two houses was also very high (87.6 per cent). Grangé also provides examples where the Senate had considerable input and where the navette process lasted few or several rounds. In our own research, too, we found cases where agreement was fast or slow, and the input of the Senate was considerable or insignificant.<sup>19</sup>

Finally, analysts of French bicameralism hint at the game between the Senate and the National Assembly. They refer to the political distance, or lack of congruence, between the president, the National Assembly and the Senate, as an explanatory variable for the level of disagreement. These hypotheses provide a political explanation of senatorial influence that competes with our institutional explanation. Therefore, we outline and test these hypotheses (which we label the ‘linear composition model’) in Section III, along with our proposed model.

This survey illustrates that the institutional provisions of the navette system have never been systematically analysed by the empirical literature. For example, what difference does it make whether government introduces a project in the National Assembly rather than the Senate? What are the consequences

<sup>16</sup> During the period 1946–72, 5.6 per cent of the bills became laws after five or more iterations of the navette system (Laurent Trivelli, *Le Bicamérisme—institutions comparées—étude historique, statistique et critique des rapports entre le Conseil national et le Conseil des États* (Lausanne: Payot, 1975)). Bills that are introduced in both chambers more than three times exist even in France (Bourdon, *Les Assemblées parlementaires*, p. 124).

<sup>17</sup> Grangé, ‘L’Efficacité normative du Sénat’.

<sup>18</sup> Quoted in Grangé, ‘L’Efficacité normative du Sénat’, from J. Debu-Bridel in *Notre République* of 29 April 1966.

<sup>19</sup> Some bills took as little as ten days for passage (such as the 1974 reform of the Office of French Radio and Television – ORTF), whereas others took several months. The Senate won many concessions on the ORTF legislation, whereas it was unable to obtain its preferences in the 1973 bill on commerce and crafts. For a detailed discussion of several bills and the influence of the Senate in the process, see Jeannette Money and George Tsebelis, ‘The Political Power of the French Senate’ (*Journal of Legislative Studies*, forthcoming).

of reducing the number of rounds of the navette (urgency)? How and why does Senate influence vary? The next section presents a model that enables us to answer these questions. In the model we focus on the negotiations between the two houses, and consider government intervention as exogenous.

## II. RUBINSTEIN MODELS OF BARGAINING BETWEEN LEGISLATURES

In the following account we shall present a complete and an incomplete information model of bargaining. ‘Complete information’ is the technical term indicating that the two players know each other’s payoffs, while ‘incomplete information’ indicates that there is some characteristic of one player that the other does not know.

Consider the National Assembly and the Senate as unified players, and their ideal positions  $N$  and  $S$  on a particular bill.<sup>20</sup> Along the line segment  $NS$  each house prefers a point that is closer to its own ideal point. Rubinstein developed the first bargaining model where two players divide one dollar between them.<sup>21</sup> One can think of the dollar as a unit segment with each player bargaining for the largest part. Our spatial representation of bargaining in legislatures is similar to the Rubinstein model;<sup>22</sup> the only difference is that in the dollar model each player is interested in obtaining the biggest possible part, while in our spatial representation each player wants the smallest part.<sup>23</sup> For reasons of mathematical convenience we will adopt the Rubinstein representation, where each player is interested in maximizing his share of the dollar.

<sup>20</sup> The reader may object to the heroic simplification of houses as unified players. Indeed, McKelvey and Schofield have shown that most of the time under majority rule there is no ideal point for a group of rational players (Richard McKelvey, ‘General Conditions for Global Intransitivities in Formal Voting Models’, *Econometrica*, 47 (1979), 1085–112, and Norman Schofield, ‘Instability of Simple Dynamic Games’, *Review of Economic Studies*, 45 (1978), 575–94). However, the assumption of unified players can be relaxed if we assume that the problem is decomposed into its different dimensions, and a decision is made on one dimension at a time (see Kenneth A. Shepsle, ‘Institutional Arrangements and Equilibrium in Multidimensional Voting Models’, *American Journal of Political Science*, 23 (1979), 27–57; Gary W. Cox and Richard McKelvey, ‘A Ham Sandwich Theorem for General Measures’, *Social Choice and Welfare*, 1 (1984), 75–83). In this case, the ideal point of each house coincides with the corresponding median voter’s.

<sup>21</sup> Ariel Rubinstein, ‘Perfect Equilibrium in a Bargaining Model’, *Econometrica*, 50 (1982), 97–109; and Ariel Rubinstein, ‘A Bargaining Model with Incomplete Information About Time Preferences’, *Econometrica*, 53 (1985), 1151–72.

<sup>22</sup> More precisely our representation is isomorphic, that is, there is a correspondence between the two models, so that one can solve any problem on one model and then transpose the solution to the equivalent solution of the other in a unique way.

<sup>23</sup> There is, however, one major difference between the bargaining game of ‘divide the dollar’ and ‘agree on a bill’. While both games assume the initial position of each player known, the ‘divide the dollar’ game is safe in assuming that each player’s initial position is to want the whole dollar, while in our game there is room for strategic misrepresentation of (initial) preferences. For example, if the Senate wants a smaller (but positive) deficit than the National Assembly it could start the bargaining process by claiming that it wants no deficit at all. We shall discuss this problem in more detail in the incomplete information problem that follows.

Rubinstein produced one complete and one incomplete information model of bargaining. Following his steps, a series of formal models of bargaining with incomplete information have been developed. In our complete information model we will follow the Rubinstein model and calculate the effects of various procedures (selected by the government) on legislative outcomes; in our incomplete information account we adopt a similar model developed by Grossman and Perry,<sup>24</sup> which is closer to the problem at hand than the original Rubinstein model.

### *Complete Information*

In our representation  $N$  and  $S$  negotiate to split the dollar, but instead of the infinite rounds of the Rubinstein model, we apply the institutional constraints created by the constitution of the French Fifth Republic. The two players are impatient: they prefer an agreement today over an agreement tomorrow. Their impatience is expressed by their time discount factors,  $d_N$  for the National Assembly  $d_S$  for the Senate (both in the  $[0,1]$  interval).  $d_N$  and  $d_S$  are the respective values of a dollar if agreement is not reached immediately but in the next time period of negotiations. We shall speak about a time period each time that one of the houses reads a bill; we shall speak about a round each time that the bill is re-introduced into the same house. Consequently, each round is composed of two time periods.

Impatience for agreement can be generated by a series of factors: by the sheer passage of time; by pressures of public opinion, which dislikes seeing its institutional representatives (the legislators) in disagreement. Legislatures are elected for the purpose of legislating and are often perceived by the public as inefficient when unable to produce legislation on a timely basis. The idea that time is an important aspect of the discount factor is also visible in those rules governing the legislative process that define the maximum delay of legislation by the upper house. There is, however, another more important reason for impatience: each round without an agreement pushes a bill one step further towards possible abortion, or may swing some votes in one or the other house, so that the compromise tomorrow may be worse (from the point of view of one house) than an agreement today.

