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HUMAN CAPITAL AND LEGISLATIVE OUTCOMES

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## Abstract

This paper presents a model in which legislators use informational advantages to engage in rent-seeking activities. Previous work that postulated either informational asymmetries or rent-seeking behavior could not explain deviations from the median preference without reference to “committee power.” Integration of these forces demonstrates that legislative outcomes need not correspond to the median preference regardless of the extent to which “committee power” is present in a legislature. In general, both procedural and informational asymmetries can induce deviations in legislative outcomes.

**Keywords:** human capital, rent-seeking, informational asymmetries, legislature, institutions.

JEL Classification numbers: D72

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## 1 Introduction

The expertise of individual legislators played a central role in traditional theories of legislative organization. In the United States, committees were formed by the first Congress in order to promote the acquisition and revelation of information by legislators [Cooper 1970]. According to informational models of legislative organization, legislators use the committee system in order to obtain the collective gains associated with information revelation. While the committee system is employed to achieve these gains, committees are given minimal procedural advantages in order to avoid rent-seeking activities by legislators [Krehbiel 1991:7]. The absence of such "committee power" guarantees that legislative outcomes will reflect the median preference of the legislature.

The enormous growth in the size and scope of government during the twentieth century created a renewed interest in the determination and composition of legislative outcomes, and with this renewed interest came the most influential attack on the traditional theories of legislative organization: distributive theory. In distributive models of legislative organization, legislators with different policy preferences seek to extract rents from the legislature that are harmful to a legislative majority but beneficial to themselves [Weingast and Marshall 1988]. These rents are obtained through a collective logroll and safeguarded through procedural advantages at the committee level [Shepsle and Weingast 1984]. Thus, "committee power" forms the basis by which legislative outcomes diverge from the median preference.

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A severe limitation of previous theoretical work is its failure to recognize that deviations from the median preference can arise from information differentials as well as committee power. When rent-seeking legislators have different levels of expertise, more highly informed legislators may be able to move legislative outcomes away from the median preference even if they lack "committee power."<sup>1</sup> Empirical observers such as Matthews [1959] and Smith and Deering [1990:40] have noted the ability of well-informed legislators to affect legislative outcomes, and Fenno [1973:96] has written that a legislator who acquires sufficient expertise "may be the most influential man in Congress" in his chosen jurisdiction. While such influence would be uninteresting if it were used to obtain "good public policy" rather than to engage in rent-seeking, it seems unlikely that distributive motivations are entirely absent from the utility calculations of legislators [Krehbiel 1991: 259-260, Shepsle 1993]. Therefore, legislative outcomes under asymmetric information need not reflect the median preference whether or not committee power is present in a legislature.

In this paper, I integrate informational and distributive aspects of political theory and examine the implications for legislative outcomes. The first section of the paper describes the basic model and provides a characterization of legislative preferences. The second section demonstrates that, in general, outcomes in a legislature without committees will not correspond to the median preference of the legislature. The third section illustrates the effect of information on legislative outcomes through a three-person application of the theoretical results. The fourth section demonstrates that, when committees with procedural advantages are present in a legislature, deviations from the median preference are caused by a combination of committee power and "human capital power." The fifth section discusses the predictive power of the legislative equilibrium in real-world legislatures. The final section gives concluding thoughts.

## 2 The Basic Model

We suppose a unicameral legislature of  $N$  individuals who differ in two respects: preferences and human capital endowments.<sup>2</sup> Each legislator is endowed with levels of human capital over a series of unidimensional outcome spaces, which we shall denote as *jurisdictional human capital* (JHC). These human capital levels are constrained to the set of positive real numbers, the unidimensional outcome spaces are unbounded, and the structure of the legislature forbids bundling across jurisdictions. Consider a given jurisdiction, and represent the human capital endowment of legislator  $i$  in this jurisdiction by  $s_i$ .

