Information and Influence:
Lobbying for Agendas and Votes

David Austen–Smith*
University of Rochester

February 1992
Revised, May 1992

*This paper was written while the author was Visiting Professor of Economics and Political Science at the University of Iowa. Financial support from the NSF is gratefully acknowledged.

Abstract

This paper explores the extent and character of interest group influence on legislative policy in a model of decision making under incomplete information. A committee may propose an alternative to a given status quo under closed rule. Policies are related to consequences with *ex ante* uncertainty. An interest group is able to acquire policy–relevant information at a price, and has access to legislators at both the agenda setting stage and the vote stage. Lobbying is modeled as a game of strategic information transmission. The price of information is itself a private datum to the group, and legislators cannot observe whether the group elects to become informed. If the group is informed, then its information is likewise private. Among the results are: that not all informed lobbyists choose to try and influence the agenda directly; that there can coexist influential lobbying at both stages of the process; and that while informative agenda stage lobbying is generically influential, the same is not true of voting stage lobbying.

1. Introduction

Interest groups are typically seen to influence policy in two ways: through the giving of campaign contributions and through the distribution of specialist information. Although logically distinct, these two activities are surely related empirically. The basic premise of the "access" view of campaign contributions, in particular, is that groups make contributions to secure the attention of the relevant legislator. Despite such interrelationships, this paper is concerned exclusively with the role of groups as sources of policy–relevant information. In this context, lobbying is strategic information transmission.

Policy is a means to an end and not an end in itself. Legislators care about policy only in so far as they care about its consequences. Such consequences may be purely "political" (eg. How are reelection chances affected?), or they may be technical (eg. How will a revised Clean Air Act hurt employment in the car industry?). If there is no uncertainty about how policies map into consequences, then there is no issue here. However, such omniscience is rare and decision makers are frequently choosing policies without complete information on their consequences. In which case, information becomes valuable and those that possess it are accordingly in a position to influence policy.

In an important series of papers, Gilligan and Krehbiel (1987, 1989, 1990) study a legislative decision making process in which a committee is informed about the consequences of policy decisions relative to the majority of the House. Their focus is on the House's selection of rules for consideration of committee proposals to change the status quo; especially: When will a majoritarian House agree to a closed rule that surrenders monopoly agenda setting power to a minority committee? Loosely speaking, the answer is when the expected informational gains under a closed rule outweigh the expected distributional losses from that rule. In effect, the distributional loss is a price paid by the House in exchange for the committee revealing more information about the consequences of policy. For many decisions, however, the degree of informational asymmetry between committee members and the legislative body as a whole is negligible. Instead, it is interest groups who possess the relevant information (Rothenberg, 1989; Hansen, 1991). Unlike legislators, interest groups or lobbyists have no legislative decision making rights. But nevertheless they can, as observed above, influence policy through the specialist information they offer legislators.

In what follows, I build on the basic Gilligan and Krehbiel (1987) model by, *inter alia*, introducing a lobbyist in addition to the committee and the House. Legislative decision making is by closed rule and only the lobbyist may (but does not necessarily) possess technical information about the consequences of selecting any given policy. All the agents — legislators and lobbyist — have preferences over consequences that, with their beliefs about the relationship between policies and consequences, induce preferences over policies *per se*. Because preferences over consequences are primitive, "influence" only occurs through changing beliefs. And the extent to which any information offered to alter beliefs is effective, depends on the credibility of the lobbyist to the legislator in question. Such credibility is endogenous to the model, and depends partly upon how closely the lobbyist's preferences over consequences reflect those of the legislator being lobbied, and on how confident is the legislator that the lobbyist is in fact informed.

An important issue here concerns identifying the circumstances under which a lobbyist chooses to lobby the committee at the agenda setting stage, or to lobby the House at the subsequent voting stage, or both. Clearly, the character of the information that might be transmitted and the nature of the influence that might be exerted, is likely to differ between these stages. Among the results presented below are, first, that there exist circumstances under which influential lobbying can take place at both stages of the process, but that the structure of the information offered at each stage is distinct; second, that agenda stage lobbying can be influential even when the House's most preferred policy consequence lies between those of the committee and the lobbyist; and third, that more information can be offered here, where it is occasionally uncertain whether the lobbyist is informed or not, than is possible in the Gilligan/Krehbiel environment where the committee is known to possess information surely.

The plan of the paper is as follows. Section 2 develops the model and section 3 reviews two benchmark cases against which to juxtapose the results presented in section 4. Section 5 contains some numerical examples to illustrate the results; and section 6 is a brief conclusion. All formal proofs are confined to an appendix.

2. Model

2.1 *Agents and decision sequence.* There is an exogenously given status quo policy, $s \in \mathbb{R}$. Changes from the status quo are governed by a closed rule whereby a committee has the sole legislative right to propose an alternative policy, following which the legislature as a whole votes on whether to accept the committee's proposal or to retain the status quo. Assume that the committee is a unitary actor, C, and that there is a pivotal voter in the legislature as a whole (the House), H. Both C and H have primitive preferences over the consequences of policy decisions which, *ex ante*, are known only with uncertainty. In addition to C and H, there is a third interested party, a lobbyist L. L has no legislative decision making rights, but has access to both the committee and the House. Moreover, relative to both C and H, L might be better informed about the consequences of legislation. Consequently, lobbying in this model is strategic information transmission, in which L seeks to persuade C or H to behave in certain ways by providing information about the consequences of their legislative decisions (Austen–Smith and Wright, 1992). The sequence of events and decisions detailed below is summarized in Figure 1.

[FIGURE 1 HERE]

Three central aspects of the model are, first, that only the lobbyist L has the opportunity to acquire information about how policies map into consequences; second, that if L does acquire such information, it is private information to L; and third, whether or not L has acquired information is itself private information to L. However, with respect to this last point, I assume on the one hand that if L chooses to lobby some legislative actor $j \in \{C,H\}$, then j can costlessly verify whether L has acquired the information (but not what that information is); but, on the other hand, L has no way of credibly demonstrating that L has *not* acquired data. For example, given that information acquisition is costly, L can prove to j that L has acquired data by submitting the appropriate accounts. But while documentation can establish some fact or other, the absence of documentation does not prove the case either way.[1]

To model the features listed above, at the start of the game Nature is assumed to pick a price at which the lobbyist is able to purchase information. Let $p \in [0,1]$ denote this price, and assume $p \sim U[0,1]$ with this distribution being common knowledge among $\{C,H,L\}$. Once Nature has selected p randomly from the uniform distribution on $[0,1]$, p is revealed privately to L who then chooses whether or not to acquire information. The technology governing how policies map into consequences is assumed to be,

$$(1) \quad y = b - t,$$

where $y \in \mathbb{R}$ is a consequence, $b \in \mathbb{R}$ is a policy decision, and $t \sim U[0,1]$ is an *ex*

[1]See Okuno–Fujiwara, Postlewaite and Suzumura (1990) for a discussion of the difficulty of showing that one does **not** know something. A less prosaic reference can be found in Hollywood: it was exactly this difficulty that lead to Dustin Hofman being given such an unpleasant dental exam by Sir Laurence Olivier in the film, **Marathon Man**.

ante unknown parameter uncorrelated with p (cf.Gilligan and Krehbiel (1987) for a discussion of this specification). Let $T = [0,1]$. Assume that if L elects to acquire information at price p, then Nature privately reveals the true value of $t \in T$ to L.[2] Moreover, as remarked above, L's decision on whether to acquire information at price p is not observable by C or by H. Having become informed or not, L then chooses whether to lobby C at the agenda setting stage.[3] L's decision on whether to lobby is common knowledge.

In the model, lobbying itself is modeled as a cheap–talk speech (Crawford and Sobel, 1982; Farrell, 1988; Austen–Smith, 1990, 1992): it is no more difficult for a lobbyist to tell the truth about the value of t than it is for him or her to dissemble. Although, by assumption, legislators can verify whether or not L does possess information on t, they cannot determine the value of t independently of any information L gives them. And since L is known to have preferences over consequences, legislators will take account of the strategic incentives for lobbyists to dissemble. After hearing what the lobbyist has to say, if anything, the committee then chooses an alternative proposal to the status quo.

Once the alternative is fixed, L may choose to acquire information at the price p if he or she has not already done so. Having made this decision (again, private information to L), L may lobby H or not at all (evidently, given the agenda is set at this stage, there is no further incentive for L to lobby C). Again, L's lobbying is strategic information transmission and modeled as a cheap–talk speech. Finally, the House votes on whether to accept the committee's proposal or to retain the status quo; and the game ends with all agents receiving their payoffs from the House's

[2]It is worth noting that the assumption that L learns the true value of t is considerably stronger than necessary. Making the assumption facilitates the exposition.

[3]Assuming that L cannot lobby H, or both C and H together, at this stage, is substantively restrictive (Farrell and Gibbons, 1989) and will be discussed further in the concluding section. Formally relaxing the assumption is deferred to subsequent work.

policy decision.

2.2 *Preferences.* Each agent $j \in \{C,H,L\}$ has preferences over consequences given by,

(2) $U_j(y) = -(x_j - y)^2$; $y \in \mathbb{R}$, $x_j \in \mathbb{R}$.

These preferences are common knowledge and it assumed that $x_C > x_H \equiv 0$. No restriction is placed on the relative location of L's ideal point at this stage.

Given (1) and (2), j's induced preferences over policies are given by,

(3) $u_j(b) \equiv E[U_j(b-t)|\cdot] = -(x_j + E[t|\cdot] - b)^2 - \text{var}[t|\cdot]$; $b \in \mathbb{R}$, $t \in T$;

where the expectations are conditional on all the information that j possesses. It follows immediately from (3) that, for all j, the higher is the realized value of t, the larger is j's most preferred policy. In particular, for informed lobbyists, L's most preferred policy decision is strictly increasing in L's *type* t.

2.3 *Strategies.* Consider L's decisions. L has to decide when, if at all, to collect information; who to lobby and at what stage; and finally, what to say to the legislators L does elect to lobby. It is convenient to describe these in sequence.

L's *agenda stage information acquisition strategy* is a map:

(4) $\delta_a: [0,1] \times \mathbb{R} \to \{0,1\}$,

where $\delta_a(p,s) = 1$ [0] means that if the price of information is p and the status quo is s, then L acquires [does not acquire] the information on t. The restriction to a pure strategy here is without loss of generality. If $\delta_a(p,s) = 0$ then L will not lobby the committee. To see this, recall the assumption that if L lobbies legislator $j \in \{C,H\}$ then j can verify without cost whether L is informed, but not whether L is uninformed. Therefore, if L does not acquire the information, actively lobbying a legislator is equivalent to not lobbying at all. So without loss of generality, assume L actively lobbies a legislator only if L is informed.

Let $\delta_a(\cdot) = 1$. *Then it is natural to combine the decision on whether to lobby* C with the subsequent choice of what to say to C if C is lobbied. So L's *agenda stage lobbying strategy* is a map:

(5) λ_a: T × $\mathbb{R} \to M_C \cup \phi$,

where M_j is an arbitrary uncountable message space.[4] For example, $\lambda_a(t',s) = m$ means that L, having acquired the information that the true value of t is t′ and given the status quo s, actively lobbies C by making a speech ("sending a message") $m \in M_C$; similarly, $\lambda_a(t'',s) = \phi$ means that if L learns that the true value of t is t" and the status quo is s, then L chooses not to lobby C at this stage of the game. If L lobbies some legislative agent j, then this fact is common knowledge but the message L gives to j is private information to L and j. In other words, if L lobbies C for instance, then H can see whether C is lobbied but cannot observe the lobbying message itself.[5] To save on notation later, let $Z_j \equiv (M_j \cup \phi)$, j = C,H.

After any lobbying takes place at the agenda setting stage, the committee chooses an alternative to the status quo. The committee's strategy is specified below. Given the committee's decision, if $\delta_a(\cdot) = 0$, L may again choose to acquire information at the price p originally revealed by Nature. L's *voting stage information acquisition strategy* is a map:

(6) δ_v: [0,1] × $\mathbb{R}^2 \to \{0,1\}$,

where $\delta_v(p,b,s) = 1$ [0] means that, given a price of information p, the committee's proposal b and a status quo s, L chooses to acquire [not to acquire] information on

[4]Excluding mixed strategies here is justified by Crawford and Sobel (1982, Theorem 1), who demonstrate that all equilibria in a game of this form are essentially "partition" equilibria: the set T is partitioned into intervals and all types in a given interval use the same signaling strategy. Allowing for mixed strategies, therefore, simply means that there need be no out–of–equilibrium beliefs to specify. And in the present context, the issue is purely technical.