In order to solve the bargaining problem, we start from the final position and work backwards. We assume that we have reached the third round, and that it is the Senate's turn to make a proposal. If the proposal is not accepted, in the next time period the government will ask the National Assembly to make the final decision. In this case,  $S$  knows that if its proposal is rejected by  $N$ ,  $N$  will keep the whole (discounted) dollar in the next time period. So,  $N$  is assured of

<sup>24</sup> Sanford J. Grossman and Motty Perry, 'Sequential Bargaining Under Asymmetric Information', *Journal of Economic Theory*, 39 (1986), 120–54.

$d_N$ . Therefore, it will not accept any proposal that would offer less in this time period. So,  $S$  can keep  $(1 - d_N)$  and leave  $d_N$  for  $N$ . Similar reasoning can be applied for  $N$  in the previous period, and would lead to a different split of the dollar. The algorithm can be applied as many times as necessary until the final outcome is reached.

There are several general observations to be made. First, agreement is always reached in the first round; public disagreement is avoided. Since  $S$  knows that  $N$  finally prevails, it concedes what  $N$  would have obtained in any case and keeps the rest. The appendix provides the different splits of the dollar if the process lasts 1, 2, 3, ... or an infinite number of rounds. However, if one of the players is patient, if, for him, the passage of time or the existence of public disagreement is positive instead of negative, then disagreements will occur. One can extend the model for values of  $d_N$  or  $d_S$  greater than 1. The player with discount factor greater than 1 will always reject the opponent's offers, and will make unacceptable offers. Consequently, if the number of negotiating rounds is finite, the players will always exhaust the rounds until the final decision rules come into play; if the number of rounds is infinite, there will be no legislation. Discount factors greater than one and (consequently) strong public disagreements between the Senate (dominated by the political right) and the National Assembly (with a socialist majority) did occur during the Mitterrand presidency. We postpone our discussion of the empirical evidence until the next section.

The second general observation is that the more impatient a player is, the less his share of the dollar. Impatience is an indication of impotence: you are willing to give up much in order to reach an agreement sooner rather than later.

The third general observation is that it makes a difference whether there is an explicit stopping rule or the bargaining process continues forever. Comparing  $S$ 's share under different numbers of negotiating rounds (see Appendix) leads to the following conclusion:

*PROPOSITION 1.* When the National Assembly has the final word, the power of the Senate increases with the number of negotiating rounds.

Consider now the case where disagreements are resolved in a conference committee. This institutional structure cannot be explicitly studied by our model. However, we can assume that the outcome of this procedure is known. For example, suppose that the conference committee will split the difference 50–50 (since it is composed of seven members from each house) or any other default solution. If the default solution is different from the split without stopping rule, then the house that has the advantage in the default solution will lose power as the number of negotiating rounds increases.

*PROPOSITION 2.* If the default solution is a conference committee, the most powerful house loses power as the number of negotiating rounds increases.

The fourth general observation is that it does make a difference where a bill is first introduced. As the Appendix indicates,

*PROPOSITION 3.* If there is an integral number of possible negotiating rounds, the house where the bill is introduced first has an advantage. This advantage is independent of the stopping rule and increases with the number of rounds.<sup>25</sup>

For example, suppose that the National Assembly and the Senate are going to split their differences in half in ( $x_0 = \frac{1}{2}$ ) after a certain number of rounds, and that they have the same time discount factor  $d$ . If the split occurs after one round, the house where the bill is introduced first will receive  $(1 - d)^2$  more than the other. If the split occurs after two rounds, the house where the bill is introduced first will receive  $(1 - d)^2(1 + d^2)$  more than the other. If there is no stopping rule, the first mover will receive  $(1 - d)^2/(1 - d^2)$  or  $(1 - d)/(1 + d)$  more than the other. This example was an extreme simplification, because we assumed that the players are identical with the exception of move sequence. Proposition 3 permits many more comparisons, in particular, comparison between the share of one player if (s)he moves first with the share of the same player if (s)he moves second, keeping the number of rounds and the default alternative constant.

### *Incomplete Information*

The analysis here replicates the results of an incomplete information bargaining model developed by Grossman and Perry.<sup>26</sup> According to this model, two impatient players with time discount factor  $d$  are bargaining over the price of an object (one sells and the other buys). Although the buyer knows the announced price of the object, the seller does not know the buyer's willingness to buy. In fact, the buyer can be 'strong' (have a low valuation price for the object  $p_L$ ), 'weak' (have a high valuation price for the object  $p_H$ ), or, with equal probability any other valuation price in the  $[p_L, p_H]$  interval (a uniform distribution). The two players alternate in making offers to each other, until one of them accepts the offer made by the other, in which case the game stops and they exchange the object at the agreed price.

This model can be easily adapted to the political situation existing in the negotiations between two chambers, because, according to the rules of the navette, the two houses take turns making proposals to each other about the content of a bill, and whenever they agree on the content they stop the negotiation. One can consider the case where both players know the ideal point of the Senate but the National Assembly's ideal point is known only by the National Assembly itself, while the Senate has a probabilistic assessment: a

<sup>25</sup> If the number of rounds is not an integer, that is, if one house introduces the bill and the other applies the stopping rule, the advantage depends on the time discount factors of both houses.

<sup>26</sup> Grossman and Perry, 'Sequential Bargaining'.

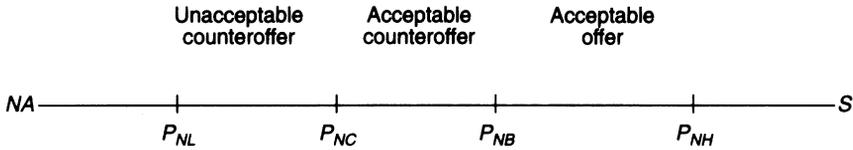


Fig. 2. Bargaining with incomplete information between the National Assembly and the Senate

uniform distribution between  $p_{NH}$  and  $p_{NL}$ . If  $N$ 's ideal point is close to  $S$ ,  $N$  has high valuation price  $p_{NH}$ , or  $N$  is 'weak'. If  $N$ 's ideal point is far away from  $S$ ,  $N$  has low valuation price  $p_{NL}$ , or  $N$  is 'strong'. In any intermediate case, it will have some  $p_N$  in the  $[p_{NL}, p_{NH}]$  interval.<sup>27</sup> Obviously, the number of rounds in the French case is between two and three when the government interferes (which is always the case for important bills), but we shall investigate only the infinite round case.

The intuition underlying this representation is straightforward. The distance between ideal points reveals the degree of compromise required to strike a deal (controlling for the time discount factor). A National Assembly whose ideal point is far from the Senate's ideal point will be less willing to compromise than a National Assembly that is closer because, holding discount factors constant, it will have to move further to conclude negotiations successfully.

