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# INFORMATION AND CONGRESSIONAL HEARINGS[1]

by

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[1] Formerly, A Theory of Congressonal Hearings. The authors wish to thank David Austen-Smith, Jeff Banks, Randy Calvert, Richard Fenno, Roger Myerson and the late William Riker. The remaining errors are our own. An earlier version of this paper was presented at the Annual Meeting of the Public Choice Society in New Orleans, March 1992.

## Abstract

While Congressional scholars agree that hearings are an important activity there is little consensus on their role in the legislative process. The traditional literature on hearings plays down their role as mechanisms of disseminating information because committee members often do not appear persuaded by the information they reveal. In this paper we explore the premise that hearings may not be informative to committees but may provide crucial information to the floor. We show that, if hearings have some intrinsic informative content and are costly, even extreme committees can transmit useful information to the floor. Furthermore, the possibility of holding hearings creates an incentive for extreme committees to specialize and reveal information simply by the decision whether to hold hearings.

# 1 Introduction

While the importance of hearings has been acknowledged by Congressional scholars (see for example Oleszek 1989; Morrow 1969; Davidson and Oleszek 1985; Tiefer 1989) there is little agreement on their role in the legislative process. Suggestions range from "a legislative court" (Huitt 1954), "a fact finding agency" (Huitt 1954)," a propaganda channel" (Truman 1951, Smith and Deering 1984) to "an opportunity to claim credit" both for politicians and lobbyists (Davidson and Oleszek 1985, Matthews 1973) and finally a "safety-valve" with cathartic effects (Davidson and Oleszek 1985, Truman 1951).

The traditional literature has deemphasized what would seem to be the most obvious rationale for hearings: the provision of information to members. In his case study of hearings held by the House Committee on Banking and Currency, Huitt (1954) points out that there was no indication of a change of position among committee members as a consequence of the hearing proceedings.

> "Each group seemed to come into the hearings with a ready-made frame of reference. Facts which were compatible were fitted into it; facts which were not compatible even when elaborately documented, were discounted, not perceived, or ignored." (p.354)

Oleszek (1989) argues that members of Congress frequently enter hearings not only with prepared questions, but also with a list of expected answers that result from extended staff interviews (and rehearsals) with potential witnesses. Matthews (1973) as well as Leyden (1995) and Talbert et al. (1995) argue that committee members are already well informed before the hearings start and that committee chairs strategically select witnesses to stack the hearing in their favor.

Nevertheless hearings are not only held frequently, but they seem to have an effect on legislative outcomes. Talbert et al.(1995) investigate how legislators use oversight hearings in turf battles. By holding hearings on a particular issue committee leaders try to establish their records as experts in the area so that future legislation is more likely to be referred to them. Leyden (1995) uses hearing participation as a measure for an interest group's success in attaining access to legislators.

Games of incomplete information offer a formal framework for the study of strategic information transmission in legislatures (Austen-Smith and Riker 1987; Banks 1991; Austen-Smith 1990a, 1990b, Austen-Smith 1993, Gilligan and Krehbiel 1987, Krehbiel 1991). These models assume that policy makers initially are uncertain about the policy consequences of their decisions. Legislative institutions can thus be interpreted as devices to reduce legislators' uncertainty about policy outcomes. One important application of this insight is Gilligan and Krehbiel's (1987, 1989a, 1989b) analysis of the Congressional committee system.

Gilligan and Krehbiel focus on the information provided by committees through the mark-up process. If the floor chooses a bill under an open rule it can adopt any policy it desires; a committee proposal is thus equivalent to giving a speech. As Gilligan and Krehbiel point out, if the committee and floor ideal points are sufficiently far apart the speech given by the committee will not be informative. Since the floor does not believe the floor's message it will choose its preferred bill given its prior information. But then there is no incentive for the committee to become asymmetrically informed, i.e. to specialize. If specialization is at all costly, useful information is denied to the floor.

A closed rule, on the other hand, transforms the game into case of costly signaling. In this case the committee can credibly transmit information to the floor through its proposal. This procedure is costly for the floor, since given the transmitted information about the state of nature, the floor would prefer to choose a bill other than the one proposed by the committee, but given a closed rule its only alternative to the committee's bill is the *status quo*. The floor thus compensates the committee by allowing it to bias the chosen bill towards its ideal point. Since the floor would *ex post* prefer to moderate the committee's proposal, the floor's ability to commit to a closed rule *ex ante* is a key assumption in the Gilligan and Krehbiel model.

To avoid the costs associated with restrictive amendment procedures Gilligan and Krehbiel argue that we should not expect committees with outlying preferences in Congress. The empirical evidence for this implication of the Gilligan and Krehbiel framework is mixed. While Krehbiel (1990) finds no statistically significant difference between committee and floor preferences, Hall and Grofman (1990) as well as Londregan and Snyder (1994) argue that outlying committees are common. But since closed rules are rarely used (Krehbiel 1991), this would imply little information transmission by committees and consequently no incentive to specialize.

We suggest that Congressional hearings provide a mechanism that allows even an extreme committee to credibly transmit information to the floor, although the floor considers the committee's bill under an open rule.[1] This in turn provides an incentive for the committee to specialize. To fulfill this role, hearings must satisfy two properties: they must be costly and they must be informative.

There is little disagreement in the literature that holding hearings are costly (see for example Oleszek 1989; Morrow 1969; Davidson and Oleszek 1985; Tiefer 1989). While the monetary costs are most evident, perhaps even more important are the opportunity costs legislators incur when preparing or conducting a hearing rather than providing services to their constituencies or introducing bills. Moreover, extended hearings may significantly slow down the legislative process.

The informativeness of hearings is more controversial. Hearings present multiple opportunities for strategic behavior by both committee members and those testifying. The committee may be able to control the hearing by determining who may testify, for how long and in what order. Those testifying may withhold crucial information and even intentionally mislead both the committee and the Congress as a whole (Matthews 1973). However, the fact that non-committee members with private information usually testify in hearings is critical. While the floor may not find statements from the committee credible it may be more inclined to believe testimony from experts.

[1] The formal literature has mentioned hearings to interpret some modeling features. Gilligan and Krehbiel (1987), for instance, mention the hearing process as one method by which the committee may become asymmetrically informed. See also Austen-Smith (1993).

Experts may care more about establishing a reputation for correctly predicting policy outcomes rather than manipulating decision processes. While we analyze our model for different degrees of hearing informativeness, it is important to keep in mind that our main results hold even if hearings are not very informative.

Our focus is the role of hearings as information transmission devices rather than a detailed analysis of the hearing process. Thus we retain only the two crucial features of hearings mentioned above: we assume that hearings have some fixed informative content, perhaps very small, and that they are costly. Both the informativeness of the hearings and the associated costs are exogenous to the model. In our game there are two ways in which hearings can provide information to the floor. First, there is the obvious intrinsic information generated by a hearing, e.g. through expert testimony. Depending on the outcome of a hearing the floor may thus modify its bill. Second, and more importantly, there is strategic information derived from the committee's choice whether to hold a hearing. Like a catalyst the intrinsic informativeness of costly hearings enables the strategic transmission of credible information by the committee's action.

Given the importance of the committee's discretion over whether to hold a hearing one may ask whether it is ever in the floor's interest to mandate hearings. As we show below, there is never an incentive for the floor to mandate hearings except when the floor's prior beliefs are such that the committee receives its most preferred outcome even if it does nothing.

The results obtained here challenge Gilligan and Krehbiels' finding that extreme committees cannot transmit information under an open rule and thus do not specialize. We show that hearings that are informative and costly provide an opportunity for extreme committees to profitably specialize and transmit decisive information to the floor. Conversely, if hearings are informative but not costly the committee has no incentive to specialize but may still reveal information through hearings. Finally, if hearings are costly but not informative the committee will never specialize and hearings will never be held.

# 2 Model and Results

We consider a two-actor multi-stage game under incomplete information. The actors are the floor and the committee. Uncertainty is incorporated by a stochastic relationship between policies and outcomes. Let $x$ and $b$ be real numbers and $\omega$ the state of nature with $\omega \in \Omega \equiv \{0, 1\}$.[2] The variable $\omega$ determines the difference between bills and outcomes. We assume that $x = b - \omega$ where $x$ is the realized outcome and $b$ is the bill passed by the floor.

When the game begins neither the floor nor the committee know the value of $\omega$,

[2]This contrasts with the assumption of a continuous set of states in Gilligan and Krehbiel (1987). Our central interest is the extreme committee's ability to transmit useful information to the floor via hearings. In the Gilligan and Krehbiel model there is no such ability given either a continuous set of states or just two states. It is primarily for technical convenience that we consider only two states.

but both players have a common prior $p$, representing the probability that $\omega = 1$. In the first stage nature chooses the state $\omega$ and determines the outcome of the hearing (if it is held). The outcome of a hearing is a message $m \in \{0, 1\}$. The informativeness of hearings is captured by conditional probability distributions where $p_1$ is the probability a hearing produces message $m = 1$ in state $\omega = 1$ and $p_0$ is the probability that $m = 1$ given the state of nature is $\omega = 0$. Thus, if $p_1 = 1$ and $p_0 = 0$ then the hearing outcome is perfectly correlated with the state. It follows that, after observing the hearing, the floor knows the true state. Conversely, if $p_1 = p_0$, hearings are not informative. We assume that $p_0$ and $p_1$ are strictly between 0 and 1 and without loss of generality that $p_1 > p_0$. We can interpret the ratio $p_0/p_1$ as the degree to which hearings are informative: the larger the ratio the less informative the hearing.[3]

Next the floor chooses whether to delegate the choice to hold a hearing to the committee. We denote the strategy of the floor as $\tau \in \{0, 1\}$ where $\tau = 0$ means the floor chooses to delegate.

The subgame in which the floor does not delegate is denoted $H_{ND}$. We assume that the floor can learn the hearing outcome $m$ at cost $\xi > 0$. This can be interpreted as the floor holding a hearing. As is common in informational theories of committees we assume that the floor cannot specialize.[4] After observing the hearing outcome the floor chooses a bill $b \in [0, 1]$. The floor's strategy function in the subgame $H_{ND}$ is $b_{ND} : \{0, 1\} \to [0, 1]$.

Following Gilligan and Krehbiel (1987) we call the subgame following the decision by the floor to delegate an "expertise game" and denote it by $H_s$. The committee first decides whether it will specialize (become asymmetrically informed) and learn the value of $\omega$. The committee chooses $s \in S \equiv \{0, 1\}$ where $s$ takes the value of 1 or 0 if the committee does or does not specialize. If the committee specializes it incurs a cost $k > 0$. We assume that the floor observes the committee's specialization decision. Next the committee decides whether to hold a hearing. We represent the committee's choice by $a$ where $a = n$ if the committee decides not to hold a hearing and $a = h$ if the committee decides to hold a hearing. Thus $a \in A \equiv \{n, h\}$ where $A$ denotes the set of actions available to the committee. We allow the committee to randomize over the set of actions $A$.