[5]Strictly, "Not lobby" is itself a message and in the analysis to follow it will be treated as such. However, it is convenient to distinguish the decision not to lobby a legislator directly from active lobbying messages; i.e. speeches given directly to legislators.

the value of t. Once again, if $\delta_v(\cdot) = \delta_a(\cdot) = 0$, then L will not lobby H. So, assuming $\delta_a(\cdot)+\delta_v(\cdot) > 0$, define L's *voting stage lobbying strategy* as a map:

(7) $\lambda_v\colon T \times \mathbb{R}^2 \to Z_H$;

where, for example, if $m \in M_H$ then $\lambda_v(t',b,s) = m$ means that, having observed a true value of t equal to t′, a committee proposal of b and the status quo s, L makes a cheap–talk speech to H about how to vote.

The description of C's strategy and of H's strategy is more straightforward, since each has only one decision to make. Consider the committee's strategy. C cannot observe what the price of information is or whether L chooses to acquire information at that price. All that C can observe prior to making any proposal is who L lobbies if anyone and, if L lobbies C, the message $m \in M_C$ that L sends. Hence, C's *proposal strategy* is a map:

(8) $\pi\colon Z_C \times \mathbb{R} \to \mathbb{R}$.

For example, $\pi(m,s) = b$ says that the committee, having been lobbied by L and having heard the message $m \in M_C$, proposes $b \in \mathbb{R}$ as an alternative to the given status quo $s \in \mathbb{R}$. Similarly, $\pi(\phi,s) = b'$ means that C proposes b′ as an alternative to s, given that L lobbied noone. Again, the restriction to a pure strategy here is without loss of generality.

The House can observe whether L lobbies, what L says only if L lobbies H, and what proposal the committee offers in place of the status quo. Hence, H's *voting strategy* is a map:

(9) $\nu\colon (\{C\} \cup \phi) \times Z_H \times \mathbb{R}^2 \to [0,1]$;

where, for example, if $m \in M_H$ then $\nu(C,m,b,s) = r$ says that H votes for the proposal b with probability $r \in [0,1]$, given that (i) L lobbied C at the agenda setting stage; (ii) L lobbied H at the voting stage and made a speech $m \in M_H$; and (iii) the committee's proposal is b and the status quo is s.

2.4 *Equilibrium concept.* The basic notion is sequential equilibrium: loosely speaking, at every decision node (both reached and unreached) every agent chooses a strategy that maximizes that agent's expected payoffs, and expectations are derived from players' strategies and the priors using Bayes Rule where this is defined. In the present context, there are multiple sequential equilibria, due largely to lobbying strategies being cheap–talk. Some of these equilibria are essentially identical in that they differ only in a labeling convention, and I shall ignore such differences. More important is that there invariably exists an equilibrium in which the lobbyist never acquires information — even at zero cost — and no lobbying takes place. Such an equilibrium is supported by pooling lobbying strategies conditional on L acquiring information (Farrell, 1988). With a pooling strategy, all lobbyist types (i.e. whatever the value of t that L learns is the truth) send the same message and, therefore, the listener can infer nothing. Hence the message is wholly uninformative; in which case there is no incentive for the lobbyist to purchase information in the first place. This kind of uninformative equilibrium specifies the least amount of information and influence that might be observed. Of more interest is the opposite extreme. Consequently, in what follows I shall only consider the most informative available equilibria. There are two justifications for this selection. The first, as already observed, is that it is useful to identify how much information transmission and influence there can be in any given institution; and the second is that, in the present context of risk–averse agents and uniform priors, all agents *ex ante* strictly prefer that the most informative equilibrium is played rather than any other (Crawford and Sobel, 1982; Austen–Smith, 1992).

Definition: An *equilibrium* is a list of strategies $\sigma^* \equiv ((\delta_a^*,\lambda_a^*,\delta_v^*,\lambda_v^*),\ \pi^*,\ \nu^*)$ and a set of beliefs $\mu \equiv (\mu_C,\mu_H)$ such that:

(e1) $\forall p \in [0,1],\ \delta_a^*(p,s) = 1$ iff $E[u_L(\cdot)|\lambda_a^*,\lambda_v^*,\pi^*,\nu^*]-p \geq E[u_L(\cdot)|\delta_v^*,\lambda_v^*,\pi^*,\nu^*]$;

(e2) $\delta_a^*(\cdot) = 0 \Rightarrow \lambda_a^* \equiv \phi;\ \delta_a^*(\cdot) = 1 \Rightarrow \forall t \in T,$

$$\lambda_a^*(t,s) \in \underset{\lambda\in Z_C}{\mathrm{argmax}}\ E[u_L(\cdot)|t,\lambda_v^*,\pi^*(\lambda,s),\nu^*(\lambda,\pi^*,s)];$$

(e3) $\forall m \in Z_C,\ \pi^*(m,s) \in \underset{b\in \mathbb{R}}{\mathrm{argmax}}\ E_{\mu_C}[u_C(\cdot)|m,\delta_v^*(\cdot,b,s),\lambda_v^*(\cdot,b,s),\nu^*(\cdot,b,s)]$;

(e4) $\forall(p,b) \in [0,1] \times \mathbb{R},\ \delta_v^*(p,b,s) = 1$ iff,

$$\delta_a^*(p,s) = 0 \ \textit{and}\ E[u_L(\cdot)|\lambda_v^*(\cdot,b,s),\nu^*]-p \geq E[u_L(\cdot)|\nu^*];$$

(e5) $\delta_a^*+\delta_v^* = 0 \Rightarrow \lambda_v^* \equiv \phi;\ \delta_a^*+\delta_v^* > 0 \Rightarrow \forall t \in T,$

$$\lambda_v^*(t,b,s) \in \underset{\lambda\in Z_H}{\mathrm{argmax}}\ E[u_L(\cdot)|t,\nu^*(\cdot,\lambda,b,s)];$$

(e6) $\forall(k,m,b) \in (\{C\} \cup \phi) \times Z_H \times \mathbb{R},\ \nu^*(k,m,b,s) = 0\ (\in[0,1])\ [= 1]$ as

$$E_{\mu_H}[U_L(b)|k,m,b] < (=)\ [>]\ E_{\mu_H}[U_L(s)|k,m,b];$$

(e7) μ_C and μ_H are derived from the priors and σ^* by Bayes Rule where defined.

Where there is no ambiguity I shall refer to an "equilibrium σ^*", taking the specification of beliefs as understood.

It is important to note that the definition implies, in equilibrium, that the price at which L will choose to acquire information is endogenous. This follows simply because the expected payoff to L from lobbying depends, *inter alia*, on what C chooses to do if C is not lobbied; and exactly what C chooses to do in this instance depends in turn on C's inference regarding whether L did not lobby because L has no information, or because L has information but chooses not to lobby at the agenda setting stage.

A lobbying strategy, λ_a or λ_v, is *informative* iff, on hearing L's message, the relevant listener's posterior beliefs about the value of t are distinct from his or her prior beliefs. A lobbying strategy is *influential* iff the relevant listener's subsequent decision (what alternative to propose in the case of C, or how to vote in the case of H) is not constant in the messages sent under the strategy. Evidently, influential strategies are necessarily informative, but informative strategies need not be influential.

An action is said to be *elicited* by a lobbying strategy if there is a message sent under the strategy that induces the listener to take that action. Clearly, the maximum number of actions (votes) that a voting stage lobbying strategy, λ_v, might elicit is two, and the maximum number of actions (proposals) that an agenda stage lobbying strategy, λ_a, might elicit is infinite. Suppose there exist two distinct equilibria σ and σ' such that (λ_a,λ_v) are used in σ and (λ_a',λ_v') are used in σ'. Then λ_a (resp. λ_v) is *at least as influential as* λ_a' (resp. λ_v') iff at least as many actions are elicited by λ_a (resp. λ_v) as by λ_a' (resp. λ_v').

Definition: An equilibrium σ^* is *most influential* iff the agenda stage lobbying strategy, λ_a^*, used in the equilibrium is at least as influential as the agenda stage lobbying strategy used in any other available equilibrium, and, *given* λ_a^*, the voting stage lobbying strategy, λ_v^*, is at least as influential as the voting stage lobbying strategy used in any other available equilibrium in which λ_a^* used.

In what follows, the focus is on most influential equilibria. Given the lexicographic structure of the definition, such equilibria always exist. (A justification for defining "most influential" in this way is given below.)

3. Two Benchmarks

Before proceeding to results from the model, it is useful to identify two benchmark cases in which the lobbyist plays no role. In the first, there is full *information:* in particular, both C and H know the true value of t. And in the second, the committee is fully informed but the House and lobbyist are uninformed. The former case has been much studied in the Structure Induced Equilibria literature (eg. Denzau and MacKay, 1983), and the latter case is analyzed in Gilligan and Krehbiel (1987).

Figure 2 illustrates the equilibrium proposals and outcomes for the full information case. In equilibrium, the committee proposes its most favoured alternative from the set of policies that both C and H prefer to the status quo. When this set is empty, C may propose any policy that it prefers to s, knowing it will be rejected; in Figure 2, it is assumed that in such cases C simply proposes the status quo.

[FIGURE 2 HERE]

If no agent is informed, then the equilibrium policy proposal and expected outcome for any s can be read off from Figure 2 by setting t equal to its expected value.

The situation is more complicated for the asymmetric information case. Gilligan and Krehbiel (1987) demonstrate that the most influential equilibrium (suitably defined for this case) is of the form illustrated in Figure 3.

[FIGURE 3 HERE]

For small and large values of t, the committee's equilibrium proposal reveals all the information and C is able to extract all of its monopoly agenda setting rents as in the full information case. For intermediate values of t, however, this is not so. In particular, the committee is unable credibly to offer any proposal for $t \in (s, s+x_C)$

that can defeat the status quo. In the full information case there is such a proposal for every t in this range, and all of these proposals have an equilibrium outcome equal to t–s.

4. Results

In what follows, let σ^* denote an arbitrary equilibrium. Unless explicitly stated otherwise, equilibrium statements refer to most influential equilibria. Formal proofs for results are contained in the Appendix.

The first two results, although of some substantive interest, serve principally to simplify finding equilibria.

Lemma 1: Let $\pi^*(\cdot) = b$. (.1) If $\lambda_V^*(\cdot)$ is not influential then,

$$E_{\mu_H}[U_H(b)|k,m,b] = E_{\mu_H}[U_H(s)|k,m,b] \Rightarrow \nu^*(k,m,b,s) = 1;$$

(.2) If $\lambda_V^*(\cdot)$ is influential then,

$$E_{\mu_H}[U_H(b)|k,m,b] = E_{\mu_H}[U_H(s)|k,m,b] \Rightarrow \nu^*(k,m,b,s) \in \{0,1\}.$$

The lemma is essentially technical and says that H will never randomize in equilibrium. In particular, if there is no influential lobbying at the voting stage then H will choose the committee's proposal whenever H is indifferent between the proposal and the status quo. A formal proof for the Lemma is omitted: Lemma 1.1 follows from sequential equilibria being subgame perfect (Banks and Gasmi, 1987); Lemma 1.2 follows easily from Lemma 1.1 and the definition of most influential.

Lemma 2: $\delta_V^*(\cdot) = 0$ is always a best response.

To all intents and purposes therefore, if ever L chooses to become informed then L does so at the agenda setting stage of the game. Specifically, if $\delta_v^*(\cdot) = 1$ is a best response then there exists no equilibrium in which $\lambda_a(\cdot)$ is influential. Hence, $\delta_a^*(\cdot) = 1$ is also a best response because waiting until the voting stage has no strategic or payoff-relevant implications for L, C or H. So without loss of generality, set $\delta_v^*(\cdot) = 0$ and write $\delta \equiv \delta_a$ hereafter.

The next result is substantive, providing a simple result characterization of the circumstances under which L can influence H's vote once the agenda has been set. Let $L(t')$ denote an informed lobbyist who has observed that the true value of t is t'.

Proposition 1: Suppose $b > [<]\ s$. Let $\hat{T}(b,s) \subseteq T$ be the subset of types such that $u_{L(t)}(b) \leq u_{L(t)}(s)$. Then $\lambda_v^*(\cdot)$ is influential iff

$$E_{\mu_H}[t \mid t \in \hat{T}(\cdot)] \leq [\geq]\ (b+s)/2 < [>]\ E_{\mu_H}[t \mid t \in T \backslash \hat{T}(\cdot)].$$

(Later, the equilibrium set $\hat{T}(\cdot)$ will be characterized.) Thus, voting stage lobbying can influence the House's decision if and only if, first, the committee's proposal and the lobbyist's preferences jointly induce a division of types into "high" and "low" and, second, the midpoint between the committee's proposal and the status quo lies between the (conditional) expected "high" type and the expected "low" type. In turn, the result suggests that, from a strategic perspective, only two speeches will be given in vote stage lobbying. This suggestion is discussed momentarily; before doing so, it is convenient to consider how the committee responds to any agenda stage lobbying.