First, Grossman and Perry demonstrate a series of properties of any Bayesian perfect equilibrium.<sup>28</sup> Here we present a short verbal account of the intuition behind their model.<sup>29</sup> Instead of using their example (buyer and seller) we use the Senate and the National Assembly as players. As Figure 2 indicates, there are two points  $B$  and  $C$  that divide the interval in three parts. These points may be distinct, or coincide with each other, or with the ends of the interval  $[p_{NL}, p_{NH}]$ ; in the latter two cases some of the three parts will be empty. (1) If  $N$  has an ideal point in the  $[p_{NB}, p_{NH}]$  interval it will make an acceptable offer to the Senate; if  $N$ 's ideal point is not in this interval it will make an unacceptable offer. (2) If  $S$  receives an unacceptable offer it updates its beliefs about  $N$ ; it understands that  $N$ 's ideal point is in the  $[p_{NL}, p_{NB}]$  interval.  $S$  makes an offer which would be accepted by any  $N$  with ideal point in the  $[p_{NC}, p_{NB}]$  interval. (3) If the offer

<sup>27</sup> Alternatively, one can make use of the results of the complete information model and consider the time discount factor of the National Assembly as unknown by the Senate. The National Assembly could be patient (have a high discount factor, in which case we would call it strong) or impatient (have a low discount factor, in which case we would call it impatient) or have any value between the two extremes. We shall make use of this interpretation in the empirical section.

<sup>28</sup> A Bayesian perfect equilibrium is an equilibrium where both players play equilibrium strategies in every subgame and update their beliefs along the equilibrium path using Bayes's rule. This equilibrium concept generates an infinity of equilibria all of which have the properties described in the text. Grossman and Perry use an additional criterion to define a perfect sequential equilibrium. For further information the technically inclined reader should consult Proposition 3.1 of Grossman and Perry, 'Sequential Bargaining', which provides the basis for the next paragraph.

<sup>29</sup> See Proposition 3.1 in Grossman and Perry, 'Sequential Bargaining'.

is rejected,  $S$  realizes that the time discount factor of  $N$  is in the  $[p_{NL}, p_{NC}]$  interval, and updates its beliefs accordingly. If the game has more than one round, then the process repeats itself with  $S$  having increasingly accurate beliefs about  $N$ . That is, if  $N$  has a discount factor in the  $[p_{NL}, p_{NC}]$  interval, and  $S$  has this knowledge, the negotiating process will last one round less than if  $S$  knew that  $p_N$  was in the  $[p_{NL}, p_{NH}]$  interval.

Grossman and Perry's model does not produce closed formulas for the calculation of equilibria, so they use computer simulations to investigate the properties of the equilibria of the bargaining process. Their simulations lead to a series of statements two of which we will single out and label 'conjectures'.<sup>30</sup>

*CONJECTURE 1:* The level of uncertainty has a positive effect on the length of bargaining.

*CONJECTURE 2:* As the time discount factor increases there are more periods of bargaining.

The combination of the two models (complete and incomplete information) provides two conclusions that differ sharply from points made in the existing empirical literature.

*CONCLUSION 1* (combination of Propositions 1, 2 and 3). The relative power of each house in bicameral legislatures is a function of institutional constraints (number of possible iterations, stopping rules, who initiates the process) and the impatience of each legislature to reach a deal, rather than presidential identity or senatorial wisdom.

*CONCLUSION 2* (combination of Conjectures 1 and 2). The number of actual negotiating rounds in bicameral legislatures increases with the uncertainty of the Senate about the National Assembly's willingness to compromise, and with the time discount factor of each house.

In the empirical application of the two models (the complete and the incomplete information) we unify them conceptually the following way. In accordance with the complete information model we consider an 'impatient' National Assembly, a 'weak' one (with a low time discount factor); and a 'patient' Assembly, a 'strong' one (with a high time discount factor). In accordance with the incomplete information model, a National Assembly whose ideal point is distant from the Senate's ideal point is 'strong', while an Assembly whose ideal point is proximate is 'weak'. Consequently, the adjectives 'strong' and 'weak' refer to either the ideal positions or the time discount factors of the National Assembly. Uncertainty can exist regarding either the National Assembly's position or its time discount factor. In the empirical applications we consider time discount factors less than one as well as discount factors greater than one. In the latter case, one of the two houses (the Senate) is not impatient at all, that is, when it prefers the status quo over any compromise with the National Assembly (which covers the periods of divided parliament).

<sup>30</sup> Since they are not proven formally, but are observations generated by their simulations. Both conjectures are cited from Grossman and Perry, 'Sequential Bargaining', p. 146.

## III. EMPIRICAL TESTS AND PREDICTIONS

We cannot test Conclusion 1 directly. This would require a random sample of legislation and an evaluation of each law and its proximity to the initial positions of the National Assembly and the Senate.<sup>31</sup> We can test Conclusion 2 with aggregate data from the French legislature. While this provides no direct support for our conclusions regarding the institutional sources of senatorial strength, it does provide support for our conclusions regarding the length of the navette process and, therefore, indirect support for the model's other propositions. In this section, we outline our empirical referents for the concepts of 'discount factor' and 'uncertainty' and develop specific tests for the negotiating process. We then compare the results of our model with alternative explanations of bicameral negotiations and demonstrate the superiority of our model.

Table 1 presents the number of laws enacted by the French Parliament each year between 1959 and 1980, divided into three categories: laws that were adopted in the first two rounds of the navette system; laws that were adopted after a meeting of a conference committee of the two houses; laws that were adopted by the National Assembly alone (Article 45.4 of the French Constitution).<sup>32</sup> The table also presents the number of government bills introduced in the National Assembly first. Finally, the table presents data relevant to the composition of the National Assembly (Gaullist allies,<sup>33</sup> Left, and total number of seats).

Conclusion 2 states that, under conditions of one-sided incomplete information, the number of negotiating rounds in bicameral legislatures increases with the Senate's uncertainty about the National Assembly (its position or its time discount factor). The French legislature under the Fifth Republic presents a natural test of this conclusion. Let us consider the discount factors of the two houses to be a function of their composition.<sup>34</sup>

<sup>31</sup> For a test of this conclusion through a series of case studies, see Money and Tsebelis, 'The Political Power of the French Senate'.

<sup>32</sup> It would have been desirable to have data concerning bills which were not voted into laws broken down into similar sub-groups (bills aborted before, during or after the joint committee). Unfortunately, such data are not available.

<sup>33</sup> The major part of these allies belong to the party of Valéry Giscard d'Estaing. In 1958 he was a young but prominent leader of the Centre National des Independants et Paysans (CNIP). In subsequent elections Giscard became the leader of the Independent Republicans (RI), who were allied with the Gaullists. In 1978 the Independent Republicans merged with other centre-right parties and formed the 'Union for French Democracy' (UDF). There were other centre-right parties that joined the Gaullist majority over time. The party names change while leadership and political platforms are more stable, so we refer to all the parties that joined the Gaullist majority as 'allies'.