Assume that each legislator has an ideal point over each jurisdiction, and let the ideal point for legislator  $i$  in the jurisdiction of interest be represented by  $p^i$ . Suppose that the utility function for legislator  $i$  is a general Euclidean preference structure of the form

$$G_i(x) = -\mathcal{E}[|x - p^i|^{2K}] \quad (1)$$

where  $x$  is a legislative outcome and  $K$  is a positive real number that is greater than one and constant across legislators. Under this preference structure, the utility of legislators is monotonically decreasing with distance from their ideal points. A further implication is risk-aversion on the part of legislators.

Although the preference structure of legislators is defined over outcomes, suppose that legislators must vote over proposals whose relationship to outcomes is uncertain. Further, suppose that jurisdictional human capital reduces the degree of uncertainty associated with an expected outcome. Then a *proposal* from legislator  $i$  may be represented as the ordered pair  $(p, s)$ , where  $p$  is the expected outcome of the proposal and  $s$  is the amount of jurisdictional human capital employed in the construction of the proposal. Let a proposal be *feasible* for legislator  $j$  provided  $s$  is not greater than  $s_j$ , and suppose that a proposal *beats* another proposal if it is preferred by a majority of legislators. Finally, let legislators be ordered by decreasing levels of jurisdictional human capital.

Let  $f_s$  denote the probability density function around the expected outcome of a proposal which embodies  $s$  units of human capital. We assume that there is a second-order stochastic dominance of  $f_t$  by  $f_s$  if and only if  $s > t$ .<sup>3</sup> We further assume that  $f_s$  is symmetric and does not vary with expected outcome. Under these assumptions, the outcome of a proposal with expected outcome  $p$  and human capital  $s$  may be represented by the equation

$$x = p + \omega_s \quad (2)$$

where  $x$  is the realized outcome of the proposal,  $p$  is the expected outcome of the proposal, and  $\omega_s$  is an error term that incorporates the uncertain relationship between policies and outcomes.

Under these assumptions, it is possible to characterize legislative preferences (as defined by the beat relation) over the proposal space. First, we will examine legislative preferences with respect to jurisdictional human capital. **Theorem One** guarantees that preferences for each

legislator over the proposal space are monotonically increasing in  $s$ . That is, other things equal, legislators will prefer proposals that incorporate greater levels of human capital.

**Theorem One:** *For any fixed expected outcome  $p$ , a proposal  $(p,s)$  is unanimously preferred to a proposal  $(p,t)$  if and only if  $s > t$ .*

**Proof:** Consider the distribution of the error term  $\omega$ . By definition of  $\omega$ , the riskiness of a proposal is positively related to the amount of human capital incorporated into the proposal. More formally, the distribution of  $\omega_t$  is a mean-preserving spread of the distribution of  $\omega_s$  when  $s > t$ . Rothschild and Stiglitz [1970] demonstrate that, other things equal, risk-averse individuals always prefer an original distribution to a mean-preserving spread of that distribution. For this reason, every legislator prefers  $(p,s)$  to  $(p,t)$  when and only when  $s > t$ .  $\square$

The following results are implied by **Theorem One**:

**Result 1.1:** *Suppose that a proposal  $(p,s)$  beats a proposal  $(p,t)$  and let  $r < s$ . Then  $(p,s)$  beats  $(p,r)$ .*

**Result 1.2:** *Suppose that a proposal  $(p,s)$  beats a proposal  $(p,t)$  and let  $r > s$ . Then  $(p,r)$  beats  $(p,t)$ .*

**Result 1.3:** *For any given expected outcome  $p$ , the proposal  $(p,s)$  beats any other feasible proposal  $(p,s)$ .*

We will now examine legislative preferences with respect to expected outcome. **Theorem Two** guarantees that the beat relationship over the proposal space is monotonic with distance from  $p^*$ . That is, other things equal, the legislature prefers a proposal whose expected outcome is closer to the ideal point of the median legislator.