Not surprisingly, the committee's equilibrium behavior reflects the equilibrium strategy identified by Gilligan and Krehbiel (1987), illustrated in Figure 3. In particular, in a most influential equilibrium, as the ideal point x_L of an informed lobbyist converges to that of the committee, x_C, the committee's proposal strategy converges to the Gilligan/Krehbiel committee strategy. In general, however, the lobbyist and the committee will have distinct preferences over consequences and so the number of proposals that can be elicited in equilibrium is finite. A partial characterization of the strategy is given the appendix. For now however, it suffices to report two facts. First, the committee will report a proposal that (*ceteris paribus*) induces the House to choose the status quo s, say b = s, only if the committee believes the expected value of t to lie within the interval $(s-x_C,s]$.[6] And second, unlike in the benchmark case where C has full information, there can exist at most one proposal in the interval $(s,s+2x_C)$. This is due to the finite number of proposals that any agenda stage lobbying can elicit when it is L who is informed and $x_L \neq x_C$; the relevant incentive compatibility constraints are less demanding.

With Proposition 1, the partial characterization of the committee's proposal strategy yields the following claim.

Proposition 2: In any (not necessarily most influential) equilibrium, σ^*:

(.1) agenda stage lobbying is *not* influential iff $E_{\mu_C}[t \mid \lambda_a^*(t,s)] \in (s-x_C,s]$ $\forall t$; consequently, $\lambda_a^*(\cdot)$ is rarely informative without being influential.

(.2) vote stage lobbying essentially involves only two messages[7]; consequently, $\lambda_v^*(\cdot)$ is often informative without being influential.

Proposition 2.1 follows from the committee being able to offer any proposal on

[6]Strictly speaking, C here can choose any policy that induces H to vote for s in the absence of any voting stage lobbying by L. To avoid irrelevant generalities (and having to make repeated qualifications during the exposition), it is assumed that C simply reports s.

[7]Formally: $\forall t \in \hat{T}(\cdot)$, $\lambda_v^*(t,\cdot) \in \hat{Z} \subset Z_H$; $\forall t' \notin \hat{T}(\cdot)$, $\lambda_v^*(t',\cdot) \in Z_H \backslash \hat{Z}$.

the real line as an alternative to the status quo. Because of this, any informative lobbying by the interest group will lead the committee to update its beliefs about the true value of t and adjust its proposal accordingly. Unless all the information that could possibly be offered leads the committee to update its beliefs to expecting the true value of t to lie within $(s-x_C,s)$, then the proposal offered will be sensitive to the lobbyist's speech. In contrast, once the agenda is set, the House can do only one of two things: accept or reject the proposal. Consequently, all vote stage lobbying amounts to a speech either supporting the proposal or supporting the status quo; Proposition 2.2 then follows.

Let the two messages sent with any equilibrium vote stage lobbying strategy be m and m′. Suppose for the moment that all informed types actively lobby H in the equilibrium (i.e. $m, m' \in M_H$). Then all L(t) who strictly prefer the status quo to the alternative b make the same speech (from a strategic perspective); essentially the speech is "Given what I know, you should choose s". This speech is honest in that it correctly reveals L(t)'s preferences, but it gives coarse information; if H knew the value of t for sure, then H may well strictly prefer b to the status quo. However, if $\lambda_V(\cdot)$ is influential then taking this into account still leads H to infer that choosing s is in H's best interest, and so H votes as recommended by L even though there is a positive probability that H will regret the decision *ex post*. Similarly, all L(t) who prefer the proposal b make the speech, "Given what I know, you should choose b".

Because only two messages can be sent in equilibrium, one such message could be "Not lobby". That is, only those L(t) favouring, say s, actively lobby H and those types favouring b stay home. And if there is an arbitrarily small but positive cost to gaining access to H, then certainly this pattern occurs. There is nothing in the model that dictates which side of the issue "should" actively lobby or which side should stay home. However, by Lemma 1.1, when the proposal is set optimally by the committee ($b = \pi^*(\cdot)$) to make H indifferent between s and b, H will, in the absence of any influential lobbying at the vote stage, choose b whenever $b \neq s$. For this reason it is natural to assume, when $\lambda_v^*(\cdot)$ is influential, that it is the types favouring s that actively lobby the House; i.e. $\lambda_v^*(t,\cdot) \in M_H$ $\forall t \in \hat{T}(b,s)$ and $\lambda_v^*(t',\cdot) = \phi$ $\forall t' \in T\backslash\hat{T}(b,s)$.

Although L can choose not to lobby C actively at the agenda stage, *not* lobbying C can itself constitute an informative signal to C. This follows from Proposition 3.

Proposition 3: Suppose $\lambda_a^*(\cdot)$ is influential and let $\pi^\circ \equiv \pi^*(\phi,s)$. Then,

$$\lambda_a^*(t,s) \in M_C \ \forall t \in T \Rightarrow \{t \in T|\ \pi^*(\lambda_a^*(t,s),s) = \pi^\circ\} \neq \emptyset.$$

So if all informed lobbyist types actively lobby the committee, then it must be the case that some of these types elicit precisely the same proposal from the committee as the committee would choose if it were not lobbied at all. This necessary condition identified in Proposition 3 is extremely restrictive; in particular, if $x_L \neq x_C$ it cannot be expected to hold. Consequently, the result implies that in virtually any influential equilibrium, at least some informed types will not lobby the committee. Given this, what C chooses to do when $\lambda_a(\cdot)$ is influential and C is not lobbied depends on C's beliefs, first, about the likelihood that L is informed and, second, about which informed types prefer not to lobby at the agenda setting stage. Proposition 4 gives some qualitative information on the second issue.

Proposition 4: Suppose $|x_L - x_C| > 0$ and let $T^\circ(s) = \{t \in T|\ \lambda_a^*(t,s) = \phi\}$. Then in any most influential equilibrium, $T^\circ(s) \neq T$ and $x_L > [<]\ x_C$ imply $T^\circ(s)$ is an interval with $E[t|t \in T^\circ(s)] < [>]\ 1/2$. Further, $\lim_{|x_L - x_C| \to 0} T^\circ(s) = \{1/2\}$.

That T° is an interval follows from Crawford and Sobel (1982), who prove that all informative (equilibrium) lobbying strategies $\lambda_a(\cdot)$ must have a partition structure in which all types in a partition send the same message. Beyond this, the proposition says that, unless the committee's and the lobbyist's preferences coincide, in a most influential equilibrium it is the relatively "low" ["high"] types who choose not to lobby when $x_L > [<] x_C$. The result is fairly intuitive, although it should be emphasized that for some parameterizations there can exist equilibria in which, for example, "high" types do not lobby when $x_L > x_C$; but such equilibria cannot be the most influential, given L and C have different preferences. Furthermore, as L's preferences become more similar to C's, the set of types choosing not to lobby shrinks, becomes more centrist, and coincides in the limit with the type ($t = 1/2$) whose most preferred committee proposal is exactly what the committee would choose on the basis of the prior information only. The intuition here is simply that C's and L's preferences are identical in the limit, so L(1/2) "staying home" gives C exactly the same *information* as if L(1/2) lobbied actively.

An immediate implication of Proposition 4 and the committee's best response proposal strategy is that the committee's proposal consequent on not being lobbied is, *ceteris paribus*, typically biased away from the proposal it would offer if there were no lobbyist at all. Formally,

Corollary: In any most influential equilibrium, $1/2 \notin (s-x_C, s]$ implies $\pi^*(\phi,s) < [>]$ $1/2$ as $x_L > [<] x_C$.

The game without a lobbyist surely possesses an equilibrium (see section 3) and so, as discussed in section 2.4 above, the game with a lobbyist also has an equilibrium; specifically, one in which L does not acquire information and, if ever L does lobby C or H, L's messages are ignored. The relevant issue, then, concerns the circumstances under which there exists an influential equilibrium. Proposition 1 answers this question for voting stage lobbying strategies. Because the committee's strategy space is not finite, an analogous result for agenda stage lobbying strategies is less immediate.

Proposition 5: (.1) Suppose $s \notin (-x_C, x_C+1)$. Then there exists an influential equilibrium lobbying strategy $\lambda_a^*(\cdot)$ iff $|x_L - x_C| < 1/2$. When $s \in (-x_C, x_C+1)$, these conditions are necessary but not sufficient.

(.2) $\forall(x_C, x_L, s)$, there exists a unique $p^*(x_C, x_L, s) \in [0,1]$ such that $\delta^*(p,s) = 1$ iff $p \leq p^*(\cdot)$.

Because $x_C > x_H \equiv 0$ by assumption, it follows from Propositions 1 and 5.1 that for some given distances between x_L and x_C, a lobbyist having $x_L > x_C$ can, *ceteris paribus*, be influential only at the agenda setting stage whereas a lobbyist having $x_L < x_C$ can be influential at both the agenda setting and at the vote stage.

Assuming it to be common knowledge that L has information, and assuming further that C is free to implement any policy it chooses (in effect, that H prefers the consequence x_C to the consequence s–t for all $t \in T$), Crawford and Sobel (1982) prove that, with quadratic utilities and a uniform prior on T, there can exist an influential equilibrium lobbying strategy $\lambda_a(\cdot)$ if and only if $|x_L - x_C| < 1/4$ (see also Gilligan and Krehbiel, 1987). Because neither of the Crawford/Sobel assumptions hold, Proposition 5.1 is *prima facie* surprising. The intuition for the result lies in "Not lobby" being a distinguished message. If it is common knowledge that L is informed then "Not lobby" is no different from an explicit speech $m \in M_C$; in equilibrium, C makes the identical inference about L's type as he would if L actively lobbied and delivered the speech m. Thus the upper bound of 1/4 is necessary to insure that there is some separation of types who actively lobby C. However, when

C is unsure whether not being lobbied means L is uninformed or informed but choosing to stay home, there is no speech in M_C that induces the same equilibrium inference. Consequently, even if all those L(t) who actively lobby deliver the same message $m \in M_C$ (i.e. pool), so long as there exist some types who choose not to lobby, the strategy $\lambda_a^*(\cdot)$ is influential. Under the Crawford/Sobel or Gilligan/Krehbiel assumptions, if all L(t) send the same message then necessarily the lobbying strategy is uninformative.

To make the preceding point formally explicit and to illustrate the nature of the lobbying process at the agenda stage, let $(x_L - x_C) > 0$. Then, as shown in the Appendix, the critical price p* (Proposition 5.2) is implicitly defined by,

$$(10)\quad p^* = \sum_{i=1}^{i=N} \int_{t_{i-1}}^{t_i} [U_L(\pi^*(\lambda_a^*(t,s),s)-t) - U_L(\pi^*(\phi,s)-t)]dt;$$

where $t_0 \equiv 0$, $t_N \equiv 1$, $T^\circ(s) = [t_{j-1},t_j)$ for some $j \geq 1$, and $\forall i \neq j$, $\forall t \in [t_{i-1},t_i)$, $\lambda_a^*(t,s) = m_i \in M_C$ (m_i distinct). Now suppose $s \notin (-x_C, x_C+1)$. So C's best response proposal strategy is to pick the alternative that C expects to lead to the outcome x_C (cf. appendix), and, by Lemma 1 and Proposition 1, H will always accept C's proposal. For all $i = 1,\ldots,N$, let $\hat{t}_i \equiv E_{\mu_C}[t \mid t \in [t_{i-1},t_i)]$. Then in equilibrium (see appendix),

$$(11)\quad \forall t \in [t_{i-1},t_i),\ \forall i = 1,\ldots,N,\ i \neq j,\ \pi^*(\lambda_a^*(t,s),s) \equiv \pi_i^* = x_C + \hat{t}_i;$$

$$(12)\quad \forall i = 1,\ldots,N-1,\ i \neq j,\ t_i = [\pi_i^* + \pi_{i+1}^*]/2 - x_L;$$

$$(13)\quad \hat{t}_j = [1-p^*+p^*(t_j^2-t_{j-1}^2)]/2[1-p^*+p^*(t_j-t_{j-1})].$$

Clearly, the lobbying strategy $\lambda_a^*(\cdot)$ is influential only if $N \geq 2$. Given $s \notin (-x_C, x_C+1)$, Proposition 5.1 states that for N = 2 there exists a solution $(p^*, t_1^*) \in (0,1] \times (0,1)$ to (10)–(13) iff $x_L - x_C < 1/2$. If L were known surely to be informed, then $p^* = 1$ and C's equilibrium inference conditional on L not lobbying is simply $t_1^*/2 \equiv E_{\mu_C}[t \mid t \in [0,t_1)]$ (since $T^\circ = [0,t_1]$ here). But then if $t \in [0,t_1^*)$, L(t) may as well lobby actively and send a message $m_1 \in M_C$.

Propositions 4 and 5.1 together justify the lexicographic definition of "most influential" used in this paper: because "Not lobby" is itself an informative signal, the agenda stage lobbying strategy is necessarily influential whether or not L elects to speak directly to C.

Evidently, there can be active lobbying of H only if s is not elicited by $\lambda_a^*(\cdot)$. And Proposition 5 implies that if $x_C - x_L \geq 1/2$, then at most the voting stage lobbying strategy $\lambda_v^*(\cdot)$ can be influential. Less transparent possibilities are given by Proposition 6.