<sup>34</sup> Obviously, this is a simplification because discount factors are also bill specific. The same National Assembly facing the same Senate may be in a big hurry to adopt one bill and indifferent about another; or one particular project may be very important for the Senate while another may not be. However, considering discount factors as a function of the composition of the two houses will give us some information about the average interaction between the two houses in the course of the legislative period.

TABLE 1 *Early Agreement in the Navette System and Composition of the National Assembly\**

Year	Agreement before Joint Committee (1-2 rounds)	Agreement in Joint Committee (2-3 rounds)	Decision by National Assembly (3-4 rounds)	Bills in National Assembly	Allies	Opposition	Total seats
1959	51	1	0	41	181	57	579
1960	84	2	3	65	181	57	579
1961	98	4	1	61	181	57	579
1962	50	1	1	30	35	107	482
1963	85	6	5	72	35	107	482
1964	107	5	6	94	35	107	482
1965	63	5	7	55	35	107	482
1966	129	9	5	119	35	107	482
1967	68	8	4	49	42	194	486
1968	58	7	5	53	61	91	487
1969	70	8	0	67	94	91	487
1970	79	16	2	70	94	91	487
1971	94	17	4	85	94	91	487
1972	115	9	7	81	94	91	487
1973	61	6	4	41	85	175	490
1974	57	13	0	41	85	175	490
1975	121	28	0	78	85	175	490
1976	86	23	1	58	85	175	490
1977	134	32	0	90	85	175	490
1978	60	29	1	43	123	199	491
1979	64	13	2	57	123	199	491
1980	71	14	2	54	123	199	491
1981	68	6	10	†	50	150	491
1982	68	12	32	†	50	150	491
1983	81	13	26	†	6	150	491
1984	78	16	26	†	6	150	491
1985	63	15	45	†	6	150	491

\* The data concerning the navette system up through 1980 (columns 2, 3, 4 and 5) from Jean Grangé, 'Attitudes et vicissitudes du Sénat (1958-1980)', *Revue Française de Science Politique* (1981); the data concerning composition of National Assembly and parties participating in majority (and columns 2-4 from 1981 to 1985) from Didier Maus, *Les Grands Textes de la pratique institutionnelle de la V<sup>e</sup> République* (Paris: La Documentation française, 1992).

† Data not available.

The Senate's composition has remained relatively constant over time. The majority of Senators represent the centre-right parties that are ideologically close to the different incarnations of the Giscardian party. In contrast, political representation in the National Assembly varies considerably over time. The Gaullist party (under different names) grew from 35 per cent of the seats in 1958 to 60 per cent in the landslide victory that followed May 1968; its allies (under different names) were numerous and heterogeneous in 1959 (31.5 per cent) and became more homogeneous over time, while their strength increased from 7 per cent in 1962 to 25 per cent in 1978. The Left (Socialist-Communist coalition) expanded from 8 per cent of the seats in 1958 to 40.5 per cent in 1978. In 1981, the socialist François Mitterrand was elected president and the subsequent election provided a socialist majority in the National Assembly. At this point in time, the Senate became the core of the political opposition.

Since the Senate has essentially constant composition over time, we can assume its discount factor is common knowledge. In contrast, we hypothesize that uncertainty about the National Assembly's discount factor varies according to its composition the following way: when the percentage of allies is high, the National Assembly will be known to be impatient (low discount factor). The idea is that the Gaullists will cater to their allies when they are an important part of the government majority. Conversely, when the majority in the National Assembly is known to be cohesive, that is, when the allies are weak, the Senate knows that any further delay will not produce significant results. So, high (low) percentages of allies in the National Assembly indicate that the National Assembly is impatient (patient), and that their level of patience (discount factor) is readily understood by the Senate. Intermediate levels of strength of the allies make the Senate unable to assess exactly the discount factor of the National Assembly. The Senate believes that the National Assembly's discount factor may be high or low, or anywhere in between.<sup>35</sup>

What effects does this analysis have on the length of the negotiating process? When the majority in the National Assembly is cohesive (weak allies), the Senate knows that the National Assembly is strong, consequently it will compromise in the negotiating process; when the majority is non-cohesive in the National Assembly (strong allies), the Senate knows that the National Assembly (Gaullists) is impatient to reach an agreement, and it will not settle without substantial concessions. In both cases, the navette should be short. In between, uncertainty about  $N$ 's discount factor increases; according to Conclusion 2 the length of the negotiating process increases. Consequently, when the allies are strong or weak (*ceteris paribus*), there will be fewer iterations; when they are at some intermediate level of strength (to be specified empirically) uncertainty increases and the number of iterations increases. This

<sup>35</sup> An alternative, and, in our opinion less convincing, hypothesis would be that intermediate levels of strength would not increase uncertainty about  $N$ 's discount factor but produce an intermediate discount factor. Although we find the reasoning developed in the text more convincing, we test this hypothesis too. It produces expectations identical with the 'linear composition models'.

interpretation leads to a quadratic specification of the actual number of negotiating rounds (low when the National Assembly is known to be strong or weak and high when the National Assembly is in-between). We will call this the *quadratic composition* model. In algebraic terms

$$p_{agree} = C - c(allies) + d(allies)^2 + e, \quad (1)$$

where  $p_{agree}$  is the percentage of bills adopted prior to a conference committee (indicating a short navette),<sup>36</sup>  $allies$  is the percentage of allied seats, and  $c$  and  $d$  are *positive* coefficients,<sup>37</sup> and  $e$  is an error term.

Similar arguments can be made about the strength of the Left. When the Left is strong *or* when the Left is weak, agreement will be reached faster (for different reasons) than when the Left has intermediate strength. This argument leads to the following model:

$$p_{agree} = C' - a(Left) + b(Left)^2 + e, \quad (2)$$

where  $Left$  is the percentage of Left seats, and  $a$  and  $b$  are *positive* coefficients, and  $e$  is an error term.

Estimation of Equations (1) and (2) produces the correct signs for  $a$ ,  $b$ ,  $c$  and  $d$ , but only Equation (1) produces statistically significant coefficients. The estimated coefficients can be used to calculate the strength of the Left and the allies that generates the maximum uncertainty about the National Assembly's discount factor.<sup>38</sup> Such calculations indicate that the maximum uncertainty occurs when the allies control around 20 per cent of the seats, while the corresponding percentage for the Left has never been reached in the period we examine.<sup>39</sup> On the basis of these observations we combine Equations (1) and (2) into the following equation which we refer to as *quadratic composition with Left*

<sup>36</sup> In other words, the Senate and the National Assembly agree on the legislation after one or two rounds of the navette, making government intervention and further negotiations unnecessary. We resort to this indicator because the data on French legislation do not indicate the number of rounds of the navette. Rather they indicate whether agreement was reached fast (in one or two rounds); whether the legislation was referred to a joint committee (two or three rounds); and ultimately whether the joint committee failed to reach an agreement and the government asked the National Assembly to make the final decision. While these distinctions do not replicate the actual number of rounds in the navette, they are an indicator of the length of the process ranging from few to many rounds. See Table 1 for actual data.