**Theorem Two:** *For any fixed level of human capital  $s$  employed by proposing legislators, a proposal  $(p,s)$  from legislator  $i$  beats a proposal  $(q,s)$  from legislator  $j$  if and only if  $p$  is closer to the ideal point of the median legislator than  $q$ .*

**Proof:** The utility derived from a proposal is a function of two parameters: the expected outcome of the proposal and the degree of risk associated with the proposal. Since the degree of risk associated with the two proposals is identical,  $(p,s)$  is preferred to  $(q,s)$  by legislator  $r$  when

$$-|p - p^{*r}| > -|q - p^{*r}|.$$

Let the ideal point of the median legislator be  $p^*$ . When both expected outcomes are greater than  $p^*$ , a majority of legislators has ideal points less than both expected outcomes, and this majority prefers the proposal closest to  $p^*$ . When both expected outcomes are less than  $p^*$ , a majority of legislators has ideal points greater than both expected outcomes, and this majority prefers the proposal closest to  $p^*$ . Finally, when  $p$  and  $q$  are on opposite sides of  $p^*$ , the median legislator and every legislator with preferences to one side of  $p^*$  prefer the proposal whose expected outcome is closer to  $p^*$ . Since there are no other possible placements for  $p$  and  $q$ , the theorem is proven.  $\square$

The following results are implied by **Theorem Two**:

**Result 2.1:** *Suppose that a proposal  $(p,s)$  beats a proposal  $(q,s)$  and let  $|r-p^*| > |q-p^*|$ . Then  $(p,s)$  beats  $(r,s)$ .*

**Result 2.2:** *Suppose that a proposal  $(p,s)$  beats a proposal  $(q,s)$  and let  $|r-p^*| < |p-p^*|$ . Then  $(r,s)$  beats  $(q,s)$ .*

**Result 2.3:** *For any given level of jurisdictional human capital  $s$ , the proposal  $(p^*,s)$  beats any other feasible proposal  $(p,s)$ .*

We will now examine legislative preferences with respect to both jurisdictional human capital and expected outcome. **Theorem Three** completes the characterization of legislative preferences by examining preferences when both human capital and expected outcome differ. It illustrates the transitivity of the beat relation.

**Theorem Three:** *Suppose the legislature must choose between two proposals  $(p,s)$  and  $(q,t)$  using majority rule. Suppose further that  $|p-p^*| < |q-p^*|$  and  $s > t$ . Then it must be the case that  $(p,s)$  beats  $(q,t)$ .*

Proof: By **Theorem One**, the following inequalities hold:

$(p,s)$  beats  $(p,t)$

$(q,s)$  beats  $(q,t)$ .

By **Theorem Two**, the following inequalities hold:

$(p,s)$  beats  $(q,s)$

$(p,t)$  beats  $(q,t)$ .

Therefore, a joint application of **Theorems One** and **Two** implies the following chains of inequalities:

$(p,s)$  beats  $(p,t)$  beats  $(q,t)$   
 $(p,s)$  beats  $(q,s)$  beats  $(q,t)$ ,

which prove the theorem.  $\square$

### 3 The Legislative Equilibrium

The preference results of the previous section permit a discussion of legislative outcomes. Suppose the legislature may engage in pairwise votes between proposals. Let a proposal  $(p,s)$  from legislator  $i$  be a *credible threat* against a proposal  $(q,t)$  from legislator  $j$  if and only if legislator  $i$  prefers  $(p,s)$  to  $(q,t)$ . A proposal  $(p,s)$  is a *legislative equilibrium* if and only if the following two conditions hold:

*Acceptability*: The proposal  $(p,s)$  cannot be beaten by a credible threat from any other legislator.

*Proposer Rationality*: There is no proposal  $(q,t)$  that satisfies the *Acceptability* condition and is preferred to  $(p,s)$  by legislator  $i$ .