Proposition 6: (.1) For some (x_L, x_C, s), there exist most influential equilibria in which *both* $\lambda_a^*(\cdot)$ and $\lambda_v^*(\cdot)$ are influential;

(.2) $[x_L > (<)\ 0\ \&\ s < (>)\ \pi_1^*] \Rightarrow [\hat{T}(\pi_1^*, s) \neq \emptyset \Rightarrow \lambda_v^*(\cdot)$ influential];

(.3) If σ^* is a most influential equilibrium in which both $\lambda_a^*(\cdot)$ and $\lambda_v^*(\cdot)$ are influential, then: (i) $s \notin [\pi_1^*, \pi_N^*]$ almost always; and (ii) $\forall t \in T$, $\nu^*(C, \lambda_v^*(t,\cdot),\cdot) \neq \nu^*(C, \phi, \cdot) \Rightarrow \lambda_a^*(t,\cdot) = \phi$.

Proposition 6.1 says that influential agenda stage and influential voting stage strategies can coexist for some distributions of ideal points and the status quo. Proposition 6.2 gives a simple sufficient condition for voting stage lobbying strategies to be influential (whether or not agenda stage strategies are influential). Finally, Proposition 6.3(i) claims that both lobbying strategies can be influential, first, only if the status quo s is not an elicited proposal in equilibrium and, second, only if all elicited proposals either lie above or lie below s. Proposition 6.3(ii) asserts that whenever both the agenda stage and the voting stage lobbying strategies are influential, only those types who do *not* lobby the committee actively (ie $\lambda_a^*(t,s) = \phi$) are in a position to lobby H influentially (ie $\lambda_v^*(t,\cdot) \in M_H$).

With respect to Proposition 6.3(ii), it is important to emphasize that the result is only true for equilibria that are most influential; there may exist equilibria in which some given L(t) actively lobbies and has influence both at the agenda setting stage and at the vote stage, but such equilibria are not most influential. Empirically, of course, lobbyists are observed to lobby both at the agenda setting stage and at the voting stage. Insofar as they are ineffective at one of these stages, such data is consistent with the model here. However, on some occasions lobbyist are influential at both stages. *Ceteris paribus*, the result above implies that this can only occur if there is some additional uncertainty present; for instance, concerning the house's ideal point. And this is intuitive.

In the discussion following Proposition 2, it was observed that only those L(t) prefering s to π^*, $\hat{T}(\pi^*,s)$, have an incentive actively to lobby H at the voting stage (given any arbitrarily small cost of gaining access). Proposition 6 asserts that if such lobbying is influential, then the set $\hat{T}(\pi^*,s)$ invariably comprises those informed types who do not actively lobby the committee; i.e. $\hat{T}(\pi^*,s) = T^\circ(s)$.

5. Examples

This section presents some simple examples to illustrate the sorts of equilibrium phenomena identified above. In all of the examples with influential agenda stage lobbying strategies, $|x_L-x_C|$ admits more informative equilibria than is possible under the assumption that L is known to be informed. Examples 1 and 2 illustrate equilibria with influential agenda stage lobbying and no vote stage lobbying. In Example 3 there are types who can credibly give information to H, but cannot do so influentially. Example 4 involves an equilibrium in which both $\lambda_a^*(\cdot)$ and $\lambda_v^*(\cdot)$ are influential. Finally, Example 5 is a case in which there is no influential agenda stage lobbying, but there is influential lobbying at the voting stage.

In all of the examples, σ^* denotes the most influential equilibrium strategies; $\pi_i^* \equiv \pi^*(m_i,\cdot)$, $\pi^\circ \equiv \pi^*(\phi,\cdot)$; and numerical values are rounded to four decimal places.[8]

Example 1: Let $s = -x_C = -0.125$ and $x_L = 0.5$. Then σ^* is such that: $N = 2$; $p^* = 0.0603$; $t_1^* = 0.1638$; $\lambda_a^*(t,s) = \phi\ \forall t < t_1^*$; and $\lambda_a^*(t,s) = m_2 \in M_C\ \forall t \geq t_1^*$. Hence, $\pi^*(\phi,s) = 0.6207$ and $\pi^*(m_2,s) = 0.7069$. Because $s = -x_C$ and $x_L > x_C$, $\hat{T}(\pi',s) = \emptyset\ \forall \pi' \in \{\pi^\circ,\pi_2^*\}$, $\lambda_v^*(\cdot) \equiv \phi$ and π' is accepted.□

Example 2: Let $s = 1+x_C$, $x_C = 0.075$ and $x_L = -0.3$. Then σ^* is such that: $N = 2$; $p^* = 0.0603$; $t_1^* = 0.8363$; $\lambda_a^*(t,s) = \phi\ \forall t \geq t_1^*$; and $\lambda_a^*(t,s) = m_1 \in M_C\ \forall t < t_1^*$. Hence, $\pi^*(\phi,s) = 0.5794$ and $\pi^*(m_1,s) = 0.4931$. Because $s = x_C+1$ and $x_L < 0$, $\hat{T}(\pi',s) = \emptyset\ \forall \pi' \in \{\pi^\circ,\pi_1^*\}$, $\lambda_v^*(\cdot) \equiv \phi$ and π' is accepted. Notice that $\lambda_a^*(\cdot)$ is influential despite $x_L < 0$.□

Example 3: Let $s = 0.8$, $x_C = 0.125$ and $x_L = 0.5$. Then σ^* is such that: $N = 2$; $p^* = 0.0603$; $t_1^* = 0.1638$; $\lambda_a^*(t,s) = \phi\ \forall t < t_1^*$; and $\lambda_a^*(t,s) = m_2 \in M_C\ \forall t \geq t_1^*$. Hence, $\pi^*(\phi,s) = 0.6207$ and $\pi^*(m_2,s) = 0.7069$. In this case, $\hat{T}(\pi^\circ,s) = \emptyset$ and $\hat{T}(\pi_2^*,s) = [0.2535,1]$. However, by Proposition 1, there exists no influential voting stage lobbying strategy since $E_{\mu_H}[t \mid t\in\hat{T}(\pi_2^*,s)] < (s+\pi_2^*)/2$. So H votes for the proposal whether or not L lobbies H actively. Figure 4 illustrates the equilibrium.□

[FIGURE 4 HERE]

Example 4: Let $s = x_L = 0.3$ and $x_C = 0.05$. Then σ^* is such that: $N = 2$; $p^* = 0.0819$; $t_1^* = 0.3270$; $\lambda_a^*(t,s) = \emptyset\ \forall t < t_1^*$; and $\lambda_a^*(t,s) = m_2 \in M_C\ \forall t \geq t_1^*$. Hence, $\pi^*(\phi,s) = 0.5405$ and $\pi^*(m_2,s) = 0.7135$. In this case, $\hat{T}(\pi^\circ,s) = [0,0.1203]$

[8]Computational details for the examples are given in the Appendix.

and $\hat{T}(\pi_2^*,s) = \emptyset$. By Proposition 1, there exists an influential voting stage lobbying strategy since $E_{\mu_H}[t|t \epsilon \hat{T}(\pi^\circ,s)] < (s+\pi^\circ)/2$: $\lambda_v^*(t,\cdot) = n \in M_H$ $\forall t \in \hat{T}(\pi^\circ,s)$, and $\lambda_v^*(t,\cdot) = \phi$ $\forall t \in T \backslash \hat{T}(\pi^\circ,s)$. So H votes for s against π° iff H is lobbied and hears the speech n, and votes against s in all other circumstances. Figure 5 illustrates the equilibrium. Note that $\lambda_v^*(t,\cdot) = n$ *only if* $\lambda_a^*(t,s) = \phi$.□

[FIGURE 5 HERE]

Example 5: Let $s = 0.45$, $x_C = 0.4$ and $x_L = -0.15$. Then σ^* is such that $\lambda_a^*(\cdot) \equiv \phi$ (by Proposition 5.1) and C's best response is (cf. appendix), $\pi^\circ = 1-s$ (because $s < Et = 1/2 < s+x_C$). However, $\hat{T}(\pi^\circ,s) = [0,0.65]$ and so $E_{\mu_H}[t|t \epsilon \hat{T}(\pi^\circ,s)] = 0.325 < (\pi^\circ+s)/2$. Therefore, by Proposition 1, there exists an influential voting stage lobbying strategy such that $\lambda_v^*(t,\cdot) \in M_H$ $\forall t \in \hat{T}(\pi^\circ,s)$ and $\lambda_v^*(t,\cdot) = \phi$ otherwise. Furthermore, $p^* = 0.0180$. Figure 6 illustrates the equilibrium.□

[FIGURE 6 HERE]

6. Conclusion

This paper is concerned with the extent to which interest group lobbying, modeled exclusively as information transmission, can be informative or influential at agenda setting and voting stages of legislative decision making. Among the results are that informed lobbyists who choose not to lobby at the agenda stage are those whose information is "low" ["high"] when L's ideal point in consequences is higher [lower] than that of the House; that there can coexist influential lobbying at both stages of the process; that while informative agenda stage lobbying is generically influential, the same is not true of voting stage lobbying; that not all lobbyists will choose to become informed; and that uncertainty about whether a lobbyist has information or not can induce more information transmission than when there is no such uncertainty.

In the real world, there are many interest groups, legislators and sources of uncertainty. The model here is parsimonious in the extreme in these respects, and as such the results must be interpreted cautiously. Nevertheless, they are suggestive. In particular, while it is intuitive that legislators' information about whether a group is informed or not should affect the ability of a lobbyist to influence decision making, it is surprising that such uncertainty leads to more influential behaviour at the agenda setting stage rather than less.

Among the assumptions it is desireable to relax is the assumption that the lobbyist may only lobby the committee, if anyone, at the agenda setting stage. If the lobbyist chose to lobby only the House at the agenda setting stage, the committee would make some inference about what information the lobbyist offered the House; and it may well be in the lobbyist's interests to induce such an inference. Similar issues arise if the group lobbies both the committee and the House at the agenda setting stage. Since it is known that "who lobbies who" is important for legislators' decisions (Kingdon 1973), there is good empirical reason to extend the model in this way. However, I conjecture that without multiple sources of uncertainty, little would change with the qualitative results given here. Another assumption that should be relaxed is that only the lobbyist has information. Without this assumption, it will be possible to observe richer patterns of lobbying throughout the decision making process. All this is left for future work.

Appendix

Proof of Lemma 2: Let π° be the proposal C offers if C is not lobbied by L. Since C cannot verify that L is not informed, π° will be offered irrespective of L's data acquisition decision. Since this is a pure strategy decision, π° (in equilibrium) is fully anticipated by L. Therefore, because L is free to choose not to lobby C at the agenda stage and because the price of information is invariant between stages, L can never be made worse off by choosing to acquire information at the start of the process rather than after the agenda is set.□

Proof of Proposition 1: Suppose $b > s$. Using (3), deduce:

(a1) $u_j(b) > (\leq)\ u_j(s)$ as $E[t|\cdot] > (\leq)\ (b+s)/2 - x_j$, $\forall j \in \{C,H,L\}$.

The result now follows from Lemma 1 and $x_H = 0$.□

Proposition 2.1 follows directly from the committee's best response proposal strategy. This is given by,

Lemma 3: Fix $\lambda_a(\cdot)$ and, $\forall m \in \bigcup_{T} \lambda_a(t,s)$, let $\hat{t}(m) \equiv E_{\mu_C}[t|m]$. Then,

(.1) $\hat{t}(m) \notin (s-x_C, s+3x_C) \Rightarrow \pi^*(m,s) = x_C+\hat{t}(m)$;

(.2) There can exist at most one proposal $\pi^*(\cdot,s) \in (s,s+2x_C)$;

(.3) $[\pi^*(m',s) < \pi^*(m,s) \in (s,s+2x_C)] \Rightarrow \hat{t}(m)-\hat{t}(m') \geq x_C$;

(.4) $\hat{t}(m) \in (s-x_c,s] \Rightarrow \pi^*(m,s) = s$;

(.5) $(\sim[\exists \hat{t}(\cdot) > s|\ \pi^*(\cdot,s) = s]) \Rightarrow \min[\pi^*(\cdot,s) \geq s+2x_C] = x_C+\hat{t}(\cdot)$.

Proof: Fix $\lambda_a(\cdot)$ and let $\hat{t}(m_1) \leq \hat{t}(m_2) \leq ... \leq \hat{t}(m_N)$. Then in equilibrium, (e3) requires the following incentive compatibility conditions to hold:

(a2) $E_{\mu_C}[u_C(\pi^*(m_i,s)) | \hat{t}(m_i),\cdot] \geq E_{\mu_C}[u_C(\pi^*(m_j,s)) | \hat{t}(m_i),\cdot]$, $\forall i,j$.