We denote the subgame in which the committee has chosen not to specialize by $H_0$. If the committee does not specialize ($s = 0$), then a strategy for the committee in the hearing stage is the probability the committee holds a hearing. We denote this strategy by $\sigma_0$ where $\sigma_0 \in [0, 1]$. We denote the subgame in which the committee specializes $H_1$. If the committee specializes ($s = 1$), the committee can condition its choice of the probability to hold a hearing on the observed value of $\omega$. In this case

[3]Recent developments in the formal literature have expanded the range of signaling games by allowing costless messages to have both pure and equilibrium informative content. Lipman and Seppi (1990) consider models where message sets are type dependent. Receiving a message permits the receiver to rule out certain types as possible. This is in effect no different than having some messages which are infinitely costly for some types.

[4]Another interpretation is that the floor mandates a hearing by the committee. As we show below, however, the committee never has an incentive to specialize with mandated hearings.

the committee's strategy $\sigma_1$ is a function from $\Omega$ into $[0, 1]$.

In either subgame $H_0$ or $H_1$ if a hearing is held the committee incurs a cost $c \geq 0$ and the floor observes the hearing outcome $m \in \{0, 1\}$. If the hearing is not held the floor observes $\phi$. Thus, the floor observes one of three possible messages in the set $M \equiv \{0, 1, \phi\}$. The floor then chooses a bill. Since the decision to specialize, the choice to hold hearings and the outcome of the hearing are common knowledge, the floor can condition its decision on these factors. The floor's choice of a bill in subgame $H_i$ for $i = 0, 1$ is given by the function $b_i : M \rightarrow [0, 1]$.

Finally, the outcome $x$ is realized and payoffs are assigned. The structure of the game is summarized in figure 1.

figure 1 about here

We assume Euclidean preferences over outcomes $x \in \Re$. The floor's utility function is $u_f(x) = -|x|$. Let $x_c$ represent the ideal point of the committee. The utility function for the committee is $u_c(x) = -|x - x_c|$. Given the linear relationship between policies and outcomes the utility function for the floor may be written as $u_f(b, \omega) = -|b - \omega|$. Similarly, the utility function for the committee is $u_c(b, \omega) = -|b - \omega - x_c|$. We assume that the committee is a preference outlier with $x_c \geq 1$. Since $x_c \geq 1$ and $b \leq 1$ we can simplify the committee's utility function to $u_c(b, \omega) = b - \omega - x_c$. It follows that the committee prefers a higher bill to a lower bill regardless of the state of nature. The expected utility functions for the floor and the committee in each subgame may be found in the appendix.

We analyze the perfect Bayesian equilibria of this game. In the following we will first analyze each of the subgames and then examine the entire delegation game.

## 2.1 Hearing Subgames

Let $\Delta$ represent the odds that nature chooses $\omega = 1$. That is, $\Delta = p/(1-p)$. Throughout this paper we present only generic equilibria, i.e., equilibria which are robust with respect to small disturbances in the relevant parameters, $\Delta$ and $c$. Therefore we, for instance, ignore cases where $\Delta$ is exactly equal to $p_0/p_1$ or 1.

*The non-specialized committee.* We start with subgame $H_0$ in which the committee does not specialize. A formal characterization of the equilibria is given in Proposition 1 in the appendix.

We say a hearing provides *decisive information* when for some hearing outcome $m \in \{0, 1\}$ the floor sometimes chooses a different bill than when no hearing is held (i.e., $b_0(\phi) \neq b_0(m)$ for some $m \in \{0, 1\}$). Given positive costs ($c > 0$), a committee will only hold hearings if they provide decisive information to the floor. If $\Delta < p_0/p_1$ then hearings are not decisive. If the odds that nature is in state one are low enough then even if the hearing is held and the outcome indicates that nature is in state one the floor will not be convinced. From the perspective of the committee the cause is lost so there is no reason to hold costly hearings.

Thus, hearings may be held only when the odds of nature being in state one are high enough that the outcome of hearing may change the floor's position. In the region where $\Delta \in (p_0/p_1, 1)$ hearings are decisive. If the outcome of the hearing is $m = 1$, the floor chooses the committee's preferred bill ($b_0^*(1) = 1$) whereas if the hearing is not held (or yields outcome 0), the committee's least preferred bill is chosen ($b_0^*(\phi) = 0$).

However, hearings are not held even when $\Delta \in (p_0/p_1, 1)$ if the cost of the hearing is too high ($c > p(p_1 - p_0) + p_0$). Note that the critical value of the cost parameter is increasing in the informativeness of the hearing.

When $\Delta > 1$ it is also the case that hearings are never held. The reason is that when no hearings are held the floor will choose the committee's most preferred bill ($b_0^*(\phi) = 1$) therefore the committee has no incentive to bear the cost of hearings. Figure 2 shows the equilibria parameterized by $\Delta$ and $c$.

figure 2 about here

Note that the range of parameter values of $\Delta$ for which hearings will not be held is an increasing function of the ratio $p_0/p_1$. If $p_0 = p_1$ (hearings are non-informative), then hearings are never held.

When hearings are costless they may be held even when they are not decisive. In this case the committee is simply indifferent between holding and not holding the hearings. However, if they are at all decisive, they will always be held. Thus hearings may held for any value of $\Delta$.

*The specialized committee.* In the subgame $H_1$, the committee knows the state $\omega$ and thus can condition its decision to hold a hearing on $\omega$. If $\omega = 1$ then we call the committee type-1, if $\omega = 0$ the committee is type-0. Because the bill chosen by the floor when it knows that $\omega = 1$ is always preferred by the committee to the bill that is chosen when the floor knows that $\omega = 0$ the type-1 committee wishes to inform the floor about the state while the type-0 committee does not. We consider the case of costly hearings ($c > 0$) first.

As is common in signaling games, we find a variety of equilibria.[5] Proposition 2 in the appendix contains the formal statement. Throughout the entire range of parameters there is a pooling equilibrium in which both types never hold a hearing. However, this equilibrium is sustained by questionable out-of-equilibrium beliefs that ignore the intrinsic informativeness of hearings which is common knowledge among the actors.[6] If we ignore this problematic equilibrium, we have a unique perfect Baysian equilibrium for each region in the parameter space portrayed in figure 3.

[5]Equilibria in signaling games are often categorized as separating, pooling, semi-pooling, and totally mixed. In a separating equilibrium each type takes a different action with probability one; thus permitting the floor to infer the state of nature. In pooling equilibria both types take the same action with probability one; the floor can infer nothing from the committee's choice. Semi-pooling equilibria are intermediate cases where one committee type chooses a particular action with certainty while other type randomizes over the set of possible actions. For example, a type-0 committee never holds a hearing, while a type-1 committee sometimes holds a hearing. In totally mixed equilibria both types randomize.

[6]An equilibrium where both committee types choose not to hold hearings is sustained by the out-of equilibrium belief pair $\mu(0) = \mu(1) \leq 1/2$. This implies that upon observing an unexpected hearing the floor believes that it is more likely that the type-0 committee (the type that wants to mislead the floor) has deviated to hold the hearing than the type-1 committee. But given the

figure 3 about here

First, in the range $\Delta \in (p_0/p_1, 1)$[7] and $c < p_0$ the unique perfect Bayesian equilibria subject to our refinement requires both types to hold hearings. Since both types hold hearings the fact that hearings are held does not provide any additional information to the floor beyond that generated by the intrinsic informativeness of the hearing.

When the cost for holding hearings is very low ($c < p_0$) decisive information may be transmitted only if $\Delta < p_0/p_1$. As $\Delta$ approaches $p_0/p_1$ the probability that a type-0 committee holds a hearing approaches 1. For $1 > \Delta > p_0/p_1$ there are only pooling equilibria. However, if the cost to hold a hearing is sufficiently high ($c > p_0$) semi-pooling equilibria exist throughout the range of $\Delta < 1$. This means that the committee may transmit decisive information through the choice to hold a hearing for any prior belief $\Delta < 1$.

To see the important role played by positive costs consider the case in which hearings are costless ($c = 0$).[8] When $c = 0$ if either type has a strict incentive to hold a hearing then both types will necessarily hold a hearing and the resulting equilibria are pooling equilibria. To sustain semi-pooling it must be the case that at least one type is indifferent between holding and not holding hearings. But, if either type is indifferent then both are indifferent. To make both types indifferent the floor must always choose the same bill ($b_1^*(\cdot) = 0$ when $\Delta < 1$) regardless of either the outcome of or the choice to hold the hearing. Thus the committee is no better off than if the hearing had not been held in the first place.

## 2.2 Expertise Game

The analysis of the hearing subgame $H_1$ showed the importance of costs in generating decisive information by allowing the informed committee to provide information to the floor about its type via semi-pooling equilibria. We now use these equilibria to show how specialization by a committee is possible given hearings are informative and costly. To characterize the expertise equilibria we simply have to compare the committee's *ex ante* expected utility given specialization with the *ex ante* expected utility if the committee does not specialize.

We refer to the subset of expertise equilibria in which the committee decides to specialize ($s = 1$) as "specialization equilibria". Theorem 1 shows that costly

intrinsic informativeness of hearings and the fact that the type-1 committee wants to truthfully inform the floor about the state, the floor should put a higher probability on type-1 if it observes an unexpected hearing. A similar argument has led to the development of a variety of signaling game refinements. Banks and Sobel (1987) "universal divinity" criterion is most closely related. However, given our noisy messages universal divinity eliminates the pooling-on-n equilibrium only in some cases.

[7] We do not extend the analysis to the case of $\Delta > 1$, since a precise characterization is not necessary for either specialization or delegation game. See Theorem 1 for details.

[8] See also Proposition 3 in the appendix.

informative hearings are sufficient to ensure the existence of specialization equilibria for a large set of parameter values.

**Theorem 1** *Suppose $c > 0$ and $p_1 > p_0$. Then there exist specialization equilibria if and only if either $c < p_0$ and $\Delta < p_0/p_1$, or $c > p_0$ and $\Delta < 1$.*

Theorem 1 demonstrates that, in contrast to the mark-up game of Gilligan and Krehbiel, extreme committees may choose to specialize and reveal decisive information to the floor. The expertise equilibria are portrayed in figure 4 where we also indicate the maximal specialization cost $k$ below which specialization equilibria can be sustained. If hearings are informative and costly then throughout the range of $\Delta$ considered there exist equilibria in which decisive information is conveyed through hearings. Moreover, specialization equilibria always exist for $\Delta \in (p_0/p_1, 1)$.

figure 4 about here

If hearings are sufficiently costly ($c > p_0$) then specialization equilibria exist for any $\Delta < 1$ and $p_1 > p_0$. If $p(p_1 - p_0) + p_0 > c$ decisive information may still be conveyed through the hearing process even without specialization by the committee. However, if $c > p(p_1 - p_0) + p_0$ then decisive information can be transmitted only, if the committee specializes. Therefore, if hearings are very costly only committees that specialize will hold them.