When a proposal does not satisfy *Acceptability*, a majority of legislators would prefer a different proposal and at least one legislator for whom such a proposal is feasible would be willing to offer the new proposal. When a proposal satisfies *Acceptability* but does not satisfy *Proposer Rationality*, the proposing legislator would prefer to offer a different feasible proposal and a majority of legislators would prefer the new proposal to any credible threat from any other legislator. Both conditions, of course, imply rent-seeking on the part of legislators.

The following theorem guarantees the existence and uniqueness of the legislative equilibrium.

**The Legislative Equilibrium Theorem:** *Under the assumptions of the human capital model, there exists a unique stable legislative equilibrium. In this equilibrium, legislator 1 employs his full endowment of jurisdictional human capital and chooses the expected outcome closest to his ideal point such that Acceptability is satisfied.*

**Proof.** By **Result 1.3**, a proposal cannot satisfy *Acceptability* unless it is made by legislator 1. By **Theorem One**, a proposal from legislator  $i$  cannot satisfy *Proposer Rationality* unless it incorporates  $i$ 's full endowment of human capital,  $s_i$ . Therefore, no proposal can satisfy the conditions for a legislative equilibrium unless it is of the form  $(p,s_1)$ .

Consider the set of proposals  $(p, s_1)$ , and let the interval of expected outcomes which satisfy *Acceptability* be  $[a, b]$ . If  $p^*$  lies within this interval,  $(p^*, s_1)$  is the unique legislative equilibrium. If  $p^*$  is less than the lower bound of *Acceptability*,  $(a, s_1)$  is the unique legislative equilibrium. If  $p^*$  is greater than the upper bound of *Acceptability*,  $(b, s_1)$  is the unique legislative equilibrium. Since there are no other possible placements for  $p^*$ , the theorem is proven.  $\square$

The *Legislative Equilibrium Theorem* demonstrates that, in a legislature without committees, the proposal chosen by the legislature need not conform to the wishes of the median legislator. In particular, the most highly informed legislator uses his human capital endowment in order to sway the legislative outcome toward his ideal point. Since he does not reveal the contents of his human capital stock (and thereby lose his informational advantage) in the construction of a proposal, it is in his interest to employ his full endowment of jurisdictional human capital. When his preferences are extreme and his informational advantage is large, the legislative equilibrium will be relatively far from the median preference. When his preferences are moderate and his informational advantage is small, the legislative equilibrium will be relatively close to the median preference.

Under the assumption that legislative outcomes could not depart from the median preference without committee power, previous work inferred the degree to which legislatures were characterized by committee power from such departures and then judged theoretical perspectives from this inference. However, the appropriate empirical test for committee power is the extent to which outcomes diverge from the legislative equilibrium. Tests involving the median preference demonstrate that some combination of committee power and "human capital power" are present in the legislature but cannot differentiate between these forces. Given the extent to which median-preference comparisons are present in the literature, it is instructive to examine the conditions under which the legislative equilibrium is in fact the median preference. Trivially, the correspondence holds when the most highly informed legislator is also the median legislator. In general, however, the legislative equilibrium differs from the median preference unless the most highly informed legislator and his constraining legislator have identical human capital endowments. Thus, under almost all distributions of ideal points and human capital endowments, deviations from the median preference do not imply the existence of committee power and cannot be used to judge the relative importance of informational and distributive forces in a legislature.

## 4 A Three-Legislator Example

We shall now consider a quantitative illustration of legislative preferences. Suppose that the legislature consists of three individuals with ideal points  $p^i$ . It is useful to begin the legislative equilibria calculation with the interval over which a proposal from legislator  $I$  cannot be beaten. The following theorem proves the existence of this interval, which we shall denote as the *invulnerability interval*.