(a2) and (3) easily yield,

(a3) $\pi^*(m_i,s) \leq \pi^*(m_{i+1},s)$ $\forall i = 1,...,N-1$.

And, using (3), the inequalities (a2) hold iff,

(a4) $\hat{t}(m_i) \leq [\pi^*(m_i,s)+\pi^*(m_{i+1},s)]/2 - x_C$, $\forall i = 1,...,N-1$.

Finally, note that (e7) implies, in equilibrium, that H knows C's information is characterized by some $\hat{t} \in \{\hat{t}(m_i) | \; i=1,...,N\}$.

Lemma 3.1: Let $\hat{t}(m_i) \leq s-x_C$. Then (a1) implies $E[U_H(x_C) | \hat{t}(m_i)] \geq E[U_H(s-t) | \hat{t}(m_i)]$, and Lemma 1 implies H will vote for $\pi^*_i \equiv \pi^*(m_i,s) = x_C+\hat{t}(m_i)$ against s whenever this inequality holds. Therefore π^*_i is a best response so long as $E_{\mu_H}[u_H(\pi^*_i) | \pi^*_i] \geq E_{\mu_H}[u_H(s) | \pi^*_i]$. But since $\hat{t}(m_i) \leq s-x_C$, (a3) and (a4) directly imply this inequality. An identical argument applies for $\hat{t}(m_i) \geq s+3x_C$.

Lemma 3.2: Suppose not. Then $\exists \hat{t}(m_1),\hat{t}(m_2) \in (s,s+x_C)$ such that, by (e3), (e6) and Lemma 1, $\pi^*_1 = 2\hat{t}(m_1)-s$ and $\pi^*_2 = 2\hat{t}(m_2)-s$. By (a4), therefore,

$$\hat{t}(m_1) \leq \hat{t}(m_1)+\hat{t}(m_2)-x_C-s.$$

But this means $s+x_C \leq \hat{t}(m_2)$: contradiction.

Lemma 3.3: Let $\pi^*_i < \pi^*_{i+1} \in (s,s+2x_C)$. Then, $\pi^*_{i+1} = 2\hat{t}(m_{i+1})-s$ and:

$$\begin{aligned} \hat{t}(m_{i+1})-\hat{t}(m_i) < x_C \Rightarrow \quad & 2\hat{t}(m_{i+1})-s < 2\hat{t}(m_i)+2x_C-s \\ \Rightarrow \quad & \hat{t}(m_i) > [\pi^*_{i+1}+s]/2 - x_C; \end{aligned}$$

contradicting (a4).

Lemma 3.4: Let $\hat{t}(m_i) \in (s-x_C,s]$. Then there are no alternatives preferred to s by both C and H. Therefore, conditional on C's proposal signaling $\hat{t}(m_i)$, H will reject any proposal $b \neq s$ that C prefers to H. By (a3) and (a4), C has no incentive to make a proposal $\pi^*(m_j,s)$, $j < i$. Wlog, let π^*_{i+1} be the smallest proposal greater than s; there are two possibilities. First, $\pi^*_{i+1} \in (s,s+2x_C)$: but then Lemma *3*.3 implies that C cannot profitably deviate. And second, $\pi^*_{i+1} > s+2x_C$: C can profitably deviate here only if $\hat{t}(m_i) > [s+\pi^*_{i+1}]/2 - x_C$. By (a3) and sequential rationality, $\pi^*_{i+1} \geq x_C+\hat{t}(m_{i+1})$. Therefore, C will only deviate from s if $\hat{t}(m_i) > [s+x_C+\hat{t}(m_{i+1})]/2 - x_C$ or, $2\hat{t}(m_i)-\hat{t}(m_{i+1}) > s-x_C$. But $\hat{t}(m_i) \leq s$ by assumption, so this last inequality implies $s+x_C > \hat{t}(m_{i+1})$. Hence, $\pi^*_{i+1} \in [s,s+2x_C)$: contradiction.

Lemma 3.5: Let $\pi^*_i = s$ and $\pi^*_{i+1} \geq s+2x_C$. By assumption, $\hat{t}(m_i) \leq s$. If the claim is false then, by (a4), $\hat{t}(m_i) > [s+\pi^*_{i+1}]/2 - x_C \geq s$: contradiction.□

Proof of Proposition 2: (2.1) Immediate from Lemma 3.

(2.2) Clearly, at most two actions can be elicited at the voting stage. Hence any message sent will be equivalent either to the speech "Choose b", or to the speech "Choose s"; so essentially only two messages can be sent in equilibrium. The second part of the Proposition now follows from (a1) (with j = L) and sequential rationality.□

Proof of Proposition 3: Assume $\lambda^*_a(\cdot)$ is influential with $\lambda^*_a(t,s) \neq \phi\ \forall t \in T$. Let π° be the equilibrium proposal conditional on C not being lobbied. By the assumption and Lemma 3,

$$\text{(a5)} \quad \pi^\circ = \begin{cases} x_C+Et, & \text{if } Et \notin (s-x_C, s+x_C) \\ s, & \text{if } Et \in (s-x_C, s] \\ 2Et-s, & \text{if } Et \in (s, s+x_C) \end{cases};$$

where Et = 1/2 is the prior expectation of t. Suppose the result to be false, so $\pi^*(\lambda^*_a(t,s),s) \neq \pi^\circ\ \forall t \in T$. Since $\lambda^*_a(\cdot)$ is influential, there exist at least two elicited proposals,say $\pi < \pi'$. Let π [π'] be the smallest [largest] proposals elicited by $\lambda^*_a(\cdot)$. By the supposition, *either* $x_L > \pi^\circ$ and $\pi^\circ < \pi$, *or* $x_L < \pi^\circ-1$ and $\pi' <$

π°. To this, suppose $x_L \in [\pi^\circ, \pi^\circ-1]$. Then $\pi^\circ - x_L \in [0,1]$, in which case $L(\pi^\circ - x_L)$ strictly prefers not to lobby since, by (3), this yields the maximal payoff to $L(\cdot)$. If $x_L > \pi^\circ$ and $\pi^*(\lambda_a^*(t,s),s) = \pi < \pi^\circ$, then $L(t)$ is strictly better off deviating to "ϕ" and inducing π°. And similarly, if $x_L < \pi^\circ - 1$ and $\pi^*(\lambda_a^*(t,s),s) = \pi' > \pi^\circ$, then $L(t)$ is strictly better off deviating to "ϕ" and inducing π°. So assume $x_L > \pi^\circ$ and $\pi^\circ < \pi$. Condition (e2) implies the following incentive compatibility conditions on $\lambda_a^*(\cdot)$:

(a6) $E[u_L(\pi^*(\lambda_a^*(t,s),s))|t,\cdot] \geq E[u_L(\pi^*(\lambda_a^*(t',s),s))|t,\cdot]$, $\forall t,t' \in T$.

And $\forall t,t'$ such that $\pi^*(\lambda_a^*(t,s),s) < \pi^*(\lambda_a^*(t',s),s)$, (a6) holds iff,

(a7) $t \leq [\pi^*(\lambda_a^*(t,s),s)+\pi^*(\lambda_a^*(t',s),s)]/2 - x_L$; and

$t' \geq [\pi^*(\lambda_a^*(t,s),s)+\pi^*(\lambda_a^*(t',s),s)]/2 - x_L$.

Therefore, if $T' \subset T$ is such that $\pi^*(\lambda_a^*(t,s),s) = \pi^*(\lambda_a^*(t',s),s)$ $\forall t,t' \in T'$, then T' must be an interval. Wlog, let $T_1 = [0,t_1)$ elicit $\pi < \pi'$ under $\lambda_a^*(\cdot)$; clearly, $t_1 < 1$. But Lemma 3, (a5) and $\pi^\circ < \pi$ imply $E_{\mu_C}[t|t \in T_1] = t_1/2 > 1/2$: contradiction. The remaining case ($x_L < \pi^\circ - 1$) follows similarly. So the original supposition must be false and the result is proved.□

Proof of Proposition 4: If $\lambda_a^*(\cdot)$ is an equilibrium strategy, then it is a partition strategy. Moreover, such strategies are essentially the only equilibrium strategies possible (Crawford and Sobel, 1982). So given an equilibrium σ, let $\mathbb{P}(s,N(\sigma)) = \langle t_0 \equiv 0, t_1, t_2, \ldots, t_{N(\sigma)} \equiv 1 \rangle$ denote the partition of T such that $\lambda_a^*(t,s) = m_i \in Z_C$ $\forall t \in [t_{i-1}, t_i)$ and $m_i \neq m_{i-1}$, $i = 1,\ldots,N(\sigma)$. And by (a3), (a4) and (a7), $\mathbb{P}(s,N(\sigma))$ must satisfy,

(a8) $t_i = [\pi^*(m_i,s)+\pi^*(m_{i+1},s)]/2 - x_L$, $\forall i = 1,\ldots,N-1$.

By Proposition 3, $|x_L - x_C| > 0$ implies (generically) that $T^\circ(s) = \{t \in t|\ \lambda_a^*(t,s) = \phi\} \neq \emptyset$. Therefore, $T^\circ(s) \neq T$ implies $T^\circ(s) = [t_j, t_{j+1})$ for some $j \leq N(\sigma)-1$. By (e7),

$$\text{(a9)}\quad E_{\mu_C}[t|\phi] = \text{Prob}[L \text{ informed}|\phi][t_{j+1}+t_j]/2 + \text{Prob}[L \text{ uninformed}|\phi]Et$$
$$= (p(t_{j+1}-t_j)/[1-p+p(t_{j+1}-t_j)])[t_j+t_{j+1}]/2 + (1-p)/[1-p+p(t_{j+1}-t_j)])/2$$
$$= [1-p+p(t_{j+1}^2-t_j^2)]/2[1-p+p(t_{j+1}-t_j)];$$

where p is the equilibrium price above which L chooses not to acquire information (that this is well defined is proved below). Suppose s is irrelevant, i.e. $s \notin (-x_C, 1+x_C)$, fix x_C, and let $\Delta \equiv x_L - x_C > 0$ (a symmetric argument applies for $\Delta < 0$ and is omitted). By (a14) and (a15) derived in the proof to Proposition 5, below, for Δ close to 1/2 the most influential equilibrium involves a binary partition in which $T^\circ = [0,t_1)$. Hence, the first claim of Proposition 4 is true for such cases. Now, since s is irrelevant, Lemma 3 implies $\pi^*(\lambda_a^*(\cdot),s) = x_C + E_{\mu_C}[t|\lambda_a^*(\cdot)]$, in which case (a8) and (a9) can be solved to yield the system (*):

$$(*)\quad t_i = t_1 i + 2i(i-1)\Delta,\ \forall i = 1,\ldots,j-1;$$
$$t_j = (t_{j-1} - 4\Delta + [1-p+p(t_{j+1}^2-t_j^2)]/[1-p+p(t_{j+1}-t_j)])/3;$$
$$t_{j+1} = (t_{j+2} - 4\Delta + [1-p+p(t_{j+1}^2-t_j^2)]/[1-p+p(t_{j+1}-t_j)])/3;$$
$$t_{j+1+i} = i(t_{j+2}-t_{j+1}) + t_{j+1} + 2i(i-1)\Delta,\ \forall i = 1,\ldots,N(\sigma^*)-j-1;$$

with $t_0 \equiv 0$ and $t_N \equiv 1$. Two facts follow directly from this system: first, the most influential equilibrium partition (i.e. the maximal partition) is unique for any Δ; and second, for any x_L, x_L' ($x_L > x_L' > x_C$) for which the maximal partition sizes are N and N+1, respectively, there exists a continuous deformation of the (maximal) partition at x_L into the (maximal) partition at x_L', preserving (*) throughout as $x_L \to x_L'$ (in particular, at the switching value $x \in (x_L, x_L')$, t_1' in the partition at x is zero and $\lim_{x_L \to x} t_1 = t_2'$; etc.). Therefore, T° likewise changes continuously with x_L. So given the result holds when the maximal partition size is two, if the Proposition fails in general there must exist some $x_L = \hat{x}$, say, and hence $\hat{\Delta}$, such that, at $\hat{\Delta}$,

$E[t|t\epsilon T^{\circ}] = 1/2$. Assume there is such a $\hat{\Delta}$. Then by (a9), $E_{\mu_C}[t|\phi] = 1/2$ $\forall p \in [0,1]$, in which case the system (*) above characterizing the maximal partition at $\hat{\Delta}$ is simply,

$$t_i = t_1 i + 2i(i-1)\hat{\Delta}, \ \forall i = 1,\ldots,N,$$

with $t_0 \equiv 0$ and $t_N \equiv 1$. By assumption, $E[t|t\epsilon T^{\circ}] = [t_j+t_{j+1}]/2 = 1/2$. Therefore,

$$t_1 j + 2j(j-1)\hat{\Delta} + t_1(j+1) + 2j(j+1)\hat{\Delta} = 1$$

$$\Rightarrow \quad t_1 = [1 - 4j^2\hat{\Delta}]/[2j + 1].$$

Furthermore, setting $t_N = 1$ gives $t_1 = [N - 2(N-1)\hat{\Delta}]/N$. Substituting and doing the algebra gives,

$$\text{(a10)} \qquad \hat{\Delta} = [N - (2j+1)]/N[4j^2 - 2(N-1)(2j+1)].$$

Because $N > 2$ and $[t_j+t_{j+1}]/2 = 1/2$, $j \leq N-2$. Therefore, the denominator of (a10) is negative, implying $j > [N-1]/2$ (since $\hat{\Delta} > 0$). By assumption, N is the maximal partition size for $\hat{\Delta}$. Therefore,

$$\text{(a11)} \qquad 2N(N-1)\hat{\Delta} < 1 < 2(N+1)N\hat{\Delta}.$$

Together, (a10) and (a11) yield, $2(j+1)^2 > N(N+1)$ and $2j^2 < N(N-1)$. But since $j \leq N-2$, these two inequalities imply $N-1 > N$: contradiction. Hence, there can exist no such $\hat{\Delta}$, and the result is proved when s is irrelevant. Suppose $s \in (-x_C, 1+x_C)$. By Proposition 5.1 below, the maximal equilibrium partition size when s is relevant can be no greater than when s is irrelevant. In particular, (a8) and (a9) must continue to hold with, by Lemma 3, at most two elicited actions being other than $x_C+E_{\mu_C}[t|\cdot]$; consequently, for $\Delta > 0$, introducing s as relevant at most shifts the boundary types identified in the system (*) above to the left. The result now follows from the preceding argument.