The specialization equilibria are supported off the equilibrium path by the corresponding equilibria in the uninformed subgame $H_0$. To see the advantage of specialization we need only compare the *ex ante* expected utility in the two subgames. In the specialization equilibria a type-1 committee will always be strictly better off having specialized while a type-0 committee will be indifferent. Since, *ex ante*, there is always a positive probability of being type-1 the committee chooses to specialize.

If $\Delta > 1$ then the committee receives its most preferred bill if it does not specialize and never holds a hearing. But then no matter what equilibrium is played in $H_1$ the committee has a strict incentive not to specialize (since $k > 0$) or to hold a hearing (since $c > 0$).

Theorem 1 above gave sufficient conditions for the existence of specialization equilibria. As was mentioned in the context of semi-pooling equilibria in subgame $H_1$, positive costs are necessary to sustain equilibria in which the committee has an incentive to specialize. The following theorem generalizes this observation to the expertise game.

**Theorem 2** *If hearings are costless and informative then there are no specialization equilibria. Furthermore, in any expertise equilibrium decisive information is conveyed only if $\Delta \in (p_0/p_1, 1)$.*

Theorem 2 demonstrates that informativeness of hearings is not sufficient to explain the committee's choice to specialize; hearings must also be costly. However, the fact that the committee does not specialize does not mean that the committee is incapable of conveying useful information to the floor. In the region $1 > \Delta > p_0/p_1$, while the committee does not specialize it always holds a hearing and the outcome of the hearing determines the bill chosen by the floor. This demonstrates the importance of positive costs as a necessary catalyst for specialization.

Theorem 3 demonstrates that if hearings are costly but not informative then the committee will not choose to specialize or hold hearings. We have emphasized that in order to make specialization worthwhile the action taken by the committee must transmit decisive information. Theorem 3 implies that this is only possible if the hearing itself is informative.

**Theorem 3** *If hearings are costly but not informative then there are no specialization equilibria and hearings are never held.*

Even a very extreme committee can use hearings to provide credible information to the floor by specializing. Contrary to the use of closed rules the floor does not suffer distributional costs by allowing the committee to obtain a biased bill. Thus there is no trade-off between policy bias and informational costs that makes extreme committees unattractive to the floor.[9]

## 2.3 Delegation Game

The assumption that the committee is permitted to choose whether to hold a hearing is central in our theory. This naturally raises the institutional design question whether it always is in the interest of the floor to grant this discretionary power to the committee. Alternatively, the floor could mandate hearings or hold the hearing itself.

In the appendix we formally consider the case where the floor can hold the hearing at cost $\xi$. In this subgame the floor is the only actor. The floor then chooses a bill depending on the hearing outcome. The results are summarized in figure 5.

figure 5 about here

The most important result is that for a large range of parameters the floor strictly prefers to delegate the choice to hold hearings to the committee[10]. The reason is that with discretionary hearings the committee's choice reveals more than enough strategic information to the floor to compensate for the cases when the hearing yields the "wrong" outcome.

If $\Delta > 1$ the committee receives its most preferred outcome if no hearing is held. Thus the committee, if permitted to choose, will choose neither to specialize nor to hold hearings. Decisive information which could be provided through hearings is denied to the floor and in some cases the floor would prefer to revoke the committee's discretion to hold hearings. The extent to which the floor prefers to hold hearings

[9]Of course, if committees are prefect agents of the floor they may convey credible information though cheap-talk messages as well.

[10]As is evident from the proof of Proposition 6, even if $\xi = 0$ the floor *strictly* prefers discretionary hearings for the area where $c > p_0$ and $\Delta < 1$. Further, the floor is indifferent for $\Delta < 1$ and $c < p_0$ as well as $\Delta > (1-p_0)/(1-p_1)$. The floor strictly prefers to hold the hearing for $\Delta \in (1, (1-p_0)/(1-p_1))$

itself depends on the cost $\xi$ and $\Delta$. If $\xi$ is below a critical value (defined by the line in figure 5) for a given $\Delta$ the floor prefers to hold the hearing. Otherwise the floor has a strict preference for discretionary hearings. Note that as $\xi$ approaches 0 the floor prefers to hold hearings herself for the entire range of $\Delta \in (1, (1-p_0)/(1-p_1))$.

For very high priors ($\Delta > (1-p_0)/(1-p_1)$) the floor again prefers discretionary hearings. This is the case even though the committee will not specialize or hold hearings. The floor does not hold hearings because hearings would not reveal decisive information.

Alternatively, one could consider a variant of our model in which the floor has a choice between mandatory and discretionary hearings. Using a similar argument as in Proposition 4 it can be shown the committee never has an incentive to specialize if the floor declares hearings to be mandatory. The only difference between a version with mandatory hearings and our model is who bears the costs of hearings. If the floor bears some of the costs of a mandatory hearings the results of the delegation game in both versions are the same.[11]

# 3 Conclusion

Costly actions and informative messages play a critical role in our theory of congressional hearings. We showed that if hearings are informative and costly then committees both specialize and hold hearings for a wide range of prior beliefs about likely policy outcomes. Specialization equilibria are of particular interest because decisive information is revealed both through the committee's choice to hold hearings and through the hearing itself. We also showed that if hearings are costless then there are no equilibria in which the committee specializes. Finally, if hearings are costly but not informative the committee neither specializes nor holds hearings.

With hearings even committees with very extreme policy preferences can transmit credible information to the floor. Further, the floor does not suffer any distributional costs as it would through the use of restrictive amendment procedures. All results hold for an open rule. The fact that the floor can learn about policy consequences from the committee's decision provides a rationale for the floor to delegate the choice whether to hold hearings to the committee. For a wide range of parameter values the floor strictly prefers discretionary hearings. If hearings are sufficiently costly this holds even if the floor could costlessly either hold hearings or mandate the committee to hold hearings whenever it proposes a bill to the floor.

In our model both the informativeness and costs of hearings are exogenous. The committee could only decide whether to hold a hearing with these properties or not. In future research one might consider the case where the committee or the floor can, for instance, determine the informativeness of hearings. This may shed some light on the conditions where a committee may want to stack the deck in its favor or when it prefers to hold a balanced hearing. In another variation the choice structure may be altered to permit the sender to learn the message associated with each action before

[11] If the floor bears no cost, the analysis is equivalent to the case where $\xi = 0$. See also the previous footnote.

choosing. This can be interpreted as a expert report whose contents are known by the committee which the committee can choose to make public.

The assumption that messages may have intrinsic informative content can help us to explain why communication occurs in such settings that, viewed from the perspective of cheap talk games, would seem to offer little opportunity for credible communication.

# 4 Appendix

For each subgame $H$ denote a strategy profile for that subgame by $h$, and let $h^*$ be a subgame perfect equilibrium for subgame $H$.

## 4.1 Subgame $H_0$

Consider the subgame $H_0$. The floor and committee expected utility functions depend on the probability the committee holds a hearing ($\sigma_0$) and the strategy of the floor ($b_0$). The interim expected utility to the floor conditional upon observing $m \in \{0, 1, \phi\}$ is

$$EU_f(b_0, m) = \Pr(\omega = 1|m)\,(b_0(m) - 1) - (1 - \Pr(\omega = 1|m))\,b_0(m) \tag{1}$$

where

$$\Pr(\omega = 1|m) = \left\{ \begin{array}{cc} p & m = \phi \\ \frac{p(1-p_1)}{p(1-p_1)+(1-p)(1-p_0)} \text{ if } & m = 0 \\ \frac{pp_1}{pp_1+(1-p)p_0} & m = 1 \end{array} \right|$$

The best response function for the floor is given by

$$b_0^*(m) \left\{ \begin{array}{ll} = 0 \quad \text{if} & \left\{ \begin{array}{c} m = 1 \text{ and } \Delta < \frac{p_0}{p_1},\ m = \phi \text{ and } \Delta < 1 \text{ or} \\ m = 0 \text{ and } \Delta < \frac{1-p_0}{1-p_1} \end{array} \right\} \\ = 1 \quad \text{if} & \left\{ \begin{array}{c} m = 1 \text{ and } \Delta > \frac{p_0}{p_1},\ m = \phi \text{ and } \Delta > 1 \text{ or} \\ m = 0 \text{ and } \Delta > \frac{1-p_0}{1-p_1} \end{array} \right\} \end{array} \right. \tag{2}$$

The expected utility to the committee for this subgame is

$$\begin{aligned} EU_c(h_0) &= (1 - \sigma_0)\,(b_0(\phi) - x_c - p) \\ &\quad + \sigma_0 \left\{ \begin{array}{c} p\,(p_1 b_0(1) + (1 - p_1) b_0(0)) \\ +(1 - p)\,(p_0 b_0(1) + (1 - p_0) b_0(0)) \\ -x_c - p - c \end{array} \right\} \end{aligned} \tag{3}$$

It follows from equations (2) and (3) that the best response correspondence for the committee given the floor plays according to $b_0^*$ is as follows:

$$\sigma_0^* \left\{ \begin{array}{lc} = 0 & \left\{ \begin{array}{c} \Delta \notin (\frac{p_0}{p_1}, 1) \text{ and } c > 0 \text{ or} \\ \Delta \in (\frac{p_0}{p_1}, 1) \text{ and } c > pp_1 + (1 - p)p_0 \end{array} \right\} \\ \in [0, 1] \quad \text{if} & \Delta \notin (\frac{p_0}{p_1}, \frac{1-p_0}{1-p_1}) \text{ and } c = 0 \\ = 1 & \Delta \in (\frac{p_0}{p_1}, 1) \text{ and } c < pp_1 + (1 - p)p_0 \end{array} \right. \tag{4}$$

It follows that the expected utility for the floor given subgame $H_0$ is

$$\begin{aligned} EU_f(h_0) &= p\left[\sigma_0\,(p_1 b_0(1) + (1 - p_1) b_0(0)) + (1 - \sigma_0)\,b_0(\phi)\right] \\ &\quad -(1 - p)\left[\sigma_0\,(p_0 b_0(1) + (1 - p_0) b_0(0)) + (1 - \sigma_0)\,b_0(\phi)\right] \\ &\quad -p \end{aligned}$$

and when both the committee and floor play according to their best response correspondences this becomes:

$$EU_f(h_0^*) \tag{5}$$
$$= \begin{cases} -p & \left\{ \begin{array}{c} \Delta < \frac{p_0}{p_1} \text{ or} \\ \Delta \in (\frac{p_0}{p_1}, 1) \text{ and } c > pp_1 + (1-p)p_0 \end{array} \right\} \\ pp_1 - (1-p)p_0 - p \quad \text{if} & \Delta \in (\frac{p_0}{p_1}, 1) \text{ and } c < pp_1 + (1-p)p_0 \\ -(1-p) & \Delta > 1 \end{cases}$$