**Theorem Four:** *For any given human capital level  $t > s_2$ , there is a unique set of expected outcomes  $I(t)$  such that a proposal  $(q,t)$  from legislator  $I$  beats any feasible proposal from any other legislator when  $q \in I(t)$  and is beaten by at least one feasible proposal from another legislator when  $q \notin I(t)$ .*

**Proof:** By **Theorem Three**,  $(p^*, s_2)$  beats any proposal by any legislator other than  $I$ . Therefore, the interval in expected outcome space over which  $(q,t)$  cannot be beaten is the interval over which  $(p^*, s_2)$  does not beat  $(q,t)$ . By transitivity, such an interval must exist. Furthermore, the interval is unambiguously larger when the proposal from legislator  $I$  incorporates higher amounts of human capital. Therefore, the interval that is obtained when legislator  $I$  uses his full endowment of human capital,  $I(s_1)$ , is the invulnerability interval.  $\square$

Consider a legislator composed of three individuals with ideal points  $p^i$ , and let those legislators be ordered by decreasing levels of jurisdictional human capital. In order to simplify the mathematical computations without altering any qualitative conclusions, we will make several assumptions about preferences and human capital. In particular, let the error term associated with a proposal  $(p,s)$  be uniformly distributed with mean zero and range  $[-1/s, 1/s]$ . Then the assumption of mean-preserving spreads is equivalent to a direct effect of human capital on variance. In this case, the variance of  $w_s$  is given by the equation

$$Var(w_s) = \frac{1}{3s^2} \quad (4)$$

Let

$$g(s_1, s_2) = \sqrt{\frac{1}{3s_2} - \frac{1}{3s_1}}. \quad (5)$$

It can be shown that the invulnerability interval under the assumptions of this section is given by

$$I(s_1, s_2) = [p^* - g(s_1, s_2), p^* + g(s_1, s_2)]. \quad (6)$$

Therefore, a proposal from legislator  $I$  whose expected outcome lies within this interval cannot be beaten if legislator  $I$  chooses to employ his full endowment of human capital.

Denote the invulnerability interval by  $[a, b]$ . There are four possible cases, shown in Figure 1 and described below.

**Case One** -  $I$  is the median legislator: Since legislator  $I$  has the highest endowment of jurisdictional human capital, his most preferred feasible proposal is  $(p^I, s_I)$ . Therefore, the proposal  $(p^I, s_I)$  is a credible threat by legislator  $I$  against any other feasible proposal. By **Theorem Three**, the proposal  $(p^I, s_I)$  beats any other feasible proposal from any legislator. Therefore,  $(p^I, s_I)$  is the legislative equilibrium.

**Case Two** -  $I$  is not the median legislator but his ideal point is within the invulnerability interval: Since legislator  $I$  has the highest endowment of jurisdictional human capital, his most preferred feasible proposal is  $(p^I, s_I)$ . Therefore, the proposal  $(p^I, s_I)$  is a credible threat by legislator  $I$  against any other feasible proposal. Since the expected outcome  $p^I$  lies within the invulnerability interval, **Theorem Four** guarantees that the proposal  $(p^I, s_I)$  beats any feasible proposal from legislators  $2$  or  $3$ . Therefore,  $(p^I, s_I)$  is the legislative equilibrium.

**Case Three** -  $2$  is the median legislator and  $I$ 's ideal point is outside the invulnerability interval: Suppose without loss of generality that  $p^I < a$ . By definition, no proposal by legislator  $I$  whose expected outcome lies within the invulnerability interval can be beaten when  $I$  employs his full endowment of jurisdictional human capital. By **Theorem Four**, the proposal  $(p^*, s_2)$  beats any proposal  $(p, s_2)$  such that  $p$  is outside the invulnerability interval; since  $2$  is the median legislator, the proposal  $(p^*, s_2)$  is a credible threat against any such proposal. Therefore, the set of proposals that cannot be beaten by a credible threat is composed of all proposals  $(p, s_2)$  such that  $a < p < b$ . Of these proposals, legislator  $I$  prefers  $(a, s_2)$ . Therefore, the proposal  $(a, s_2)$  is the legislative equilibrium.