Finally, as $\Delta \to 0$ the maximal partition size goes to infinity and so all informed types separate in the limit; the last statement of Proposition 4 now follows directly from Proposition 3.□

Proof of Corollary: Immediate from Proposition 4, Lemma 3, and (a9).□

Proof of Proposition 5: By Crawford and Sobel (1982), if there exists an equilibrium in which $\lambda_a(\cdot)$ is influential, then there exists an equilibrium σ^* with $\mathbb{P}(s,N(\sigma^*)) = <0,t(\sigma^*),1>$. Hence it suffices to consider such binary partition equilibria. Moreover, since there always exist equilibria in which there is no influential vote stage lobbying, set $\lambda_v^*(\cdot) \equiv \phi$ wlog.

Prop.5.1: Let $s \notin (-x_C, x_C+1)$, and $\Delta \equiv x_L - x_C$. Suppose $<0,t^\circ,1>$ is an equilibrium binary partition of T such that $\lambda_a(t,s) = \phi \; \forall t < t^\circ$, and $\lambda_a(t,s) = m \neq \phi \; \forall t \geq t^\circ$. By (a3), $\pi^\circ \equiv \pi(\phi,s) < \pi \equiv \pi(m,s)$; and by (a8), $t^\circ \in (0,1)$ implies

$$(a12) \qquad t^\circ = [\pi^\circ + \pi]/2 - x_L.$$

Further, (e7) implies $E_{\mu_C}[t|\phi] = [1-p+pt^{\circ 2}]/2[1-p+pt^\circ]$ and $E_{\mu_C}[t|m] = (1+t^\circ)/2$. By Lemma 1, (e1) implies

$$(a13) \qquad p = \int_{t^\circ}^{1} [U_L(\pi-t) - U_L(\pi^\circ-t)]dt = (\pi-\pi^\circ)(1-t^\circ)^2,$$

with the second equality following on substitution from (a12). By Lemma 3 and $s \notin (-x_C, x_C+1)$, $\pi(\cdot,s) = x_C + \hat{t}(\cdot)$; so, $\pi^\circ = x_C + E_{\mu_C}[t|\phi]$ and $\pi = x_C + [(1+t^\circ)/2]$. Substituting into (a12) and (a13) and rearranging yields,

$$(a14) \qquad 3t^\circ = [1-4\Delta + (1-p+pt^{\circ 2})/(1-p+pt^\circ)];$$

$$(a15) \qquad p = p^2(1-t^\circ) + t^\circ(1-t^\circ)^2/2.$$

Then $\Delta \in (1/4,1/2)$ implies:

$$t^\circ(0) = (2-4\Delta)/3 > 0 > t^\circ(1) = (1-4\Delta)/2.$$

Moreover, implicitly differentiating (a14) and collecting terms yields,

$$dt^\circ/dp = -(1-t^\circ)t^\circ/[(1-p+pt^\circ)(3(1-p)+pt^\circ) + (p(1-p+pt^{\circ 2}))] < 0.$$

Finally,

$p(0) = p(1) = 0$; and $\forall t^\circ \in (0,1)$, $0 < p(t^\circ) < 1$.

Therefore, $\forall \Delta \in (1/4, 1/2)$, $\exists (p(t^\circ), t^\circ(p)) \in (0,1) \times (0,1)$ solving (a14) and (a15). *Mutatis mutandis*, a symmetric argument shows that, $\forall \Delta \in (-1/2, -1/4)$, there can exist an influential equilibrium in which $\lambda_a(t,s) = m \neq \phi\ \forall t < t^\circ$, $\lambda_a(t,s) = \phi\ \forall t \geq t^\circ$. Since the number of elicited actions in a most influential equilibrium is nonincreasing in Δ, this establishes the required result for $s \notin (-x_C, x_C+1)$. Clearly, if there exists no equilibrium when s is essentially irrelevant, there can exist no influential equilibrium agenda stage lobbying when s might be elicited; hence the bounds derived above are necessary for such equilibrium strategies. To see that they are not sufficient, suppose $x_L = 3/4 - \epsilon$, $\epsilon > 0$ and small, and $x_C = 1/4$. Then $\Delta = 1/2 - \epsilon$ and, by the preceding argument, there is a unique influential equilibrium partition of T, $<0,t^\circ,1>$, if (say) $s > 7/4$; furthermore, $\lambda_a(t,s) = \phi\ \forall t \leq t^\circ$ necessarily. By (a14) and (a15), $(t^\circ,p) \approx (0,0)$ so $E_{\mu_C}[t|\phi] = 1/2 - \eta$, $\pi(\phi,s) = x_C+1/2 - \eta$ and $\pi(m,s) = x_C+1/2 + \eta'$, with η, $\eta' > 0$ and small. Now let $s = 1/2$. Then, $s-x_C = 1/4 < 1/2 - E_{\mu_C}[t|\phi] < s = 1/2$. But by Lemma 3, s will be elicited by $\lambda_a(t,s) = \phi$. Hence $<0,t^\circ,1>$ cannot be an equilibrium partition, in which case, if there is an influential equilibrium here, s must be elicited by the message, ϕ. Let t' be the type indifferent between eliciting s and eliciting the proposal $(1+t')/2$. By (a12), $t' = 2[s-x_L+1/2-\Delta]/3$. Substituting, $t' = 2[2\epsilon - 1/4]/3 < 0$, which is absurd. So there is no influential agenda stage lobbying in this case.

Prop.5.2: Let $\{\pi_1^*, \pi_2^*, \ldots, \pi_N^*\}$ denote equilibrium proposals; where $\pi_i^* = \pi^*(m_i,s)$, $m_i \in Z_C$. Let $\mathbb{P}(s,N) = <t_0 \equiv 0, t_1, \ldots, t_N \equiv 1>$ be such that $\forall t \in [t_{i-1}, t_i)$, $\lambda_a^*(t,s) = m_i \in Z_C$, $i = 1,\ldots,N-1$, $m_i \neq m_{i-1}$. Set $m_j = \phi$. Then (e1) implies $\delta^*(p,s) = 1$ iff,

$$p \leq \sum_{i=1}^{i=N} \int_{t_{i-1}}^{t_i} U_L(\pi^*(m_i,s)-t)dt - \int_0^1 U_L(\pi_1^*-t)dt.$$

Since U_L is strictly concave and $\pi^*(\cdot)$ is a well-defined function of its arguments, the RHS of the inequality lies in $\mathbb{R}_+$ and is uniquely defined by the partition of T.□

Proof of Proposition 6: *Prop.6.1*: See Example 4.

Prop.6.2: Follows straightforwardly from Proposition 1 and $x_H = 0$.

Prop.6.3(i): Since σ^* is an equilibrium, (a8) holds and implies that if s is elicited, then $\lambda_a^*(\cdot)$ and $\lambda_v^*(\cdot)$ cannot both be influential; so assume s is not elicited and $s \in (\pi_i^*,\pi_{i+1}^*)$ for some $i = 1,\dots,N-1$. By (a1), $\hat{T}(\pi_i^*,s) \neq \emptyset$ and $\hat{T}(\pi_{i+1}^*,s) \neq \emptyset$. Proposition 5.1 and (a8) imply,

$$E_{\mu_H}[t\,|\,t\in\hat{T}(\pi_i^*,s)] < [\pi_i^*+s]/2 - x_C \Rightarrow E_{\mu_H}[t\,|\,t\in\hat{T}(\pi_{i+1}^*,s)] \leq [\pi_{i+1}^*+s]/2 - x_C;$$

$$E_{\mu_H}[t\,|\,t\in\hat{T}(\pi_{i+1}^*,s)] > [\pi_{i+1}^*+s]/2 - x_C \Rightarrow E_{\mu_H}[t\,|\,t\in\hat{T}(\pi_i^*,s)] \geq [\pi_i^*+s]/2 - x_C.$$

Wlog, assume the former case obtains: then $t \in \hat{T}(\pi_i^*,s)$ will deviate from the conjectured strategies by, first, sending the message m_{i+1} to elicit $\pi^*(m_{i+1},s)$ and, second, lobbying H with the message otherwise sent by $t \in [t_i,t_{i+1})$ to elicit a vote for s against π_{i+1}^*. Therefore, neither of the cases above can occur; that is,

$$E_{\mu_H}[t\,|\,t\in\hat{T}(\pi_{i+1}^*,s)] \leq [\pi_{i+1}^*+s]/2 - x_C \ \&\ E_{\mu_H}[t\,|\,t\in\hat{T}(\pi_i^*,s)] \geq [\pi_i^*+s]/2 - x_C$$

must hold. But given (a8) and s exogenous, this is nongeneric.

Prop.6.3(ii): It suffices to prove the result when the most influential equilibrium involves a binary partition, since this case offers the best opportunity for the claim to be false. Let $x_L > x_C$ (similar reasoning applies for the remaining cases). By Proposition 5.1, there exists an influential equilibrium only if $x_L-x_C < 1/2$; and by deriving the equilibrium conditions for $N = 3$ in an analogous way to that in the argument for Proposition 5, it is easily checked that there exists a 3-partition equilibrium only if $x_L-x_C \leq 1/4$. So let $\Delta = x_L-x_C \in (1/4,1/2)$, and let the relevant partition of T be $\mathbb{P}(s,N) = <0,t^\circ,1>$. By Proposition 4, $\lambda_a(t,s) = \phi\ \forall t < t^\circ$; so if the result is false, $\exists t \geq t^\circ$ such that $\lambda_a(t,s) = m \neq \phi$, $\lambda_v(t,s) \neq \phi$ and $\nu(C,\lambda_v(t,s),\cdot) \neq \nu(C,\phi,\cdot)$. By 6.3(i), $s > \pi = \pi(m,s)$, and by Proposition 1, $\lambda_v(\cdot)$ influential implies

(a16) $\quad E_{\mu_H}[t|\lambda_v(t,s)] \geq [\pi(\lambda_a(t,s),s)+s]/2 - x_L.$

By Lemma 3, $s > \pi$ implies $\pi = x_C+(1+t^\circ)/2 < s-x_C$ and $\pi^\circ = \pi(\phi,s) = x_C+[1-p+pt^{\circ 2}]/2[1-p+pt^\circ]$. Let $t' = \min[t \in T | u_L(s-t) \geq u_L(\pi-t)] = [\pi+s]/2 - x_L$. Then $E_{\mu_H}[t|\lambda_v(t,s)] = (1+t')/2$ and (a16) yields,

(a17) $\quad 1-x_L > s+\pi.$

Since $\Delta > 1/4$, $1-x_L < 1-(x_C+(1/4)) < 3/4$. Therefore, substituting for π in (a17) and rearranging yields,

$$s+x_C < (1/2)[(1/2)-t^\circ] < 1/4.$$

Hence, $s-x_C < 1/4$; but this contradicts $s-x_C > \pi = x_C+(1+t^\circ)/2 > 1/2$.□

Computational details for the Examples: The examples are computed using the equilibrium conditions derived above. In particular, for examples in which only the agenda stage lobbying strategy is influential, the equilibrium is computed using (10)–(13) (for $N \leq 2$) assuming $s \notin (-x_C,1+x_C)$, and then s is chosen to preclude influential lobbying at the vote stage. For Example 3, with influential lobbying at both stages, the procedure is to derive an equilibrium conditional on $\lambda_v(\cdot) \equiv \phi$; recompute the critical price given the resultant proposals and $\lambda_v(\cdot)$ influential; use this new price to recompute t°; etc.. By the arguments above, this algorithm converges to a new equilibrium (it did so to 5 decimal places within 5 iterations).□

References

Austen–Smith, D. (1992). Interested experts and policy advice: multiple referrals under open rule. Forthcoming, *Games and Economic Behavior.*

Austen–Smith, D. (1990). Information transmission in debate. *American Journal of Political Science, 34, 124–52.*

Austen–Smith, D. and J.R. Wright (1992). Competitive lobbying for a legislator's vote. Forthcoming, *Social Choice and Welfare.*

Banks, J. and F. Gasmi (1987). Endogenous agenda formation in three person committees. *Social Choice and Welfare, 4, 133–52.*

Crawford, V. and J. Sobel (1982). Strategic information transmission. *Econometrica, 50, 1431–51.*

Denzau, A. and R. MacKay (1983). Gatekeeping and monopoly power of committees: an analysis of sincere and sophisticated behavior. *American Journal of Political Science*, *27, 740–61.*

Farrell, J. (1988). Meaning and credibility in cheap talk games. Forthcoming in Dempster, M. (ed.) *Mathematical Models in Economics*, Oxford: OUP.