<sup>37</sup> The dependent variable in all the subsequent models is not dichotomous, but continuous (frequency of early agreement). The results reported subsequently are calculated by OLS. However, logit models produced similar findings.

<sup>38</sup> The minimum of a quadratic function  $y = ax^2 - bx + c$  is at the point  $x = b/2a$ .

<sup>39</sup> Depending on the estimated model this percentage is 67 per cent (calculated from the estimated coefficients of Equation (3)) or 44 per cent (calculated from the estimated coefficients when (2) and (3) are merged into the same equation) or 52 per cent when one includes time in the equation (see p. 119). The maximum strength of the Left during the examined period was 40.5 per cent in 1978.

model. Since the Left is always in the declining part of the quadratic we use a linear specification:

$$p_{agree} = C - a(\text{Left}) - c(\text{allies}) + d(\text{allies})^2 + e, \quad (3)$$

where  $a$ ,  $c$  and  $d$  are positive coefficients, and  $e$  is an error term.

Equation (3) assumes that the discount factor of the National Assembly is uniform during each legislative period. This is a oversimplifying assumption. A more realistic approach would assume that the discount factor of the National Assembly may not come from the same distribution. It may change with the life-cycle of the National Assembly. A newly elected National Assembly is stronger (it is less impatient or has higher discount factor) than one that is about to be re-elected. If this is correct, conference committee referrals will be highest in the middle of the legislature's life. Consequently, the frequency of agreement will reach its minimum in the middle of the life of the legislature. Note that the argument is similar in nature to the quadratic composition hypothesis and is congruent with our bargaining model. We call this the *cycling hypothesis*.

In order to test this hypothesis, one additional variable is introduced: age of the legislature. This variable has the value 0 in an election year, and maximum value 4 (since elections occur normally every five years). The complete equation to be estimated is:

$$p_{agree} = C - a(\text{Left}) - c(\text{allies}) + d(\text{allies})^2 - f(\text{year}) + g(\text{year})^2 + e, \quad (4)$$

where all variables are as in (3) and  $year$  is the age of the National Assembly, and  $f$  and  $g$  positive coefficients.

Before presenting the results of our estimations, we need to compare our hypotheses with those developed by other analysts of French bicameralism. The empirical literature distinguishes two dimensions of the National Assembly's political composition: the absolute size of the majority and the internal coherence of the majority. The first dimension refers to the strength or weakness of the opposition, which is indicated by Left strength in Table 1; the second refers to the relative strength of the government coalition partners, which is indicated by allied strength in Table 1. Marichy uses the terms 'large' and 'stable' to describe the two dimensions;<sup>40</sup> Grangé uses the terms 'breadth' and 'cohesiveness'.<sup>41</sup> They implicitly hypothesize a linear relationship between the level of agreement, Left strength and allied strength. However they disagree on the hypothesized direction of the relationship.

Grangé's variant predicts that, in general, a weak majority in the National Assembly is more intransigent, because the government cannot afford to lose the fragile compromise obtained in the National Assembly.<sup>42</sup> It is reasonable to

<sup>40</sup> Jean-Pierre Marichy, *La Deuxième Chambre dans la vie politique française depuis 1875* (Paris: R. Pichon et R. Durand-Auzias, 1969), p. 431.

<sup>41</sup> Grangé, 'L'Efficacité normative', p. 970.

<sup>42</sup> Grangé, 'L'Efficacité normative', p. 970.

assume that under these conditions there will be no immediate agreement between the two chambers. Grangé's rationale suggests a positive correlation between size and cohesion of majority in the National Assembly and speed of agreement.<sup>43</sup> Consequently, the stronger the Left and the allies in the National Assembly, the more iterations will be needed to make a decision. In contrast, Georgel argues that when the National Assembly majority is large, ministers are no longer preoccupied with the opposition and refuse to negotiate.<sup>44</sup> The working hypothesis here suggests a negative relationship between size and cohesion of the majority in the National Assembly and speed of agreement.<sup>45</sup> In algebraic terms the *linear composition* model is the following:

$$p_{agree} = C + a(\text{Left}) + c(\text{allies}) + e, \quad (5)$$

where  $a$  and  $c$  are coefficients which are *both* positive or *both* negative (depending on the hypothesis), and  $C$  is the intercept.

Table 2 demonstrates the goodness of fit of the competing hypotheses. Model (1) introduces the quadratic specification and finds that the coefficients reflect the predicted sign and are highly significant (at the 0.01 level). Model (2) which replicates the same hypothesis for the Left does not do well in terms of significance. The quadratic specification produces the correct sign of coefficients, but Left and Left<sup>2</sup> are collinear ( $r = 0.99$ ) so significance of both coefficients declines. Model (3) provides a better fit than all previous models. All three coefficients have the predicted sign and are highly significant. Introduction of the time dimension does not affect the results. Comparison of the cycling model with the quadratic composition model indicates that the coefficients of the composition variables remain virtually the same,<sup>46</sup> and the coefficients of the legislature's life are statistically insignificant. The  $R^2$  of Equation (4) does not improve. Finally the linear composition model (Equation (5)), derived from the empirical literature, finds that the size of the Left decreases the probability of an early agreement; however, the size of the allies does not affect the probability of early agreement.

Closer examination of the frequency distribution of the use of the conference committee indicates that the year 1978 is an outlier. The annual average use of conference committees is 11.5 per cent while its value in 1978 reached 32.2 per cent; the next highest value is 20.9 per cent.<sup>47</sup> Consequently, a good statistical

<sup>43</sup> See also Marichy, *La Deuxième Chambre*, p. 431.

<sup>44</sup> Jacques Georgel, *Le Sénat dans l'adversité (1962-1966)* (Paris: Editions Cujas, 1968), p. 102.

<sup>45</sup> Also see Mastias, *Le Sénat de la V<sup>e</sup> République*, p. 49.

<sup>46</sup> Since the correlation between the age of the National Assembly and its composition is zero, the estimated coefficients of Equation (2) are unbiased even if one assumes that the fully specified model is Equation (3) or (4).

<sup>47</sup> Without 1978 the mean is 10.5 per cent, the standard deviation 0.063. It can be calculated that the point 32.2 per cent lies 3.44 standard deviations away from the mean, and, therefore, assuming a normal distribution, with probability more than 95 per cent, 1978 lies outside the area where at least 99 per cent of the points of the distribution are (see Ronald E. Walpole and Raymond H. Myers, *Probability and Statistics for Engineers and Scientists* (New York: Macmillan, 1985), p. 223, on tolerance intervals).