¿From equations (3) and (4) it follows that the expected utility to the committee of the subgame $H_0$ when both the committee and the floor play their best responses is:

$$EU_c(h_0^*) \tag{6}$$
$$= \begin{cases} -x_c - p & \text{if } \left\{ \begin{array}{c} \Delta < \frac{p_0}{p_1} \text{ or} \\ \Delta \in (\frac{p_0}{p_1}, 1) \text{ and } c > pp_1 + (1-p)p_0 \end{array} \right\} \\ pp_1 - (1-p)p_0 - x_c - p - c & \text{if } \Delta \in (\frac{p_0}{p_1}, 1) \text{ and } c < pp_1 + (1-p)p_0 \\ -x_c - (1-p) & \text{if } \Delta > 1 \end{cases}$$

**Proposition 1** *Let $c \geq 0$, then the equilibria for the subgame $H_0$ are given by equations (2) and (4). The expected utilities for the floor and committee are given by equations (5) and (6) respectively.*

**Proof.** The proposition follows directly from the arguments above. ■

## 4.2 Subgame $H_1$

In subgame $H_1$ the committee has private information. In order to define the floor's expected utility functions for this subgame we must specify the floor's beliefs conditional on observing a message $m \in \{0, 1, \phi\}$. We define $\mu(m)$ to be the floor's belief that $\omega = 1$ conditional on observing message $m$. The floor's interim expected utility conditional on observing signal $m$ is given below:

$$EU_f(b_1, m) = \mu(m)\,(b_1(m) - 1) - (1 - \mu(m))\,b_1(m) \tag{7}$$

This permits the best response correspondence for the floor to be specified as:

$$b_1^*(m) \begin{cases} = 1 & \text{if } \mu(m) > 1/2 \\ \in [0, 1] & \text{if } \mu(m) = 1/2 \\ = 0 & \text{if } \mu(m) < 1/2 \end{cases} \tag{8}$$

The interim expected utility for the committee after learning its type is

$$EU_c(\omega, b_1, \sigma_1) = \left\{ \begin{array}{c} (1 - \sigma_1(\omega))b_1(\phi) + \sigma_1(\omega)\left((1 - p_\omega)\,b_1(0) + p_\omega b_1(1) - c\right) \\ -\omega - x_c - k \end{array} \right\} \tag{9}$$

It follows that the best response correspondence for the informed committee is:

$$\sigma_1^*(\omega) \begin{cases} = 1 & & < \\ \in [0,1] \text{ if } & b_1(\omega) & = & b_1(0) + p_\omega(b_1(1) - b_1(0)) - c \\ = 0 & & > \end{cases}. \tag{10}$$

Beliefs along the equilibrium path are determined by Bayes' rule:

$$\mu^*(\phi) = \frac{p(1-\sigma_1^*(1))}{p(1-\sigma_1^*(1)) + (1-p)(1-\sigma_1^*(0))} \tag{11}$$

$$\mu^*(0) = \frac{(1-p_1)\, p\, \sigma_1^*(1)}{(1-p_1)\, p\, \sigma_1^*(1) + (1-p_0)(1-p)\sigma_1^*(0)} \tag{12}$$

$$\mu^*(1) = \frac{p_1\, p\, \sigma_1^*(1)}{p_1\, p\, \sigma_1^*(1) + p_0\,(1-p)\sigma_1^*(0)} \tag{13}$$

The ex-ante expected utilities for the floor and the committee for the subgame $H_1$ are given by

$$EU_f(h_1) = \left\{ \begin{array}{c} p\,[\sigma_1(1)\,(p_1(b_1(1)-1) + (1-p_1)(b_1(0)-1)) + (1-\sigma_1(1))(b_1(\phi)-1)] \\ -(1-p)\,[\sigma_1(0)\,(p_0(b_1(1)) + (1-p_0)(b_1(0))) + (1-\sigma_1(0)(b_1(\phi))] \end{array} \right\} \tag{14}$$

$$EU_c(h_1) = pEU_c(\omega = 1, b_1, \sigma_1) + (1-p)EU_c(\omega = 0, b_1, \sigma_1) \tag{15}$$

**Lemma 1** *In any equilibrium for the subgame $H_1$*

1. $\sigma_1^*(0) > 0$ *and* $\sigma_1^*(1) = 0$ *implies* $\mu^*(0) = \mu^*(1) = 0$, $\mu^*(\phi) > 0$ *and* $b_1^*(0) = b_1^*(1) = 0$.

2. $\sigma_1^*(0) = 0$ *and* $\sigma_1^*(1) > 0$ *implies* $\mu^*(0) = \mu^*(1) = 1$, $\mu^*(\phi) < 1$ *and* $b_1^*(0) = b_1^*(1) = 1$.

3. $\sigma_1^*(0) > 0$ *and* $\sigma_1^*(1) > 0$ *implies* $\mu^*(0) < \mu^*(1)$ *and if* $b_1^*(0) > 0$, *then* $b_1^*(1) = 1$.

**Proof.** Since beliefs along the equilibrium path beliefs are defined by equations (11), (12) and (13), the results for $b_1^*$ in items 1 and 2 follow immediately from equation (8). In item 3 if $b_1^*(0) > 0$ then by equation (8) it must be the case $\mu^*(0) = 1/2 < \mu^*(1)$ thus $b_1^*(1) = 1$ from equation (8). ■

We place the following restriction $D$ on out of equilibrium beliefs $\mu^*$ that is similar to universal divinity (see Banks and Sobel 1987): In any equilibrium such that $\sigma_1^*(1) = \sigma_1^*(0) = 0$ it must be the case that $\mu^*(0) = \mu^*(1) = 1$. The intuition behind this refinement is that if an unexpected hearing is held then the floor must believe it is a type-1 committee that has deviated to hold the hearing since the type 1 committee is strictly more likely to get a hearing outcome $m = 1$.

**Proposition 2** *In the subgame $H_1$ all perfect Bayesian equilibria satisfying the restriction D are of the following form:*

1. *when* $1 > \Delta > p_0/p_1$ *and* $0 < c < p_0$ *then*

$$\sigma_1^*(1) = \sigma_1^*(0) = 1$$

$$b_1^*(\phi) \leq p_0 - c,\ b_1^*(0) = 0 \text{ and } b_1^*(1) = 1$$
$$EU_f(h_1^*) = p((1-p_1)(-1) + (1-p)p_0(-1)$$
$$EU_c(h_1^*) = -p + pp_1 + p_0 - p_0x_c - x_c + p_1x_c - c - p_0p + pp_0x_c - pp_1x_c - k$$

2. *when* $0 < \Delta < p_0/p_1$ *and* $0 < c < p_0$

$$\sigma_1^*(1) = 1 \text{ and } \sigma_1^*(0) = \Delta\frac{p_1}{p_0}$$

$$b_1^*(\phi) = b_1^*(0) = 0 \text{ and } b_1^*(1) = \frac{c}{p_0}$$
$$EU_f(h_1^*) = -p$$
$$EU_c(h_1^*) = \frac{pp_1c - p_0p - pcp_0 - x_cp_0}{p_0} - k$$

3. *when* $1 > c > p_0$ *and* $\Delta \in (0,1)$

$$\sigma_1^*(1) = 1 \text{ and } \sigma_1^*(0) = \Delta(1-p_1)/(1-p_0)$$

$$b_1^*(\phi) = 0,\ b_1^*(0) = (c-p_0)/(1-p_0) \text{ and } b_1^*(1) = 1$$
$$EU_f(h_1^*) = -p\frac{1-p_1}{1-p_0}$$
$$EU_c(h_1^*) = \frac{-p - pp_1c + pp_1 + pcp_0 - x_c + p_0x_c}{1-p_0} - k$$

**Proof.** It is easy to see that there are no separating equilibria. There are thus four types of equilibria to consider: pooling on $n$, pooling on $h$, semi-pooling, and totally mixed.

Consider first *pooling on n*. If $\sigma_1^*(1) = \sigma_1^*(0) = 0$ then it must be true that $b_1^*(\phi) \geq b_1^*(0) + p_i(b_1^*(1) - b_1^*(0)) - c$ for every $i \in \{0,1\}$ and $\mu^*(\phi) = p$. From $\Delta < 1$ it follows that $p < 1/2$ and therefore $b_1^*(\phi) = 0$. It follows that in any such equilibrium we must have

$$c \geq b_1^*(0) + p_i(b_1^*(1) - b_1^*(0))$$

for every $i \in \{0,1\}$. However from the restriction $D$ we must have $\mu^*(1) = \mu^*(0) = 1$ and by equation (8) it follows that $b_1^*(0) = b_1^*(1) = 1$. Contradiction.

Now we consider *pooling on h* and thus $\sigma_1^*(1) = \sigma_1^*(0) = 1$. It follows from equation (10) that $b_1^*(\phi) \leq b_1^*(0) + p_i(b_1^*(1) - b_1^*(0)) - c$ for any $i \in \{0,1\}$. Since $b_1^*(m) \leq 1$ for any $m \in \{0,1,\phi\}$ it must be the case that $b_1^*(\phi) \in [0,1-c]$. Therefore $\mu^*(\phi) \leq 1/2$. Since $\phi$ is never observed in equilibrium we are free to set out of equilibrium beliefs (e.g., $\mu^*(\phi) = 0$) such that $b_1^*(\phi) = 0$. By Lemma 1.c we must have $\mu^*(1) > \mu^*(0)$ and if $b_1^*(0) > 0$, then $b_1^*(1) = 1$ which leaves four cases:

Suppose $b_1^*(0) = b_1^*(1) = 1$. Then it follows that $\mu^*(0) \geq 1/2$. But this entails that equilibria where $b_1^*(0) = b_1^*(1) = 1$ exist only if $p(1-p_1)/[p(1-p_1)+(1-p)(1-p_0)] \geq 1/2$ or $\Delta \geq (1-p_0)/(1-p_1)$ and thus such equilibria can only occur when $\Delta > 1$ violating the assumption $\Delta < 1$.

Suppose $b_1^*(0) \in (0,1)$ and $b_1^*(1) = 1$. Then $\mu^*(0) = 1/2$ which implies $\Delta = (1-p_0)/(1-p_1)$. Since this is a non-generic case we ignore it.

If $b_1^*(0) = 0$ and $b_1^*(1) \in (0,1)$ then it must be true that $\mu^*(1) = 1/2$ which implies $\Delta = p_0/p_1$ which again is a non-generic case.