Farrell, J. and R. Gibbons (1989). Cheap talk with two audiences. *American Economic Review*, *79, 1214–23.*

Gilligan, T. and K. Krehbiel (1987). Collective decision making and standing committees: an informational rationale for restrictive amendment procedures. *Journal of Law, Economics and Organization, 3, 145–193.*

Gilligan, T. and K. Krehbiel (1989). Asymmetric information and legislative rules with a heterogenous committee. *American Journal of Political Science, 33, 459–90.*

Gilligan, T. and K. Krehbiel (1990). Organization of informative committees by a rational legislature. *American Journal of Political Science, 34, 531–564.*

Hansen, J.M. (1991). *Gaining Access: Congress and the Farm Lobby, 1919–1981.* Chicago: University of Chicago Press.

Kingdon, J. (1973). *Congressmen's Voting Decisions.* NY: Harper and Row.

Okuno–Fujiwara, M., A. Postlewaite and K. Suzumura (1990). Strategic revelation of information. *Review of Economic Studies, 57, 25–48.*

Rothenberg, L. (1989). Do interest groups make a difference? Lobbying, consittuency influence and public policy. *Working Paper, University of Rochester, NY.*

FIGURE 1

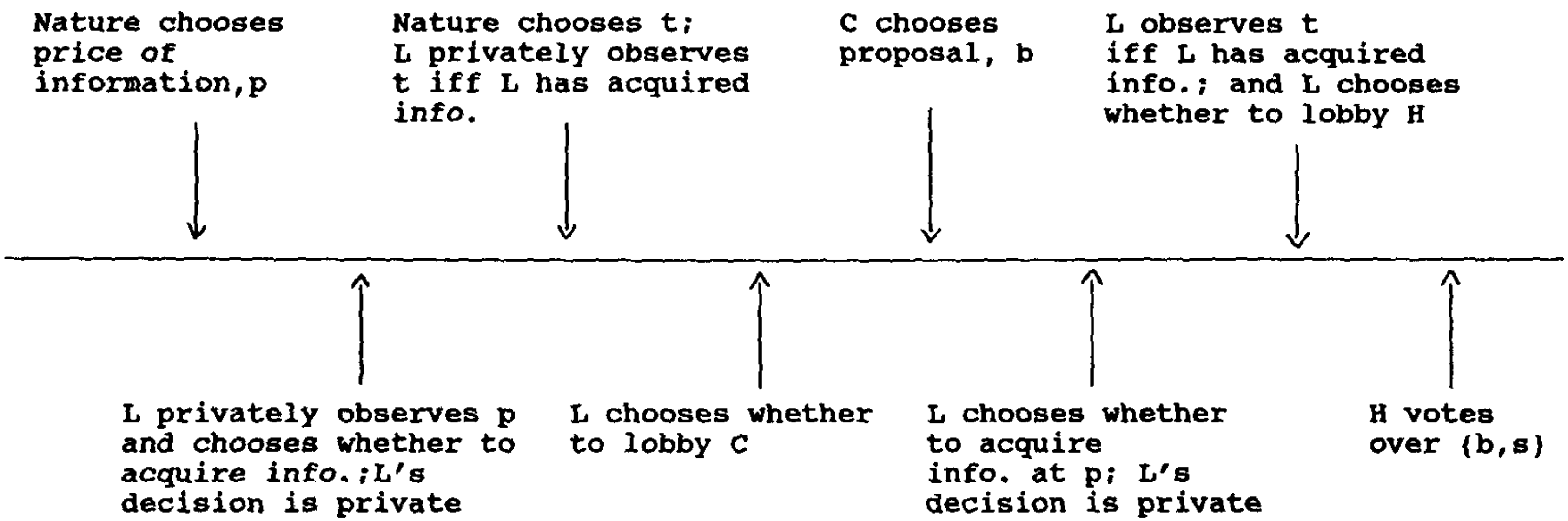

Nature chooses price of information,p
Nature chooses t; L privately observes t iff L has acquired info.
C chooses proposal, b
L observes t iff L has acquired info.; and L chooses whether to lobby H
L privately observes p and chooses whether to acquire info.;L's decision is private
L chooses whether to lobby C
L chooses whether to acquire info. at p; L's decision is private
H votes over {b,s}