TABLE 2 *Estimation of Frequency of Early Agreement (Without Use of Joint Committee): 1959–80\**

	Quadratic composition (Allies)	Quadratic composition (Left)	Quadratic composition (+ Left)	Quadratic composition (+ Left + Cycles)	Linear composition
Constant	1.05*** (17.6)	1.01*** (12.81)	1.08*** (21.59)	1.08*** (19.48)	1.00*** (24.0)
Left		-0.79 (-1.17)	-0.35*** (-3.16)	-0.36*** (-2.94)	-0.49*** (-4.60)
Left <sup>2</sup>		0.58 (0.46)			
Allies	-2.69*** (-3.77)		-1.67** (-2.48)	-1.62** (-2.25)	-0.09 (-0.66)
Allies <sup>2</sup>	7.33*** (3.88)		4.35** (2.39)	4.24** (2.16)	
Year				-0.003 (-0.14)	
Year <sup>2</sup>				0.003 (0.05)	
R <sup>2</sup>	0.44	0.52	0.64	0.64	0.53
Prop > F	0.004	0.0009	0.0003	0.003	0.0008

\* Coefficients indicated \*\*\* are significant at the 0.01 level or higher; coefficients indicated \*\* are significant at the 0.05 level or higher; coefficients indicated \* are significant at the 0.10 level or higher in two-sided tests; *t*-statistics in parentheses.

argument can be made for the elimination of 1978 from the data set. However, a substantive explanation for the peculiarity of 1978 must be provided. The number of important political bills introduced in 1978 was very high.<sup>48</sup> The quantity of politically important laws in 1978 was affected by the parliamentary elections scheduled that year. Giscard had postponed significant pieces of the conservative legislative agenda fearing a political backlash that would strengthen the Left and increase political support for the common electoral programme signed by the Socialists and Communists in 1972.<sup>49</sup> The March elections defused the leftist threat and positioned the allies more favourably within the conservative coalition. Giscard seized the opportunity created by friendly majorities in both houses to promote the programme described in his book *Démocratie Française*.<sup>50</sup> If one assumes that the discount factors of both houses increase when an important bill is introduced,<sup>51</sup> that is, neither is willing to give in easily to the demands of the other, then Conjecture 2 indicates that the number of negotiation rounds will increase. We claim that the high number of politically significant bills is a plausible explanation for the high frequency of conference committee use in 1978.<sup>52</sup>

Table 3 tests the same models without 1978. The omission of 1978 improved the fit of all models except for the linear composition model. With respect to the quadratic composition model with Left, both the  $R^2$  and the  $t$ -statistics have improved significantly: now most coefficients are significant at the 0.01 level. The improvement of fit of the other two models is more impressive. Now, the cycling hypothesis is corroborated. The  $R^2$  rises to 0.81 and all coefficients have the correct sign and are significant.

The model provides different expectations for the 1981–85 period. During these years the Left dominated the National Assembly, while the composition of the Senate remained the same. The Senate preferred the status quo ante over many projects introduced by the government. In other words, the Senate was

<sup>48</sup> In 1978 the Parliament voted the annual budget and two additional financial laws; two laws modifying the penal procedure and penalties; a law reorganizing radio and television; a law regulating the relations between citizens and the bureaucracy; a law on financial reorganization of local government; laws on unemployment, employment of youth, businesses; laws concerning savings and investment; a law on rents; laws on ocean pollution, etc. (Jean Grangé, personal communication).

<sup>49</sup> Peter Lange, George Ross and Maurizio Vannicelli, *Unions, Change and Crisis: French and Italian Union Strategy and the Political Economy, 1945–1980* (London: George Allen & Unwin, 1982), pp. 39 and 57.

<sup>50</sup> Jean Mastias, personal communication.

<sup>51</sup> This is only one possible assumption. One could argue that discount factors decline with the importance of bills, because the two houses are under stronger pressure. However, we defend our assumption not only because it is reasonable ('good' results for each house are more important than expedience), but also because it is congruent with experiences in other countries. For example, in the United States, the joint committee is used more frequently for important bills (Keith Krehbiel, *Information and Legislative Organization* (Stanford, Calif.: Graduate School of Business, Stanford University, 1990)).

<sup>52</sup> A strict test would require the introduction of one additional variable (percentage of politically important bills) to our model.

TABLE 3 *Estimation of Frequency of Early Agreement (Without Use of Joint Committee): 1959-80 Excluding 1978\**

	Quadratic composition (Allies)	Quadratic composition (Left)	Quadratic composition (+ Left)	Quadratic composition (+ Left + Cycles)	Linear composition
Constant	1.04*** (25.36)	1.05*** (16.14)	1.05*** (29.05)	1.08*** (31.67)	0.96*** (25.6)
Left		-1.14** (-2.05)	-0.22** (-2.58)	-0.24*** (-3.08)	-0.39*** (-4.08)
Left <sup>2</sup>		1.43 (1.36)			
Allies	-2.43*** (-5.01)		-1.83*** (-3.81)	-1.73*** (-3.92)	-0.0006 (-0.0005)
Allies <sup>2</sup>	6.90*** (5.38)		5.11*** (3.88)	5.01*** (4.15)	
Year				-0.04** (-2.22)	
Year <sup>2</sup>				0.008* (1.84)	
R <sup>2</sup>	0.62	0.54	0.73	0.81	0.49
Prop > F	0.0001	0.0009	0.0000	0.0001	0.002

\* Coefficients indicated \*\*\* are significant at the 0.01 level or higher; coefficients indicated \*\* are significant at the 0.05 level or higher; coefficients indicated \* are significant at the 0.10 level or higher in two-sided tests; *t*-statistics in parentheses.

infinitely patient. Under these circumstances our model predicts a high number of disagreements. For the 1981–85 period our model generates the same predictions as the existing literature. Empirically, we find that the use of Article 45.4 was higher than ever before. It increased from 2.8 per cent on average in the 1959–80 period to 26.2 per cent.<sup>53</sup>

#### IV. INTERPRETATIONS OF FRENCH LEGISLATIVE HISTORY

We have noted above our inability to test Conclusion 1 in the absence of a random sample of legislation and an evaluation of each law and its proximity to the initial positions of the National Assembly and the Senate. However, indirect support for our model can be gleaned from French legislative history. If we are correct in our contention that the relative power of each house in bicameral legislatures is a function of institutional constraints (number of possible iterations, stopping rules, and where the legislative process is initiated), these institutional tools should be used as political weapons. In France it is the government which wields these political weapons. It decides where to introduce a particular bill, the number of rounds (two or three) the navette will last, as well as whether it will ask the National Assembly to make the final decision.

John Huber has analysed the procedures used by governments on the floor of the National Assembly and found that such weapons are used by the French government in ways similar to those used by the legislative leadership in the United States.<sup>54</sup> Our evidence is congruent with his arguments and pushes them one step further. The government uses its institutional weapons both to affect the results on the floor of the house and to affect the interactions between the two chambers.