Thus the only possible pooling equilibria occurs when $b_1^*(0) = 0$ and $b_1^*(1) = 1$. In this case $\mu^*(0) \leq 1/2$ and $\mu^*(1) \geq 1/2$. Now $\mu^*(0) \leq 1/2$ requires $\Delta \leq \frac{1-p_0}{1-p_1}$ which is non-binding for $\Delta < 1$ while $\mu^*(1) = \frac{p\,p_1}{p\,p_1+(1-p)p_0} \geq 1/2$ implies $1 \geq \Delta \geq p_0/p_1$. Finally for $\sigma_1^*(0) > 0$ to be a best response it must be true that $b_1^*(\phi) + c \leq b_1^*(0) + p_0(b_1^*(1) - b_1^*(0)) = p_0$. Since $b_1^*(\phi) = 0$, we also have $c \leq p_0$. It follows that a pooling equilibrium of this form only occurs when $\Delta \geq p_0/p_1$ and $c \leq p_0$. This is the first equilibrium in the proposition.

In *semi-pooling* equilibria four cases have to be considered: $\sigma_1^*(0) = 0$ and $\sigma_1^*(1) \in (0,1)$; $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) = 1$; $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) = 0$; and $\sigma_1^*(0) = 1$ and $\sigma_1^*(1) \in (0,1)$.

Suppose $\sigma_1^*(0) = 0$ and $\sigma_1^*(1) \in (0,1)$. Lemma 1 states that $b_1^*(0) = b_1^*(1) = 1$. $\sigma_1^*(1) \in (0,1)$ implies $b_1^*(\phi) + c = b_1^*(0) + p_0(b_1^*(1) - b_1^*(0))$. Hence $b_1^*(\phi) = 1 - c$ which implies $b_1^*(\phi) \in (0,1)$. But then it must be true that $\mu^*(\phi) = \frac{p(1-\sigma_1^*(1))}{p(1-\sigma_1^*(1))+(1-p)} = 1/2$ which implies that $1 - \sigma_1^*(1) = 1/\Delta$ and finally $\sigma_1^*(1) = (\Delta - 1)/\Delta$. But this is possible only if $\Delta \geq 1$.

Next consider the case in which $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) = 1$. If $b_1^*(0) \in (0,1]$ then $\mu^*(0) \geq 1/2$ and thus $\mu^*(1) > 1/2$. Hence $b_1^*(1) = 1$. If $b_1^*(0) = 0$ then $b_1^*(1) > 0$. Otherwise $b_1^*(\phi) + c > 0$ and $\sigma_1^*(i) > 0$ would not be a best response. Thus there are four possible specifications of the best response function for the floor:

(a) $b_1^*(1) \in (0,1)$ and $b_1^*(0) = 0$

(b) $b_1^*(1) = 1$ and $b_1^*(0) \in (0,1)$

(c) $b_1^*(1) = 1$ and $b_1^*(0) = 0$

(d) $b_1^*(1) = b_1^*(0) = 1$

By assumption $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) = 1$. This implies that $b_1^*(\phi) = 0$. It follows that $c = p_0(b_1^*(1) - b_1^*(0)) + b_1^*(0)$. This rules out case (d) since by assumption $c < 1$.

Subcase (a). This case corresponds to the second equilibrium in the proposition. Observe that $\sigma_1^*(0) \in (0,1)$ and $b_1^*(0) = 0$ imply $c = p_0 b_1^*(1)$. Hence $b_1^*(1) = c/p_0$ which puts constraints on $c$, namely, $c < p_0$. Also $b_1^*(1) \in (0,1)$ implies $\mu^*(1) = 1/2$ which implies $\sigma_1^*(0) = \Delta(p_1/p_0)$. Hence it must be true that $\Delta < p_0/p_1$.

Subcase (b). This corresponds to the third equilibrium in the proposition. Observe that $\sigma_1^*(0) \in (0,1)$ implies $c = p_0(1 - b_1^*(0)) + b_1^*(0)$. Thus $(c - p_0)/(1-p_0) = b_1^*(0) > 0$ and since $b_1^*(0) > 0$ then $c > p_0$. Also $b_1^*(0) \in (0,1)$ implies:

$$\mu^*(0) = \frac{p(1-p_1)}{p(1-p_1) + (1-p)(1-p_0)\sigma_1^*(0)} = 1/2.$$

Thus, $\sigma_1^*(0) = \Delta(1-p_1)/(1-p_0)$ which implies $\Delta < 1 \leq (1-p_0)/(1-p_1)$ this constraint is not binding.

Subcase (c): $\sigma_1^*(0) \in (0,1)$ which given $b_1^*(0) = 0$ implies $c = p_0$ which is non-generic.

Suppose either $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) = 0$; or $\sigma_1^*(0) = 1$ and $\sigma_1^*(1) \in (0,1)$. In both cases $\sigma_1^*(0) > \sigma_1^*(1)$ and $\sigma_1^*(0) \in (0,1]$ and $\sigma_1^*(1) \in [0,1)$. Since $\sigma_1^*(0) > 0$ implies $b_1^*(\phi) \leq b_1^*(0) + p_0(b_1^*(1) - b_1^*(0)) - c$. If $b_1^*(0) < b_1^*(1)$ it follows from $p_1 > p_0$ that $b_1^*(\phi) < b_1^*(0) + p_1(b_1^*(1) - b_1^*(0)) - c$ and therefore $\sigma_1^*(1) = 1$. Thus $b_1^*(0) \geq b_1^*(1)$. Then $\sigma_1^*(0) > 0$ implies that $b_1^*(0) > 0$ and therefore $\mu(0) \geq 1/2$. But

$$\mu^*(0) = \frac{p(1-p_1)\sigma_1^*(1)}{p(1-p_1)\sigma_1^*(1) + (1-p)(1-p_0)\sigma_1^*(0)} \geq 1/2$$

implies

$$\frac{\sigma_1^*(1)}{\sigma_1^*(0)} \geq \frac{1}{\Delta}\frac{(1-p_0)}{(1-p_1)} > 1$$

contradicting $\sigma_1^*(0) > \sigma_1^*(1)$.

We now show that there are no *totally mixed* equilibria. Suppose that $\sigma_1^*(i) \in (0,1)$ for all $i \in \{0,1\}$. Then $b_1^*(\phi) + c = b_1^*(0) + p_0(b_1^*(1) - b_1^*(0))$ and $b_1^*(\phi) + c = b_1^*(0) + p_0(b_1^*(1) - b_1^*(0))$. Then $b_1^*(1) = b_1^*(0) > 0$. Lemma 1 and $\sigma_1^*(i) \in (0,1)$ imply $\mu^*(1) > \mu^*(0)$. It follows that $b_1^*(1) = b_1^*(0) = 1$. Hence $b_1^*(\phi) = 1 - c$ and therefore $b_1^*(\phi) \in (0,1)$. But then we must also have $\mu^*(\phi) = 1/2$ which leads to

$$\sigma_1^*(0) = 1 - \Delta(1 - \sigma_1^*(1)) \tag{16}$$

Now $b_1^*(0) = 1$ implies $\mu^*(0) \geq 1/2$ and thus

$$\Delta\frac{1-p_1}{1-p_0}\sigma_1^*(1) \geq \sigma_1^*(0) \tag{17}$$

Combining equations (16) and (17) generates the requirement that

$$\begin{aligned} \Delta\frac{1-p_1}{1-p_0}\sigma_1^*(1) &\geq 1 - \Delta(1-\sigma_1^*(1)) \\ \sigma_1^*(1)\Delta\left(\frac{1-p_1}{1-p_0} - 1\right) &\geq 1 - \Delta \end{aligned}$$

which cannot hold for $\Delta < 1$ and $p_1 > p_0$.

The expected utilities follow directly from the equilibrium specifications and equations (14) and (15). ■

**Proposition 3** *Let $\Delta < 1$ and $c = 0$ then in the informed subgame $H_1$ in any equilibrium*

$$EU_c(b_1^*, \omega, \sigma_1^*)\begin{cases} = -\omega - x_c - k & \text{if } \Delta < p_0/p_1 \\ \leq p_\omega - \omega - x_c - k & \quad \Delta \in (p_0/p_1, 1) \end{cases}$$

**Proof.** Consider *pooling* equilibria of the form $\sigma_1^*(1) = \sigma_1^*(0) = 0$. Then it must be true that (*) $b_1^*(\phi) \geq b_1^*(0) + p_1(b_1^*(1) - b_1^*(0))$ for $i \in (0,1)$ and (**) $\mu^*(\phi) = p < 1/2$. Thus $b_1^*(\phi) = 0$. If $b_1^*(\phi) = 0$, then from (**) we must have $b_1^*(0) = b_1^*(1) = 0$. Since $h$ is never observed in equilibrium we can choose the beliefs $\mu^*(1)$ and $\mu^*(0)$ such that (*) is satisfied, e.g., set $\mu^*(1) = \mu^*(0) \leq p$. It follows that $EU_c(b_1^*, \omega, \sigma_1^*) = -\omega - x_c - k$.

Next consider pooling equilibria of the form $\sigma_1^*(i) = 1$ for all $i \in (0,1)$. It follows that $b_1^*(\phi) \leq p_0(b_1^*(1) - b_1^*(0)) + b_1^*(0)$. From $\Delta < 1$ we know that $b_1^*(0) = 0$ since $\mu^*(0) < 1/2$ given $\sigma_1^*(i) = 1$ for all $i \in (0,1)$. On the other hand, if $\Delta \in (p_0/p_1, 1)$ then $b_1^*(1) = 1$ since $\mu^*(1) > 1/2$. Conversely, if $\Delta < p_0/p_1$ it follows that $b_1^*(1) = 0$ since $\mu^*(1) < 1/2$. It follows that $EU_c(b_1^*, \omega, \sigma_1^*) = -\omega - x_c - k$ if $\Delta < p_0/p_1$ and $EU_c(b_1^*, \omega, \sigma_1^*) = p_\omega - \omega - x_c - k$ if $\Delta \in (p_0/p_1, 1)$.

Now consider *semi-pooling* equilibria. There are the following cases to consider:

1. $\sigma_1^*(0) = 1$ and $\sigma_1^*(1) \in (0,1)$
2. $\sigma_1^*(0) = 0$ and $\sigma_1^*(1) \in (0,1)$
3. $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) = 1$
4. $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) = 0$

We can rule out cases 1 and 2 because $\Delta < 1$. In case (1) we must have $\mu^*(\phi) = 1$ and therefore $b_1^*(\phi) = 1$. But $\Delta < 1$ implies that $\mu^*(0) < 1/2$ which implies that $b_1^*(0) = 0$. It follows that type-0 is not playing a best response. In case (2) we must have $\mu^*(0) = \mu^*(1) = 1$ which implies that $b_1^*(0) = b_1^*(1) = 1$. But for $\sigma_1^*(0) = 0$ to be a best response we must then have $b_1^*(\phi) = 1$ which is impossible since $\Delta < 1$ and the case (2) conditions implies $\mu^*(\phi) < 1/2$. This leaves cases (3) and (4).