FIGURE 2

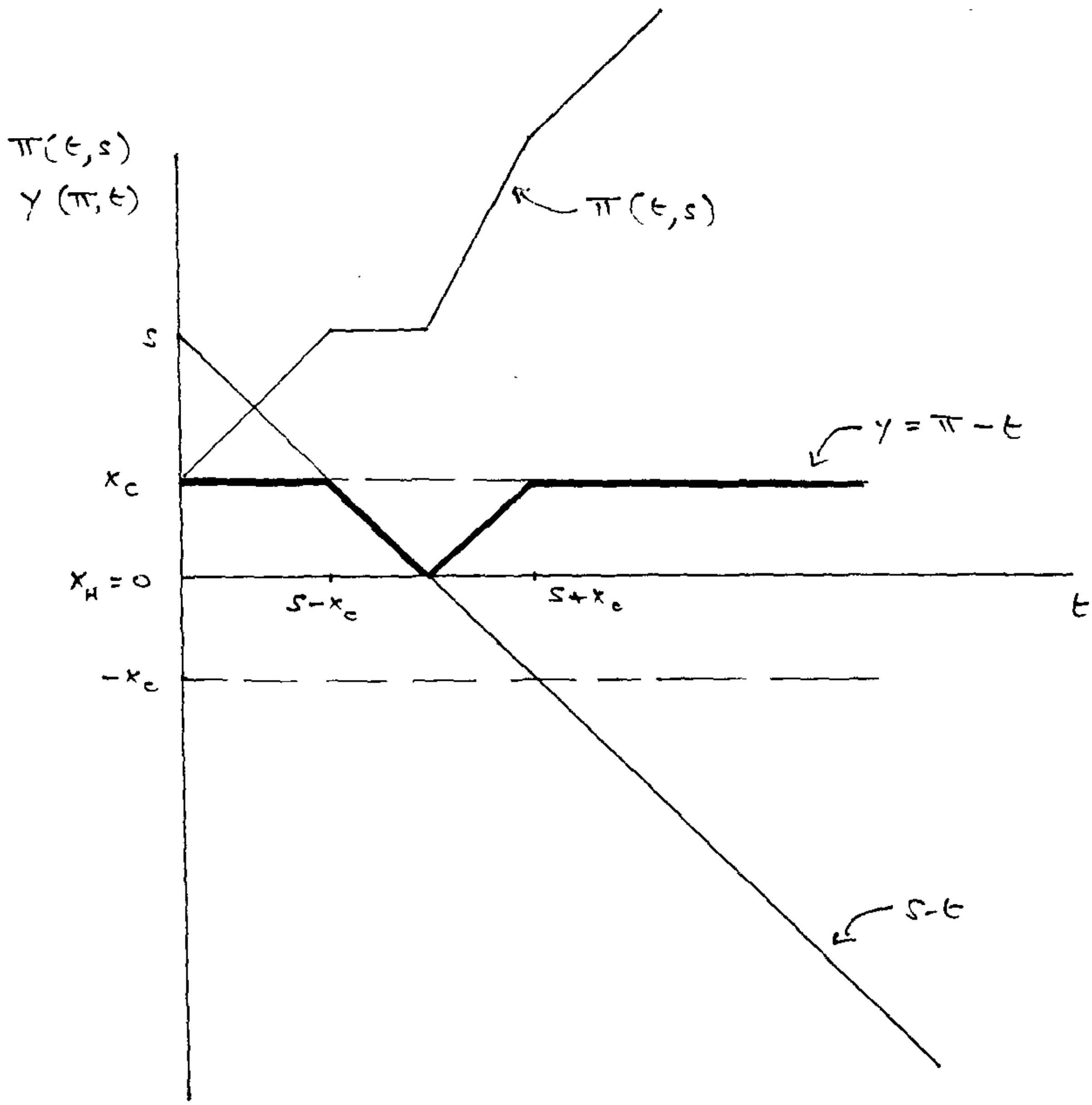


FIGURE 3

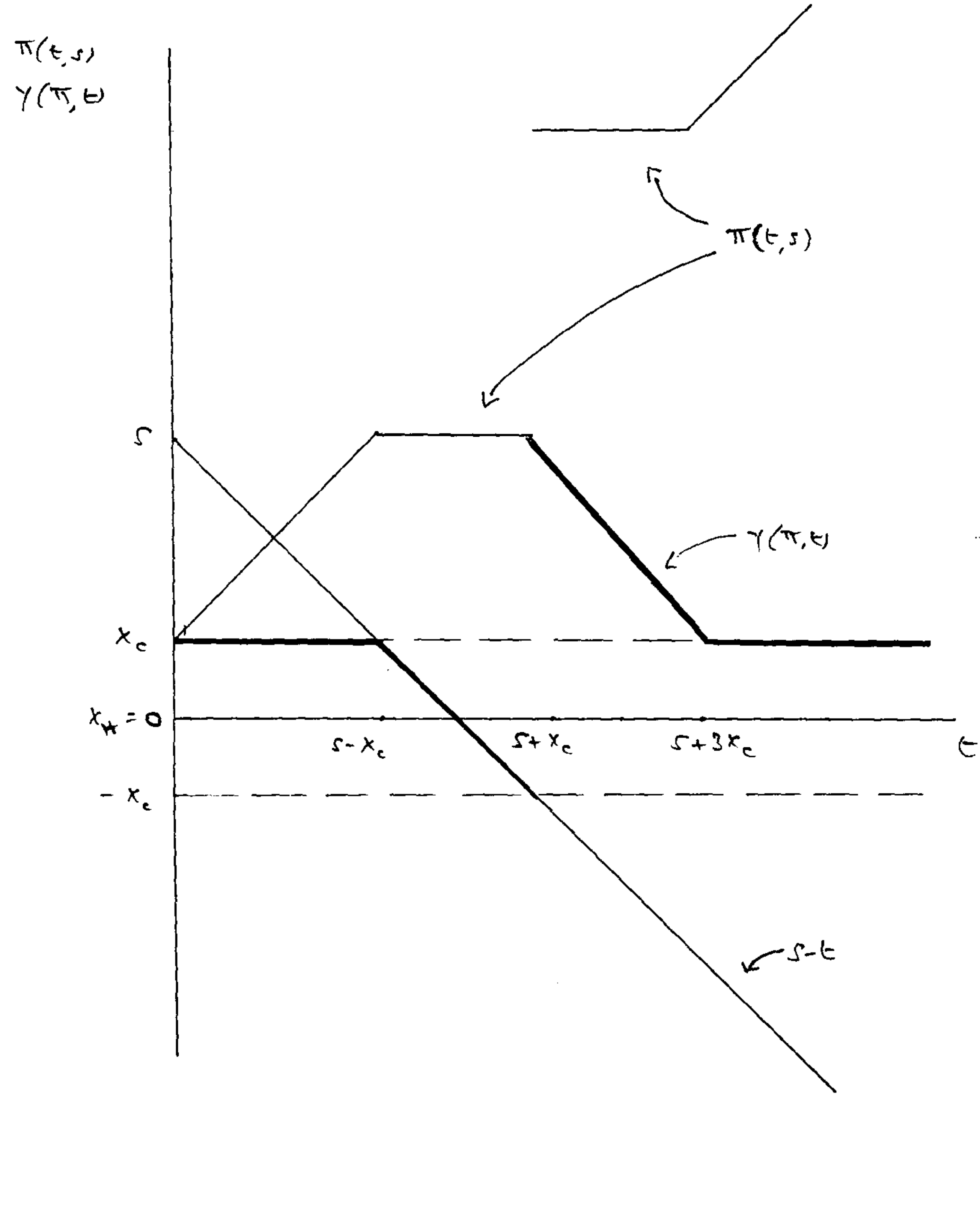
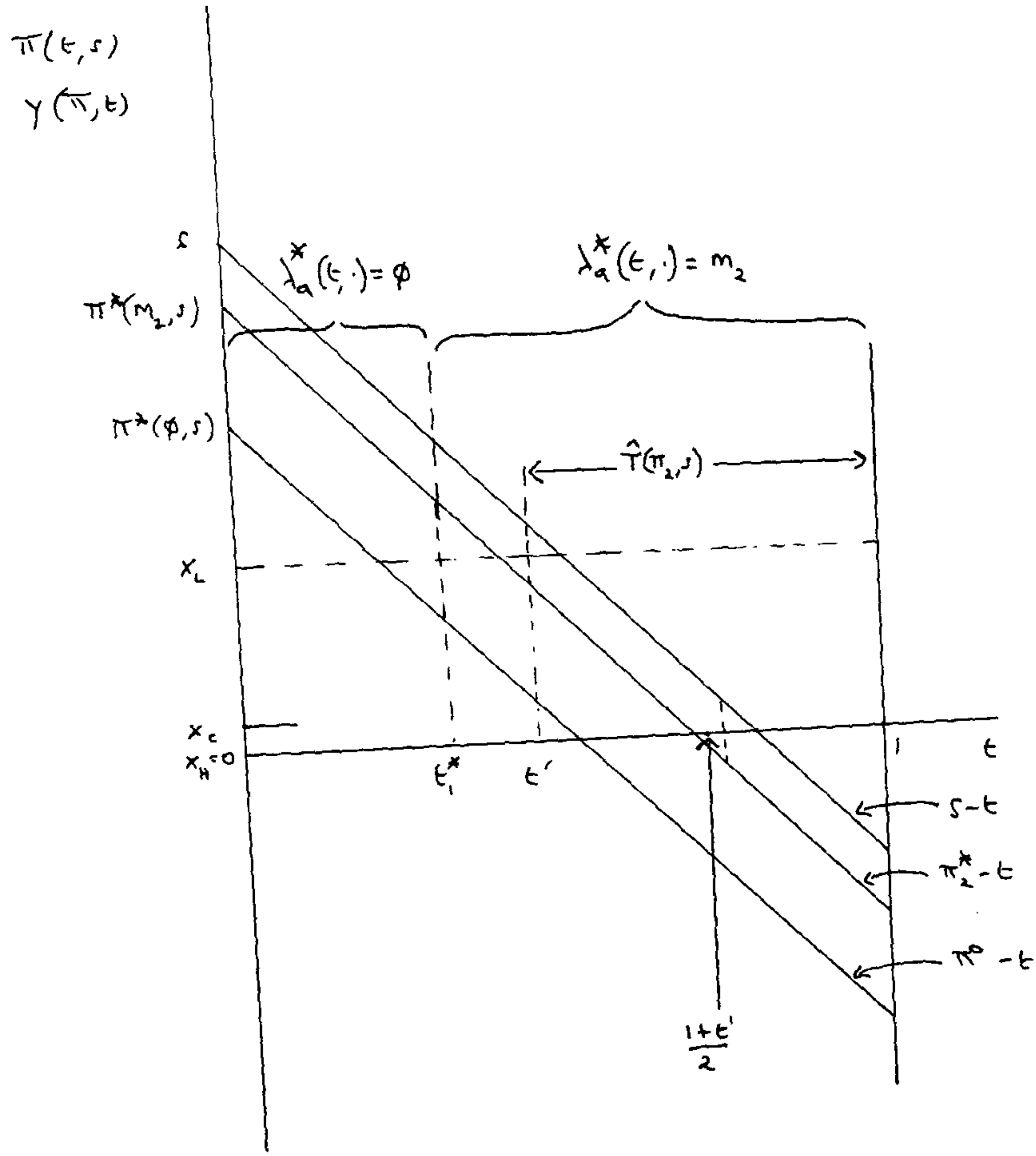
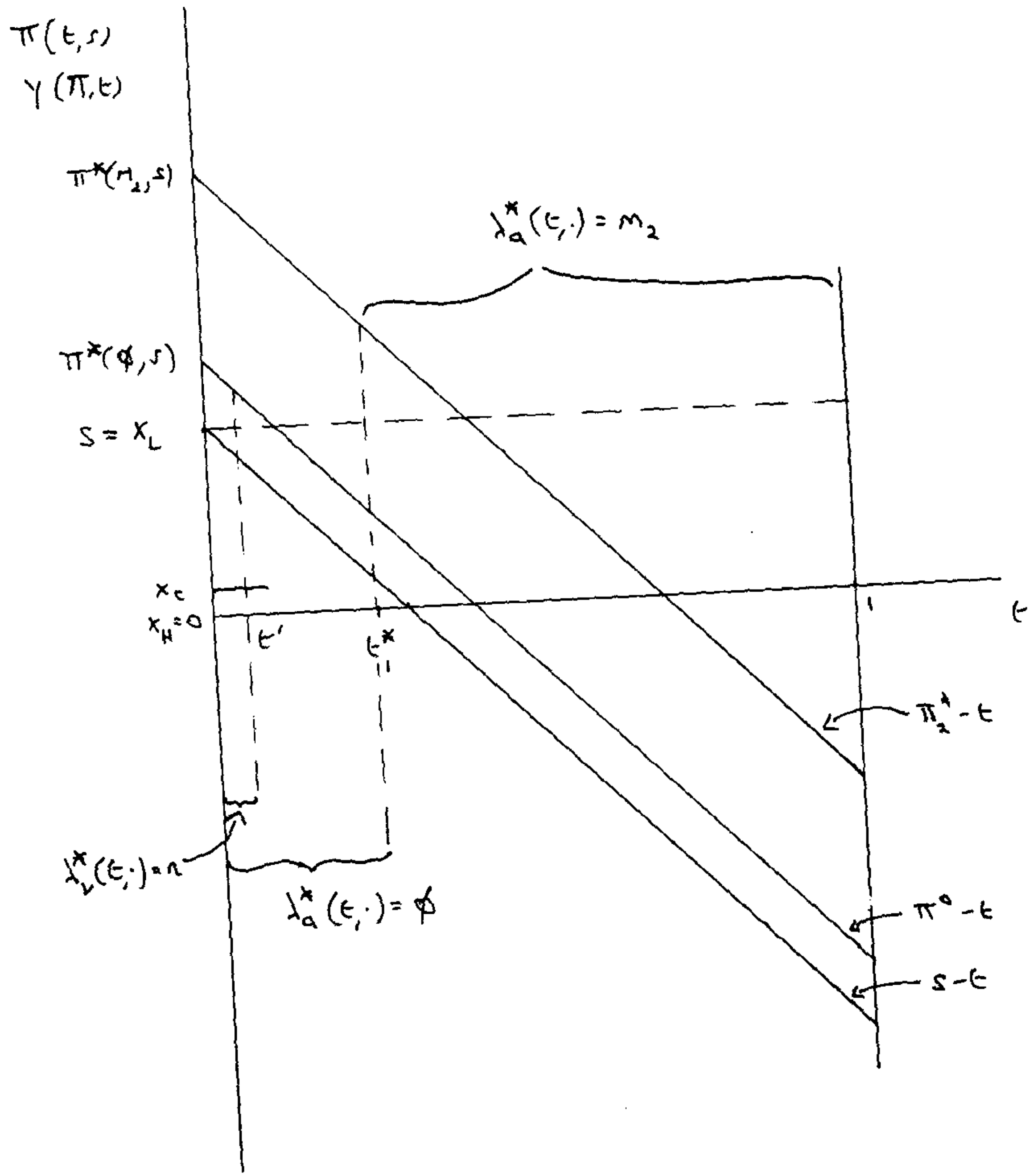


FIGURE 4



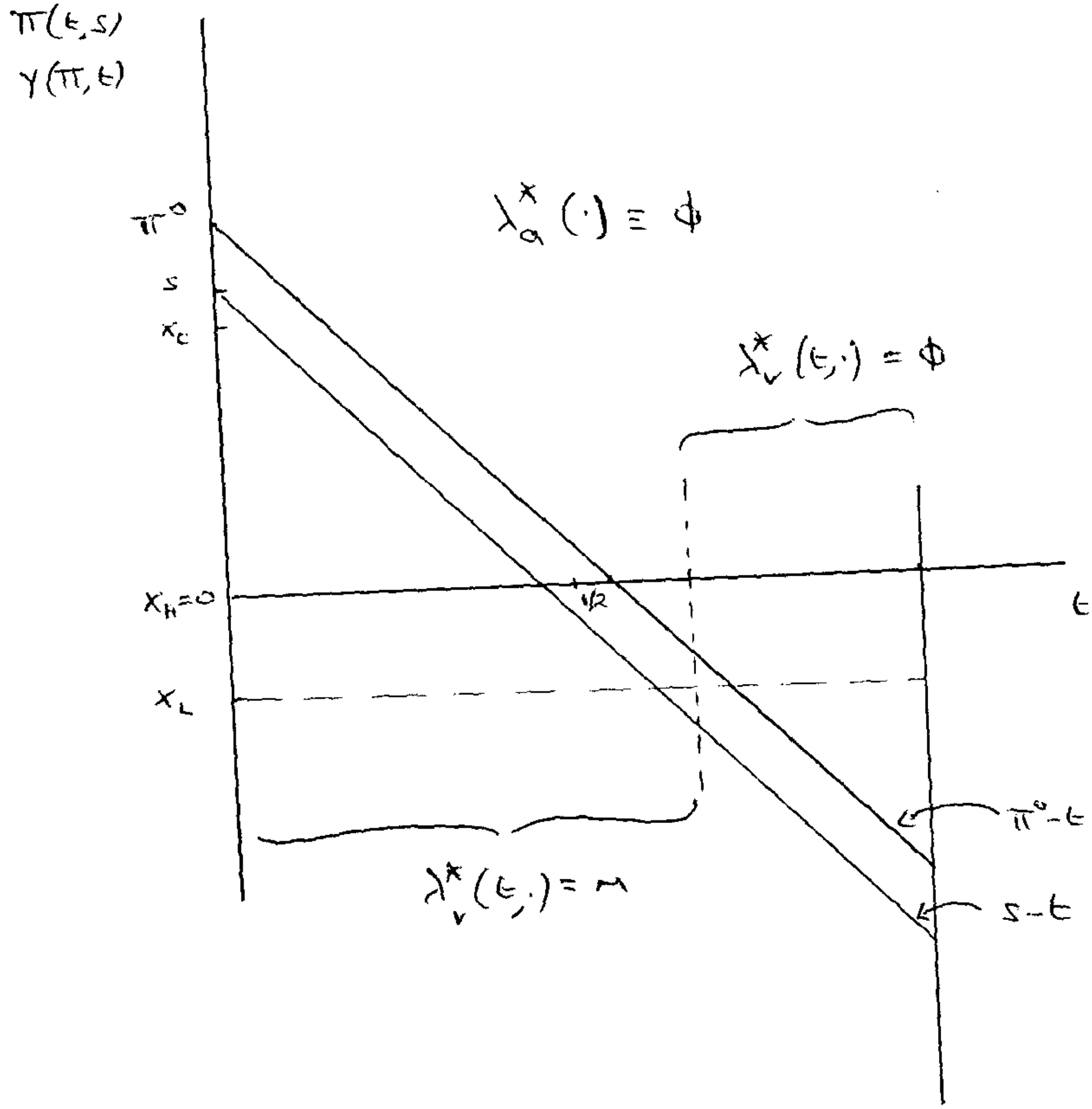
$\pi(t,s)$
$y(\pi,t)$
s
$\pi^*(m_2,s)$
$\pi^*(\phi,s)$
x_L
x_c
$x_H=0$
$\lambda_a^*(t,\cdot)=\phi$
$\lambda_a^*(t,\cdot)=m_2$
$\hat{T}(\pi_2,s)$
t_1^*
t'
1
t
$s-t$
π_2^*-t
π^0-t
$\frac{1+t'}{2}$

FIGURE 5



$\pi(t,s)$
$Y(\pi,t)$
$\pi^*(m_2,s)$
$\lambda_a^*(t,\cdot)=m_2$
$\pi^*(\phi,s)$
$S=X_L$
X_c
$X_H=0$
t'
t^*
1
t
π_2^*-t
$\lambda_L^*(t,\cdot)=n$
$\lambda_a^*(t,\cdot)=\phi$
π^0-t
$S-t$

FIGURE 6


$\pi(t,s)$
$y(\pi,t)$
$\lambda_a^*(\cdot) \equiv \phi$
π^0
s
x_c
$\lambda_v^*(t,\cdot) = \phi$
$x_H = 0$
1/2
t
x_L
$\pi^0 - t$
$\lambda_v^*(t,\cdot) = m$
$s - t$