Evidence indicates a positive correlation (0.34) between the bills the government introduces to the National Assembly and the bills where the government applies Article 45.4 (final decision to the National Assembly). Governments in the 1959–80 period appear consistent in their attitude towards the Senate. De Gaulle was against the Senate, Giscard promoted its role through these institutional tools. In this sense, as suggested by French legislative analysts, the government affects the power of the Senate; our model specifies the means through which the government is able to vary Senatorial power as well as the limits of this manipulation.

Further investigation leads to the conclusion that the stronger the Gaullist party, the more the government stacked the cards in favour of the National Assembly: the correlation between the percentage of bills introduced in the National Assembly first and the percentage of the Gaullist party is 0.52, the percentage of the allies – 0.15, and the percentage of the Left – 0.59. Similarly, the correlation between the percentage of bills where the National Assembly had the final word and the percentage of the Gaullist party was 0.38, the percentage

<sup>53</sup> Tardan, 'Le Rôle législatif du Sénat', p. 100.

<sup>54</sup> Huber, 'Restrictive Legislative Procedures'.

of the allies – 0.51 and the percentage of the Left – 0.14. The government appears to use the first weapon (introduction of the bill in the National Assembly) more frequently against the Left, and the second (final decision by the National Assembly) more often against the allies. However, in regressions the statistical significance of the corresponding coefficients is low.

The strategy of the government changed in the 1981–85 period. For example, while the government applied Article 45.4 more frequently than ever before, it also introduced an unusually high number of bills to the Senate first, 32.8 per cent. Maus explains this apparent inconsistency by reference to rationalization of legislative work.<sup>55</sup> He claims that the government introduced bills in both houses to speed the legislative process. In fact, expediency was an important consideration of the Left in power because, since the Right was blocking the legislative agenda through the Senate and through frequent recourse to the Constitutional Council, the Left had to request seventeen extraordinary sessions of parliament.<sup>56</sup>

Existing literature attributes such institutional decisions exclusively to the desire to improve legislative efficiency. For example, Grangé notes that the use of the conference committee by the government, as well as the declaration of urgency, increases over time.<sup>57</sup> He claims that both measures economize time. However, if time alone were the issue, it is not clear why MPs and governments alike would not want to economize time in the beginning of the period as well as in the end. Our analysis indicates that all these decisions, in addition to their technical dimension,<sup>58</sup> transfer power from the Senate to the National Assembly and are used as political weapons as well.

## CONCLUSIONS

Disagreement between the two houses in bicameral legislatures is primarily resolved through the navette system. The predominant view in the empirical literature on navettes attributes the Senate with moral or normative authority: it may be able to impose its point of view ‘only by the recognized merit of its judgments’.<sup>59</sup> Moreover, this empirical literature provides organizational explanations for the use of different institutional provisions. For example, governments choose where to introduce a bill or whether to declare urgency and reduce the number of rounds of the navette to gain time; similarly,

<sup>55</sup> Maus, ‘Le Sénat’, pp. 122–3.

<sup>56</sup> The French Parliament cannot sit in normal sessions more than six months a year. The extraordinary sessions cannot last more than two weeks each (Vincent Wright, *The Government and Politics of France* (New York: Holmes and Meier, 1989)).

<sup>57</sup> Grangé, ‘L’Efficacité normative du Sénat’.

<sup>58</sup> The technical dimension includes time constraints that lead the government to declare urgency and reduce the number of rounds and excess load of the lower house, which leads the government to introduce a bill in the upper house first.

<sup>59</sup> Grangé, ‘L’Efficacité normative du Sénat’, p. 956.

parliaments refer bills to conference committees to increase legislative efficiency.

We have adopted a different approach. We explained the input of the Senate to legislation by the impatience of both chambers to reach agreement and the institutional constraints of the navette system. Our results are driven by the assumption that each house prefers an agreement today over the same agreement tomorrow and, therefore, is willing to make some concessions in order to reach this agreement. In this case, even if the National Assembly is constitutionally awarded the last word, it has to make concessions to the Senate in order to achieve its goal faster and without friction.

Our approach enables us to make predictions about the French parliament with more general comparative significance such as:

- The power of one house increases when a bill is introduced in it.
- The power of the weaker chamber increases with the number of rounds of the navette process.
- Final veto power is an important indicator of the power of a house, but does not indicate complete control over outcomes.

Our results stress the political as opposed to the organizational consequences of different institutional arrangements or choices by governments or parliaments. In this sense, our model provides an alternative, institutional explanation to what we have called Cicero's puzzle: why the Senate is powerful even when the National Assembly has the final word.<sup>60</sup>

Our approach enabled us to focus on the bargaining game between the two chambers and to draw conclusions about the length of the legislative process. In our account of French legislative history, the independent variable is not the presidency of the Republic but the composition of the National Assembly. As a consequence, we are able to account for the whole period of interaction between the two houses with the same set of variables. Our expectations were corroborated by the existing empirical data on France.

The model and results presented in this article can be extended in several directions. First and foremost, there is an essential comparative dimension to our model. Most bicameral legislatures of the world use the navette system to reach agreement.<sup>61</sup> Consequently, Propositions 1, 2 and 3 can be tested with empirical data from almost any bicameral legislature.

In the current form of the model the status quo is introduced indirectly: the more unsatisfactory the status quo, the more impatient the houses to agree on new legislation. However, the role of the status quo should be explicitly introduced into the model, and expectations concerning the power of each house as a function of the previous existing legislation should be developed and tested. In addition, in our model we ignored strategic actions of other players like the government or the conference committee. The government was assumed to

<sup>60</sup> Money and Tsebelis, 'Cicero's Puzzle'.

<sup>61</sup> Money and Tsebelis, 'Cicero's Puzzle'.

select among different possible alternative game trees, while the conference committee's decisions could be anticipated by both houses. Further developments should consider the strategic interactions of more than two players. Finally, and perhaps most importantly, our model does not address the issue of multidimensional bills, or the question of institutional change.

APPENDIX: BARGAINING WITH COMPLETE INFORMATION

In all the models, the players make offers to each other in each time period sequentially. The game ends either when an offer is accepted or when a specified number of rounds is reached without agreement (in this case a pre-specified default division applies). In all the models that follow, the counting is done backwards: the last period will be named 0, the period before the last, 1, etc. Two time periods constitute a round.

*Assumptions:* The players are 'impatient', that is, they have time discount factors  $d_N$  and  $d_S$  in the  $[0, 1]$  interval. The remaining assumptions regard the number of rounds and the default solution; these are presented at the beginning of each game.

1. Bill Introduced in N; One Round of Bargaining; Then, N Decides

Since  $N$  has the final word, it can wait for two time periods and get the whole dollar (discounted by  $d_N^2$ ). However, the whole dollar at time 0 is equivalent (from  $N$ 's point of view) to  $d_N$  at time 1. Therefore, if  $S$  makes an offer at time 1 it can keep  $(1 - d_N)$  and offer  $d_N$  to  $N$ . Similar reasoning indicates that  $(1 - d_N)$  at time 1 is equivalent (from  $S$ 's point of view) to  $d_S(1 - d_N)$  at time 2. Therefore,  $N$  can make an offer which gives to  $S$  the share  $d_S(1 - d_N)$  and keep  $1 - d_S(1 - d_N)$  for itself. This equilibrium is the unique sub-game perfect equilibrium of the game; therefore it is perfect.<sup>62</sup> Table A1 summarizes the argument.