The conditions in case (3) imply $b_1^*(\phi) = 0$. But $\sigma_1^*(0) \in (0,1)$ requires that $b_1^*(0) = b_1^*(1) = 0$ in order for it to be a best response. Thus $EU_c(b_1^*, \omega, \sigma_1^*) = -\omega - x_c - k$.

Similarly, the conditions in case (4) imply that $b_1^*(0) = b_1^*(1) = 0$. But then for $\sigma_1^*(0) \in (0,1)$ to be a best response we must also have $b_1^*(\phi) = 0$ implying $EU_c(b_1^*, \omega, \sigma_1^*) = -\omega - x_c - k$.

Finally consider *totally mixed* equilibria in which $\sigma_1^*(0) \in (0,1)$ and $\sigma_1^*(1) \in (0,1)$. Then $b_1^*(\phi) = b_1^*(0) + p_0(b_1^*(1) - b_1^*(0))$ and $b_1^*(\phi) = b_1^*(0) + p_1(b_1^*(1) - b_1^*(0))$. Since by assumption $p_1 > p_0$, $b_1^*(0) = b_1^*(1) = b_1^*(\phi)$. Moreover, from lemma 1 we know $\mu^*(1) > \mu^*(0)$ and thus $b_1^*(1) > b_1^*(0)$ if $b_1^*(0) \in (0,1)$. Thus two cases have to be considered:

(a) $b_1^*(0) = b_1^*(1) = b_1^*(\phi) = 1$

(b) $b_1^*(0) = b_1^*(1) = b_1^*(\phi) = 0$

Case (a): $b_1^*(0) = b_1^*(1) = b_1^*(\phi) = 1$ implies $\mu^*(m) \geq 1/2$ for all $m \in M$ and $\mu^*(1) > \mu^*(0)$. Now

$$\mu^*(\phi) = \frac{p(1 - \sigma_1^*(1))}{p(1 - \sigma_1^*(1)) + (1 - p)(1 - \sigma_1^*(0))} \geq 1/2$$

implies

$$\frac{\Delta - 1 + \sigma_1^*(0)}{\Delta} \geq \sigma_1^*(1) \tag{18}$$

Similarly

$$\mu^*(0) \geq 1/2$$

implies

$$\sigma_1^*(1) \geq \frac{1}{\Delta}\frac{1-p_0}{1-p_1}\sigma_1^*(0). \tag{19}$$

Combining equations (18) and (19) gives the condition

$$\frac{\Delta - 1}{\frac{1-p_0}{1-p_1} - 1} \geq \sigma_1^*(0)$$

which is impossible because $\Delta < 1$ and $\frac{1-p_0}{1-p_1} > 1$.

Case (b): $b_1^*(0) = b_1^*(1) = b_1^*(\phi) = 0$ imply $\mu^*(m) \leq 1/2$ for all $m \in M$. Now $\mu^*(\phi) \leq 1/2$ implies lower bounds on $\sigma_1^*(1)$:

$$1 - \frac{1 - \sigma_1^*(0)}{\Delta} \leq \sigma_1^*(1).$$

On the other hand

$$\mu^*(1) = \frac{pp_1\sigma_1^*(1)}{p\ p_1\ \sigma_1^*(1) + (1-p)\ p_0\ \sigma_1^*(0)} \leq 1/2$$

sets upper bounds on $\sigma_1^*(1)$ because

$$\sigma_1^*(1) \leq \frac{1}{\Delta}\frac{p_0}{p_1}\sigma_1^*(0).$$

This constraint is binding only if $\frac{1}{\Delta}\frac{p_0}{p_1}\sigma_1^*(0) < 1$, i.e., $\sigma_1^*(0) < \Delta p_1/p_0$ and thus $\Delta < p_0/p_1$. These inequalities are consistent iff

$$1 - \frac{1 - \sigma_1^*(0)}{\Delta} \leq \frac{1}{\Delta}\frac{p_0}{p_1}\sigma_1^*(0)$$

or

$$\sigma_1^*(0) \leq \frac{(1-\Delta)p_1}{p_1 - p_0}.$$

Thus we must have $\Delta < 1$ and the constraint on $\sigma_1^*(0)$ is binding only if

$$\frac{(1-\Delta)p_1}{p_1 - p_0} \leq 1 \text{ iff } \frac{p_0}{p_1} \leq \Delta.$$

Otherwise, $\sigma_1^*(0) \in (0, 1)$.

To summarize we have two cases of totally mixed equilibria. If $\Delta < p_0/p_1$ we have no restrictions on $\sigma_1^*(0)$. On the other hand, $\Delta \in (p_0/p_1, 1)$ generates upper bounds on $\sigma_1^*(0)$. In both cases we have upper and lower bounds on $\sigma_1^*(1)$ for certain values of $\sigma_1^*(0)$. In either case $EU_c(b_1^*, \omega, \sigma_1^*) = -\omega - x_c - k$. ■

## 4.3 Specialization Subgame

The committee's *ex ante* expected utility from the specialization subgame is:

$$EU_c(h_S) = \begin{cases} EU_c(h_1^*) & \text{if } s = 1 \\ EU_c(h_0^*) & \phantom{\text{if }} s = 0 \end{cases} \tag{20}$$

The floor's *ex ante* expected utility from the specialization subgame is

$$EU_f(h_S) = \begin{cases} EU_f(h_1^*) & \text{if } s = 1 \\ EU_f(H_0^*) & \phantom{\text{if }} s = 0 \end{cases} \tag{21}$$

**Proposition 4** *Suppose $c > 0$ and $p_1 > p_0$. Then*

1. $c < p_0$, $\Delta < p_0/p_1$ *and* $k < pc\frac{p_1 - p_0}{p_0}$ *implies* $s^* = 1$.

$$EU_c(h_S^*) = \frac{pp_1c - p_0p - pcp_0 - x_cp_0}{p_0} - k$$

*and*

$$EU_f(h_S^*) = -p$$

2. $p_0 < c < p_0 + p(p_1 - p_0)$, $\Delta > p_0/p_1$, *and* $k < (c - p_0)\left(1 - p\frac{p_1 - p_0}{1 - p_0}\right)$ *implies* $s^* = 1$.

$$EU_c(h_S^*) = \frac{-p - pp_1c + pp_1 + pcp_0 - x_c + p_0x_c}{1 - p_0} - k$$

*and*

$$EU_f(h_S^*) = -p\frac{1 - p_1}{1 - p_0}$$

3. $k < p\frac{(p_1 - p_0) - c(p_1 - p_0)}{1 - p_0}$ *and either* $c > p_0 + p(p_1 - p_0)$ *or* $p_0 < c < p_0 + p(p_1 - p_0)$ *and* $\Delta < p_0/p_1$ *implies* $s^* = 1$.

$$EU_c(h_S^*) = \frac{-p - pp_1c + pp_1 + pcp_0 - x_c + p_0x_c}{1 - p_0} - k$$

*and*

$$EU_f(h_S^*) = -p\frac{1 - p_1}{1 - p_0}$$

4. $c < p_0$ *and* $\Delta > p_0/p_1$ *or* $\Delta > 1$ *implies* $s^* = 0$ *and*

$$EU_c(h_S^*) = \begin{cases} pp_1 - (1 - p)p_0 - x_c - p - c & \text{if } \Delta \in (p_0/p_1, 1) \\ -x_c - (1 - p) & \phantom{\text{if }} \Delta > 1 \end{cases}$$

$$EU_f(h_S^*) = \begin{cases} pp_1 - (1 - p)p_0 - p & \text{if } \Delta \in (p_0/p_1, 1) \\ -(1 - p) & \phantom{\text{if }} \Delta > 1 \end{cases}$$

**Proof.** First we show the existence of the suggested specialization equilibrium.

Case 1. Let $0 < c < p_0$ and $\Delta < p_0/p_1$ then from propositions 1 and 2 it follows that

$$\begin{aligned} & EU_c(h_1^*) - EU_c(h_0^*) \\ = \; & \frac{pp_1c - p_0p - pcp_0 - x_cp_0}{p_0} - k - (-p - x_c) \\ = \; & pc\frac{p_1 - p_0}{p_0} - k \end{aligned}$$

and $p_1 > p_0$ and $k < pc\frac{p_1-p_0}{p_0}$ implies $EU_c(h_1^*) - EU_c(h_0^*) > 0$.

Case 2 Let $p_0 < c < p_0 + p(p_1 - p_0)$ and $\Delta > p_0/p_1$. Then from proposition 1 and 2 we know that

$$EU_c(h_0^*) = -c - p + pp_1 + p_0 - x_c - pp_0$$

and

$$EU_c(h_1^*) = \frac{-p - pp_1c + pp_1 + pcp_0 - x_c + p_0x_c}{1 - p_0} - k$$

Then

$$EU_c(h_1^*) - EU_c(h_0^*) = (c - p_0)\left(1 - p\frac{p_1 - p_0}{1 - p_0}\right) - k > 0$$

when $(c - p_0)\left(1 - p\frac{p_1-p_0}{1-p_0}\right) > k$.

Case 3. From Proposition 1 and 2 we know that

$$EU_c(h_1^*) - EU_c(h_0^*) = p\,(p_1 - p_0)\,\frac{1 - c}{1 - p_0} - k > 0$$

when $k < p\,(p_1 - p_0)\,\frac{1-c}{1-p_0}$.

Case 4. When $c < p_0$ and $1 > \Delta > p_0/p_1$ the only equilibria in $H_1$ are pooling on $h$ while in $H_0$ the hearing is always held as well. In this case $EU_c(h_1^*) - EU_c(h_0^*) = -k$. When $\Delta > 1$ if the committee does not specialize and does not hold the hearing then the floor chooses its most preferred bill. Thus there is no incentive for the committee to specialize or hold a hearing. The result follows. ■

Theorem 1 follows as a corollary of proposition 3.

**Proposition 5** *Suppose $c = 0$ and $p_1 > p_0$. then in any expertise equilibrium $s^* = 0$ and $\sigma^* = 1$ if $\Delta \in (p_0/p_1, 1)$ otherwise $\sigma^* \in [0, 1]$.*

**Proof.** For $s^* > 0$ we must have $EU_c(h_1^*) \geq EU_c(h_0^*)$. Suppose $\Delta < p_0/p_1$. then $EU_c(h_0^*) = -p - x_c$ while $EU_c(h_1^*)$ depends on the equilibrium played in $H_1$. However, for any equilibrium played in $H_1$, the maximum payoff is $-p - x_c$. But since $k > 0$ it follows that $EU_c(h_1^*) < EU_c(h_0^*)$. Hence $s^* = 0$.