**Case Four** -  $3$  is the median legislator and  $I$ 's ideal point is outside the invulnerability interval: Suppose without loss of generality that  $p^I < a$ . By definition, no proposal by legislator  $I$  whose expected outcome lies within the invulnerability interval can be beaten when  $I$  employs his full endowment of jurisdictional human capital. By **Theorem Four**, the proposal  $(p^*, s_2)$  beats any

proposal  $(p, s_1)$  such that  $p$  is outside the invulnerability interval, and the median legislator prefers  $(p^*, s_2)$  to any proposal  $(p, s_1)$  such that  $p < a$ . Since a majority of legislators share this preference but legislator  $1$  does not, it must be the case that legislator  $2$  also prefers  $(p^*, s_2)$ . Therefore, the proposal  $(p^*, s_2)$  is a credible threat against any proposal  $(p, s_1)$  such that  $p < a$ , and the set of proposals that cannot be beaten by a credible threat is composed of all proposals  $(p, s_1)$  such that  $a < p < b$ . Of these proposals, legislator  $1$  prefers  $(a, s_1)$ . Therefore,  $(a, s_1)$  is the legislative equilibrium.

In the three-person legislature, the set of expected outcomes that satisfy *Acceptability* is equivalent to the invulnerability interval because legislator  $2$  can always present the median preference as a credible threat. In general, however, the invulnerability interval forms a subset of those expected outcomes that satisfy *Acceptability*. Intuitively, the invulnerability interval is a proper subset when it is possible for both  $1$  and  $2$  to gain from rent-seeking on the part of legislator  $1$ . In particular, when the ideal points of legislators  $1$  and  $2$  are on the same side of  $p^*$ , the set of proposals from legislator  $1$  for which  $(p^*, s_2)$  is a credible threat does not include a range of points beyond the boundary of the invulnerability interval. When this is the case,  $2$ 's preferences need not define the limits of *Acceptability*, and if his preferences do define those limits, the interval over which a proposal from legislator  $1$  satisfies *Acceptability* is unambiguously larger than the invulnerability interval.

## 5 The Legislative Equilibrium with Committees

In the United States Congress, legislators are grouped into committees which have substantial influence over legislative outcomes. There is a broad consensus among political scientists that mechanisms such as gatekeeping authority and the ex post veto provide advantages to congressional committee members, and that these advantages bias legislative outcomes toward the preferences of committee members [Shepsle and Weingast 1987]. As we have shown, however, deviations from the median preference need not imply committee power unless the most informed legislator holds the median preference or all legislators have identical endowments of human capital.

Consider a particular jurisdiction and suppose that a legislative committee is empowered to choose the outcome in that jurisdiction. Since the committee is a subset of the legislature, legislative equilibria calculated at the committee level need not be equivalent to those calculated for the entire legislature. Although it is possible to express the magnitude of these differences in terms of the human capital endowments and preference distributions of the committee and the legislature, such a characterization would contribute scant empirical or theoretical insight into the effect of human

capital on legislative outcomes. However, two assumptions permit a remarkable conclusion about the role of human capital in legislatures. First, in accordance with the empirical observation that legislators tend to belong to committees in whose jurisdictions they are well-informed, suppose that both the most highly informed legislator and the legislator whose preferences define the *Acceptability* constraint belong to the committee in question. Second, suppose that the median preference of the committee is identical to the median preference of the legislature. Under these assumptions, the legislative equilibrium produced by the committee is identical to the legislative equilibrium without committees *regardless of the extent to which nonmembers are procedurally disadvantaged*. That is, the deviation from the median preference is entirely due to "human capital power" rather than committee power.

The median preference assumption that underlies this conclusion forms a part of the debate in political science over the existence of preference outliers on committees. The basic notion of the "preference outlier" hypothesis is that committees are in some way unrepresentative of the legislature and that this bias causes legislative outcomes to be similarly biased. While distributive theorists have assumed the existence of preference outliers, a substantial amount of empirical evidence suggests that this assumption does not describe the United States Congress.<sup>4</sup> Krehbiel [1990], for example, identifies three types of preference outliers: committees whose members demand uniformly high budgets for their jurisdictions, committees whose members are drawn disproportionately from the extremes of the legislature, and committees whose members exhibit uniformly high levels of interest in the committee's jurisdiction. Krehbiel tests the "preference outlier" hypothesis and finds that neither the high-demand nor the extreme-preference hypotheses accurately describe congressional committees. While he does not test for the presence of high-interest outliers, he notes that such outliers would not by themselves imply a bias in legislative outcomes.