TABLE A 1

Time period	Player $N$	Player $S$
0 $N$ offers	1	0
1 $S$ offers	$d_N$	$1 - d_N$
2 $N$ offers	$1 - d_S(1 - d_N)$	$d_S(1 - d_N)$

The equilibrium strategies are the following:

$N$ : First time period: Make offer  $1 - d_S(1 - d_N)$ . Second time period: accept any offer  $\geq d_N$ . Third time period: keep the whole dollar.

$S$ : First time period: Accept any offer  $\geq d_S(1 - d_N)$ . Second time period: Make offer  $1 - d_N$ . Third time period: accept any  $\geq 0$  offer.

The outcome is the division indicated in time period 2 of Table A1. From now on we shall present the tables without verbal statement of the arguments.

<sup>62</sup> See Reinhard Selten, 'Reexamination of Perfectness Concept for Equilibrium Points in Extensive Games', *International Journal of Game Theory*, 4 (1975), 25-55.

2. *2n Time Periods of Bargaining; Default Solution  $x_0$  (for N and  $1 - x_0$  for the Senate)*

(a) The bill is introduced in  $N$  first. At the end of time period 0, in the absence of agreement,  $N$  receives  $x_0$ . Table A2 indicates that at the end of time period 2 it will receive  $x_{2,N} = 1 - d_S(1 - x_0d_N)$ . Note that the outcome is indexed by both the number of time periods and where the bill is introduced first.

TABLE A2

Time period	Player $N$	Player $S$
0 $N$ offers	$x_0$	$1 - x_0$
1 $S$ offers	$x_0d_N$	$1 - x_0d_N$
2 $N$ offers	$1 - d_S(1 - x_0d_N)$	$d_S(1 - x_0d_N)$

Replication of the same reasoning for one more round (two time periods) gives:

$$x_{4,N} = 1 - d_S(1 - x_{2,N}d_N); \text{ generally, } x_{2n,N} = 1 - d_S(1 - x_{2n-2,N}d_N).$$

Expressing  $x_{2n,N}$  in terms of  $x_0$  gives

$$x_{2n,N} = (1 - d_S)(1 - (d_Sd_N)^n)/(1 - d_Sd_N) + x_0(d_Sd_N)^n. \tag{A1}$$

(b) The bill is introduced in  $S$  first. Similar calculations produce

$$x_{2n,S} = d_N(1 - d_S)(1 - (d_Sd_N)^n)/(1 - d_Sd_N) + x_0(d_Sd_N)^n. \tag{A2}$$

3. *Infinite Number of Rounds*

(a) Bill introduced in  $N$ . Taking the limit of (A1) when  $n \rightarrow \infty$  produces:

$$x_{\infty,N} = (1 - d_S)/(1 - d_Nd_S). \tag{A3}$$

(b) Bill introduced in  $S$ . Taking the limit of (A2) when  $n \rightarrow \infty$  produces:

$$x_{\infty,S} = (d_N(1 - d_S))/(1 - d_Nd_S). \tag{A4}$$

Comparison of (A3) and (A4) indicates that  $N$  gets less if it moves second.

4. *Proof of Monotonicity of the Share of N with the Number of Rounds (Propositions 1 and 2).*

Proposition 1 is a special case of Proposition 2 when the default solution is  $x_0 = 1$  (for the National Assembly). Therefore, it is sufficient to prove Proposition 2.

(a) Decreasing sequence; bill introduced in  $N$ . Suppose that  $N$ 's share if there is no agreement is

$$x_0 > (1 - d_S)/(1 - d_Nd_S). \tag{A5}$$

$$\text{We shall show that } x_{n,N} > x_{n+2,N} > (1 - d_S)/(1 - d_Nd_S). \tag{A6}$$

The proof is by induction; the proposition holds for  $n = 0$ . From Section 2 of this Appendix, we have:

$$x_{2,N} = 1 - d_S(1 - x_0d_N). \tag{A7}$$

If  $x_0 \leq x_{2,N}$  then, from (A7) we conclude that (A5) is false; therefore,

$$x_{2,N} < x_0. \tag{A8}$$

If  $x_{2,N} \leq (1 - d_S)/(1 - d_N d_S)$ , substitution in (A7) and simplification leads to the conclusion that (A5) is false; therefore,

$$x_{2,N} > (1 - d_S)/(1 - d_N d_S). \tag{A9}$$

Combining (A8) and (A9) we get  $x_0 > x_{2,N} > (1 - d_S)/(1 - d_N d_S)$ .

We need to show that if (A6) is true for  $2n$  it is also true for  $2n + 2$ .

$$\text{Assume that } x_{2n-2,N} > x_{2n,N} > (1 - d_S)/(1 - d_N d_S). \tag{A10}$$

From Section 2 of this Appendix, we have

$$x_{2n+2,N} = 1 - d_S(1 - x_{2n,N} d_N). \tag{A11}$$

If  $x_{2n,N} \leq x_{2n+2,N}$ , then (A10) is false; therefore,

$$x_{2n,N} > x_{2n+2,N}. \tag{A12}$$

If  $x_{2n+2,N} \leq (1 - d_S)/(1 - d_N d_S)$ , substitution in (A11) and simplification leads to the conclusion that (A10) is false; therefore,

$$x_{2n+2,N} > (1 - d_S)/(1 - d_N d_S). \tag{A13}$$

(A6) is the combination of (A12) and (A13).

Reversing inequalities we can prove the proposition for increasing sequence: if  $S$  has the first reading, the proof can be replicated after multiplying all inequalities by the positive  $d_N$ .

(b) Increasing sequence; bill introduced in  $N$ .

If  $x_0 \leq (1 - d_S)/(1 - d_N d_S)$ , then,

$$x_{2n,N} \leq x_{2n+2,N} \leq (1 - d_S)/(1 - d_N d_S).$$

The proof replicates the steps of the previous part (a) (replacing  $>$  by  $\leq$ ).

(c) and (d) Bill introduced in  $S$ . The proof can be replicated after multiplying all inequalities by the positive  $d_N$ .

### 5. Proof of First House Advantage (Proposition 3)

Taking differences between (A1) and (A2) we get

$$x_{2n,N} - x_{2n,S} = (1 - d_N)(1 - d_S)(1 - (d_S d_N)^n)/(1 - d_S d_N). \tag{A14}$$

The right-hand side of (A14) is always positive. This difference is independent of the stopping rule ( $x_0$ ) and increases with the number of rounds. Its maximum is  $((1 - d_N)(1 - d_S)/(1 - d_N d_S))$ , which is the advantage of the first reader in the case of an infinite number of rounds (no stopping rule).