Suppose $\Delta \in (p_0/p_1, 1)$. Then $EU_c(h_0^*) = -p - x_c + p(p_1 - p_0) + p_0$. If pooling on $h$ is played in $\text{H}_1$. then the expected payoff is $-p - x_c + p(p_1 - p_0) + p_0 - k$. Otherwise it equals $-p - x_c - k$. In any case $EU_c(h_1^*) < EU_c(h_0^*)$. Hence $s^* = 0$. ■

Theorem 2 follows as a corollary of proposition 5.

**Lemma 2** *Suppose $c > 0$, $\Delta < 1$ and $p_1 = p_0$, then*

1. *if $\sigma_1^*(i) = 0$ for all $i \in \Omega$, then $b_1^*(\phi) = 0$*
2. *if $\sigma_1^*(i) = 1$ for all $i \in \Omega$, then $b_1^*(0) = b_1^*(1) = 0$*
3. *if $\sigma_1^*(i) \in (0, 1)$ for some $i \in \Omega$, then $b_1^*(\phi) = 0$ and $c = b_1^*(0) + p_1(b_1^*(1) - b_1^*(0))$.*

**Proof.** Consider case 1. From $\Delta < 1$ and pooling on $n$ it follows that $\mu^*(\phi) < 1/2$. Hence $b_1^*(\phi) = 0$. In case 2 $\Delta < 1$ and pooling on $h$ implies $\mu^*(1) = \mu(0) < 1/2$. Thus $b_1^*(0) = b_1^*(1) = 0$. In case 3 $\sigma_1^*(i) \in (0, 1)$ implies $b_1^*(\phi) + c = b_1^*(0) + p_i(b_1^*(1) - b_1^*(0))$. Given that $b_1^*(\phi) + c = b_1^*(0) + p_i(b_1^*(1) - b_1^*(0))$, either $b_1^*(1) > 0$ or $b_1^*(0) > 0$. Without loss of generality suppose $b_1^*(1) > 0$. If $b_1^*(\phi) > 0$ we must have $\mu^*(\phi) \geq 1/2$ which implies $\sigma_1^*(1) < \sigma_1^*(0)$ since $\Delta < 1$, but $b_1^*(1) > 0$ implies $\mu^*(1) \geq 1/2$. Thus $\sigma_1^*(1) > \sigma_1^*(0)$ since $\Delta < 1$ and $p_0 = p_1$ which is a contradiction. Thus $b_1^*(\phi) = 0$ which implies $c = b_1^*(0) + p_i(1, 1) - b_1^*(0))$. ■

**Theorem 4** *If $c > 0$, $\Delta < 1$ and $p_1 = p_0$, then there are no specialization equilibria and hearings will never be held.*

**Proof.** If $s^* = 1$ then we need $EU_c(h_1^*) \geq EU_c(h_0^*)$. Observe first that for the parameter ranges under consideration $EU_c(h_0^*) \geq -p - x_c$. Since there are no separating equilibria in $H_1$ there are only three cases to consider.

(a) $\sigma_1^*(i) = 0$ for all $i \in \Omega$

(b) $\sigma_1^*(i) = 1$ for all $i \in \Omega$

(c) $\sigma_1^*(i) \in (0, 1)$ for some $i \in \Omega$

Case (a). By lemma 2, $\sigma_1^*(i) = 0$ for all $i$ implies $b_1^*(\phi) = 0$. Given $b_1^*(\phi) = 0$ we calculate $EU_c(h_1^*) = -p - x_c - k < -p - x_c \leq EU_c(h_0^*)$for any $k > 0$. Thus specialization equilibria cannot be sustained.

Case (b). By lemma 2, $\sigma_1^*(i) = 1$ for all $i$ implies $b_1^*(1) = b_1^*(0) = 0$. But then $EU_c(h_1^*) = -p - x_c - k < -p - x_c \leq EU_c(h_0^*)$ for any $k > 0$. Contradiction.

Case (c). By lemma 2.c $EU_c(h_1^*) = p(-1 - x_c) + (1 - p)(-x_c) - k = -p - x_c - k < EU_c(h_0^*)$ for any $k > 0$. Contradiction. ■

## 4.4 Subgame ND

In subgame $ND$ the floor holds the hearing and the expected utility to the floor for this subgame when it uses strategy $b_{ND}$ is

$$\begin{aligned} EU_f(h_{ND}) &= p\left(p_1 u_f(b_{ND}(1), 1) + (1 - p_1) u_f(b_{ND}(0), 1)\right) + \\ &\quad (1 - p)\left(p_0 u_f(b_{ND}(1), 0) + (1 - p_0) u_f(b_{ND}(0), 0)\right) \\ &\quad -\xi \end{aligned}$$

Since $b \in [0, 1]$ we can substitute for $u_f(b, \omega)$ and rewrite this as

$$\begin{aligned} EU_f(h_{ND}) &= p\left[p_1 b_{ND}(1) + (1-p_1) b_{ND}(0)\right] \\ &\quad -(1-p)\left[p_0 b_{ND}(1) + (1-p_0) b_{ND}(0)\right] \\ &\quad -\xi - p \end{aligned}$$

This generates the following best response function:

$$b^*_{ND}(m) \begin{cases} = 0 & \text{if } \begin{array}{l} m = 1 \text{ and } \Delta < \frac{p_0}{p_1} \text{ or } m = 0 \text{ and } \Delta < \frac{1-p_0}{1-p_1} \\ m = 1 \text{ and } \Delta > \frac{p_0}{p_1} \text{ or } m = 0 \text{ and } \Delta > \frac{1-p_0}{1-p_1} \end{array} \\ = 1 & \end{cases} \tag{22}$$

Thus when the floor uses its best response function the *ex ante* expected utility for the subgame $H_{ND}$ to the floor and the committee is given by the two equations below:

$$EU_f(h^*_{ND}) = \begin{cases} -\xi - p & \Delta < \frac{p_0}{p_1} \text{ or} \\ -\xi - p + pp_1 - (1-p)p_0 & \text{if } \frac{1-p_0}{1-p_1} > \Delta > \frac{p_0}{p_1} \\ -\xi - (1-p) & \frac{1-p_0}{1-p_1} < \Delta \end{cases} \tag{23}$$

$$EU_c(h^*_{ND}) = \begin{cases} -x_c - p & \Delta < \frac{p_0}{p_1} \\ -x_c - p + pp_1 + (1-p)p_0 & \text{if } \frac{1-p_0}{1-p_1} > \Delta > \frac{p_0}{p_1} \\ -x_c - (1-p) & \frac{1-p_0}{1-p_1} < \Delta \end{cases} \tag{24}$$

## 4.5 Delegation Game

In the delegation game the floor's expected utility for not delegating the choice to hold hearings to the committee is given by $EU_f(h^*_{ND})$ defined in equation (23). What follows is the expected utility to the floor of delegating the decision to specialize and hold hearings to the committee when the specialization cost is small.

$$EU_f(h^*_D) = \begin{cases} -p & \Delta < p_0/p_1 \text{ and } 0 < c < p_0 \\ -p\,(1-p_1)\,/\,(1-p_0) & \Delta < p_0/p_1 \text{ and } p_0 < c < 1 \\ -p + pp_1 - (1-p)p_0 & \text{if } \quad 1 > \Delta > p_0/p_1 \text{ and } c < p_0 \\ -p\,(1-p_1)\,/\,(1-p_0) & 1 > \Delta > p_0/p_1 \text{ and } p_0 < c < 1 \\ -1 + p & \Delta > 1 \end{cases} \tag{25}$$

**Proposition 6** *Suppose $c, \xi, k > 0$ with $k$ small and $p_1 > p_0$. Then $\tau^* = 0$ and $EU_f(h^*_D) > EU_f(h^*_{ND})$ unless*

$$\Delta \in (1, \frac{1-\xi-p_0}{1+\xi-p_1})$$

*and*

$$\xi < \frac{p_1 - p_0}{2}$$

**Proof.** The proof simply uses equations (23) and (25). If $\Delta < 1$ and $c < p_0$ or $\Delta > \frac{1-p_0}{1-p_1}$ then

$$EU_f(h_D^*) - EU_f(h_{ND}^*) = \xi > 0$$

If $\Delta < \frac{p_0}{p_1}$ and $c > p_0$ then

$$EU_f(h_D^*) - EU_f(h_{ND}^*) = \xi + p\frac{p_1 - p_0}{1 - p_0} > 0$$

If $1 > \Delta > \frac{p_0}{p_1}$ and $c > p_0$ then

$$EU_f(h_D^*) - EU_f(h_{ND}^*) = \xi + p - pp_1 + (1-p)p_0 - p\frac{1-p_1}{1-p_0} > 0$$

To see this note that

$$\xi + p - pp_1 + (1-p)p_0 - p\frac{1-p_1}{1-p_0} > 0$$

if and only if

$$\frac{\xi}{(1-p)} + \Delta - \Delta p_1 + p_0 - \Delta\frac{1-p_1}{1-p_0} > 0$$

but the LHS of this equation may be rewritten as

$$\frac{\xi}{(1-p)} + p_0\left(1 - \Delta\frac{1-p_1}{1-p_0}\right)$$

which is positive by $\Delta < 1$ and $p_1 > p_0$.

Finally consider $\Delta \in (1, \frac{1-p_0}{1-p_1})$. In this case we have

$$EU_f(h_D^*) - EU_f(h_{ND}^*) = \xi + 2p - pp_1 + p_0 - pp_0 - 1$$

Thus, the floor prefers discretionary hearings if and only if

$$\xi > -2p + pp_1 - p_0 + pp_0 + 1$$

or

$$p > \frac{1 - \xi - p_0}{2 - p_0 - p_1}$$

We can now easily rewrite this condition in terms of $\Delta$ as follows

$$\Delta > \frac{1 - \xi - p_0}{1 + \xi - p_1}$$

■

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# Figure 1. Decision Sequence