The "preference outlier" controversy is important to the issue of human capital in legislatures because it can provide a necessary and sufficient empirical condition for the existence of human capital power in legislatures. If the median preference of a committee differs from the median preference of the legislature, a deviation from the median preference of the legislature is consistent with either human capital power or committee power. If, on the other hand, the median preference of a committee is identical to the median preference of the legislature, a deviation from the median preference of the legislature is consistent with human capital power but inconsistent with committee power. Therefore, the absence of "preference outliers" coupled with a deviation from the median preference of the legislature is sufficient to prove the existence of human capital power in

legislatures. In fact, deviations by a committee whose *distribution* of preferences differs from the full legislature are sufficient to prove the existence of human capital power provided the *median* preference of the committee is identical to the median preference of the legislature.

## 6 A Discussion of the Legislative Equilibrium

In recent years, political theorists have emphasized the importance of institutional structure on voting equilibria. Shepsle [1986], for example, details theoretical conditions under which legislative institutions can interact with legislator preferences to produce equilibria. Factors such as recognition rules for individual legislators and germaneness provisions for legislative proposals constrain the set of possible alternatives, and it is possible for these constraints to create or eliminate voting equilibria.

A natural question regarding the legislative equilibria pertains to the assumptions under which an institutional structure and proposal mechanism will produce outcomes that correspond to the legislative equilibrium. Suppose, in accordance with Baron and Ferejohn [1987], that legislators are chosen in accordance with an exogenously given recognition rule to submit proposals that then face an up-or-down vote by the legislature. Assume further that the legislative session ends when a proposal is approved. Under these assumptions, the following conditions are sufficient to guarantee the selection of the legislative equilibrium.

- (A) *Informational access*: The probability of selection for the most highly informed legislator approaches unity within a finite number of votes.
- (B) *Time-independence*: Legislators are neither penalized nor rewarded for the length of a legislative session.
- (C) *Proposal freedom*: Legislators chosen by the recognition rule may propose any expected outcome and employ any feasible level of human capital.

*Informational access* ensures that the most highly informed legislator is given the opportunity to construct a proposal, *time-independence* ensures that impatience will not induce a legislative majority to approve a proposal from a different legislator, and *proposal freedom* ensures that institutional constraints do not prevent the most highly informed legislator from proposing the legislative equilibrium. These conditions are highly intuitive aspects of real-world legislatures whose primary violations are due to time constraints. Legislators who have expertise in multiple jurisdictions might choose to forego a proposal in the jurisdiction of interest, thereby violating

informational access. Legislators who face a holiday or an election might approve a proposal that the legislative equilibrium could beat, thereby violating time-independence. Finally, institutional constraints imposed by the Rules Committee might remove the legislative equilibrium from the set of feasible proposals, thereby violating proposal freedom. While these violations can induce a legislative outcome other than the legislative equilibrium, they need not do so, and there are a wide variety of situations for which the conditions provide a reasonable model of legislative behavior. When the conditions hold, the legislative equilibrium provides a prediction about legislative outcomes; when the conditions do not hold, the legislative equilibrium provides a benchmark by which to judge legislative outcomes.

## 7 Conclusion

Two prominent theories of legislative organization examine legislative outcomes from perspectives of, respectively, informational asymmetry and rent-seeking. In this paper, I have outlined a model in which legislators use their expertise to engage in rent-seeking. With this model, I have demonstrated that legislative outcomes will not correspond to the median preference unless restrictive conditions are satisfied. I characterized the extent to which legislative outcomes will be close to (or far from) the median preference of the legislature in the absence of committees. I then applied the model to a legislature with committees and showed that previous work has systematically overstated the effect of committee power and understated the effect of expertise differentials on legislative outcomes. Finally, I have discussed the degree to which the predictions of the human capital model are likely to correspond to real-world legislatures.

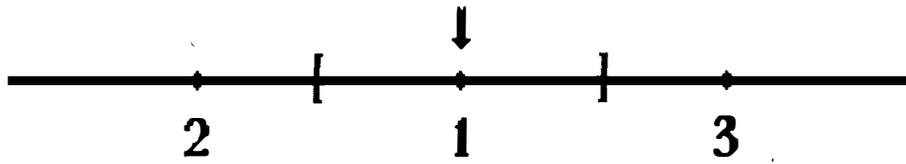
The central findings of this paper are relevant to both distributive and informational theories of legislative organization. Previous work in both of these areas concluded that legislative outcomes would not depart from the median preference unless committee power were present in a legislature and then debated the extent to which empirical legislatures were in fact characterized by committee power. Since deviations from the median preference need not imply the presence of committee power, the link between legislative outcomes and committee power does not hold. Thus, distributive theorists can no longer claim that deviations from the median preference imply the existence of committee power, and informational theorists can no longer claim that the absence of committee power implies median-preference outcomes.

A significant amount of work remains on the subject of human capital in legislatures. Theoretical extensions of the human capital model might examine legislative behavior under

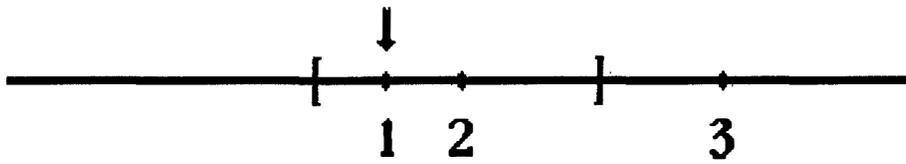
additional equilibrium concepts, introduce time constraints or endogenize human capital investment decisions, while empirical extensions of the human capital model might develop measures of jurisdictional human capital in order to provide an empirical test of its importance. Despite these reservations, the results of this study are unambiguous in their contention that human capital will affect legislative outcomes when legislators engage in rent-seeking. Given the empirical importance of both informational and distributive forces in legislatures, it is hoped that future work will elaborate upon their integration rather than perpetuate their separation.

**Figure 1**

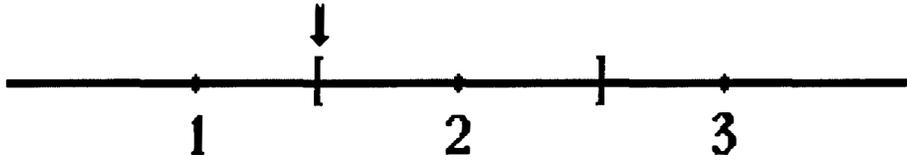
**Case One**



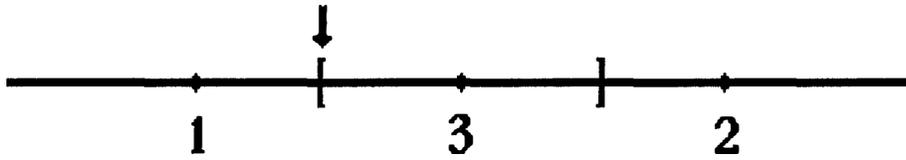
**Case Two**



**Case Three**



**Case Four**



## **Endnotes**

1. For a seminal theoretical treatment of legislative decisionmaking under uncertainty, see Gilligan and Krehbiel [1989,1990].

2. A detailed discussion of human capital is beyond the scope of this paper. A standard reference is Becker [1975].

3. Intuitively, the probability density functions around an expected outcomes are tighter when the proposer employs a relatively large amount of jurisdictional human capital.

4. This evidence is summarized by Krehbiel [1991: 254-256].

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