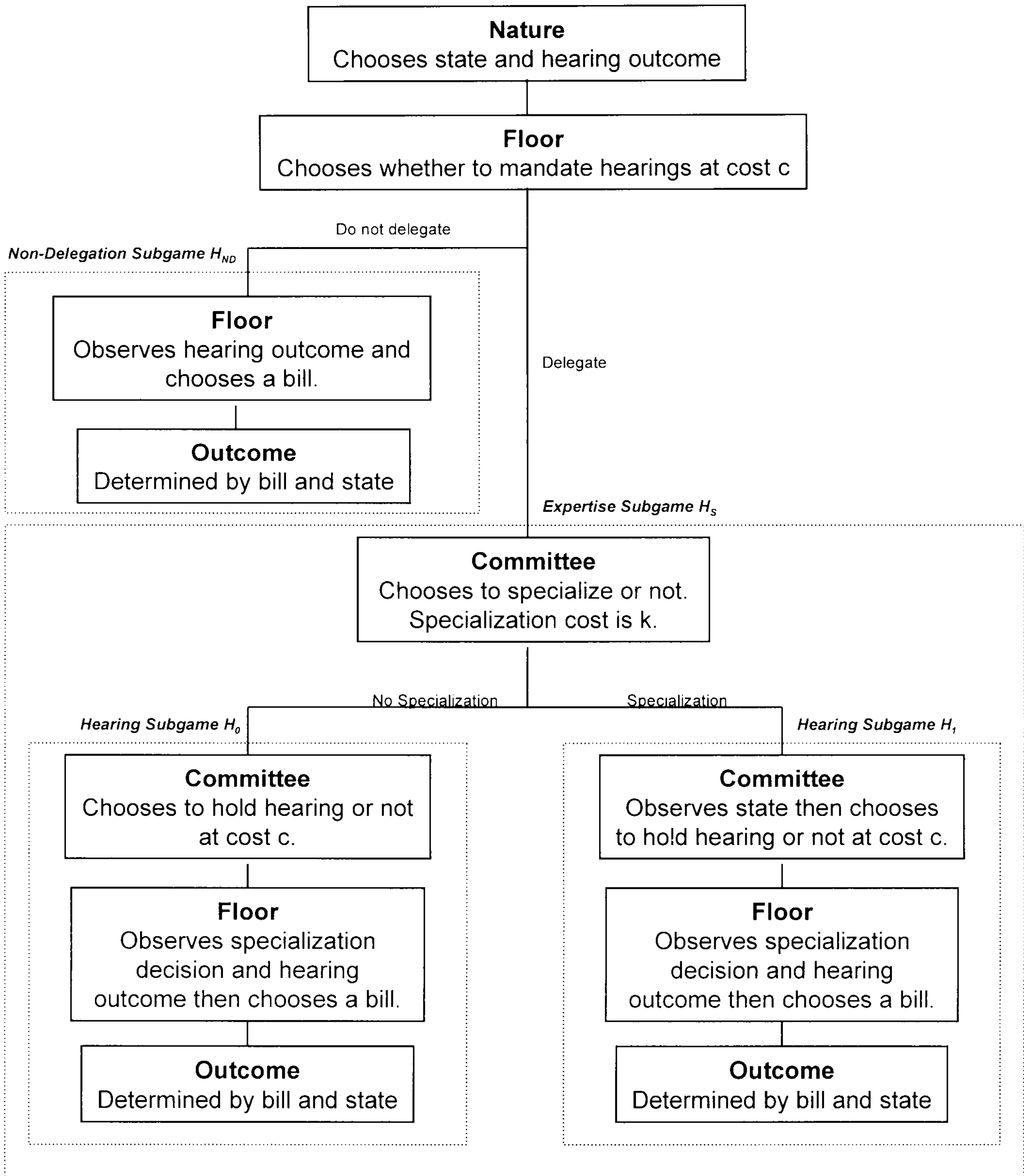


**Figure 2**

Equilibria in Hearing Subgame with An Uninformed Committee ($H_0$)
($c>0$ and $p_1 > p_0$)

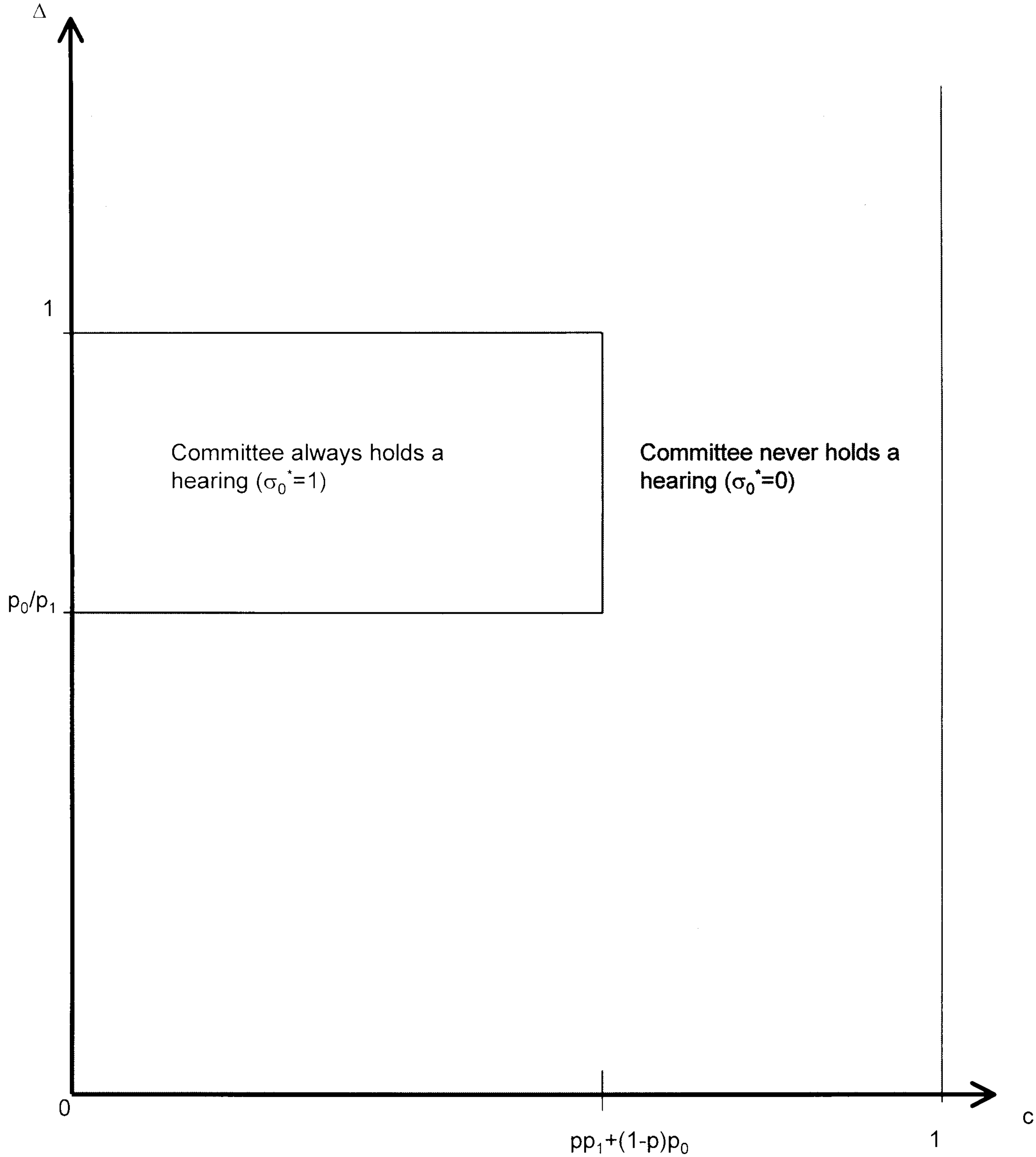
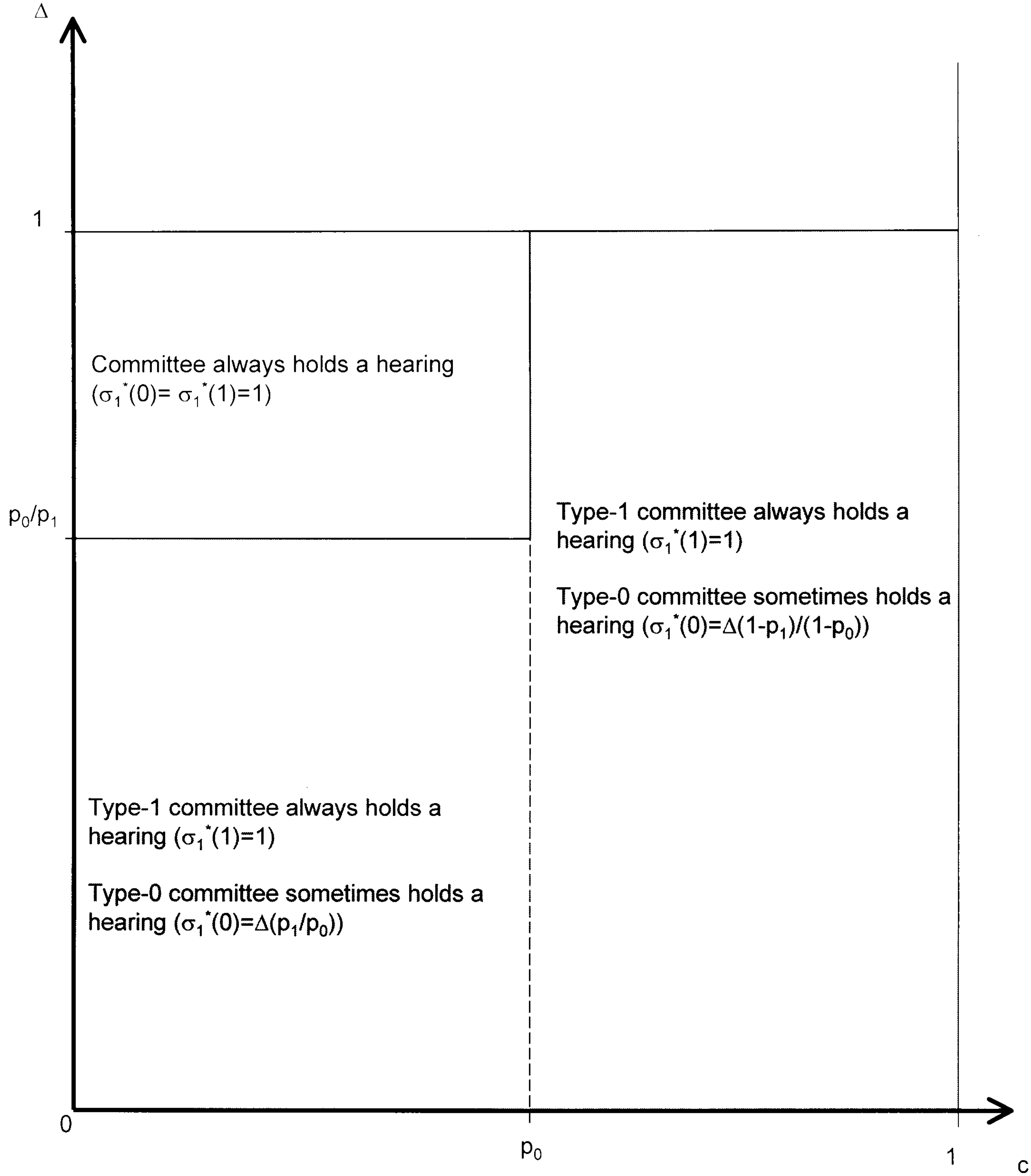


**Figure 3**

Equilibria in Hearing Subgame with An Informed Committee ($H_1$)

($c>0$ and $p_1 > p_0$)



## Figure 4
Expertise Equilibria ($c>0$ and $p_1 > p_0$)

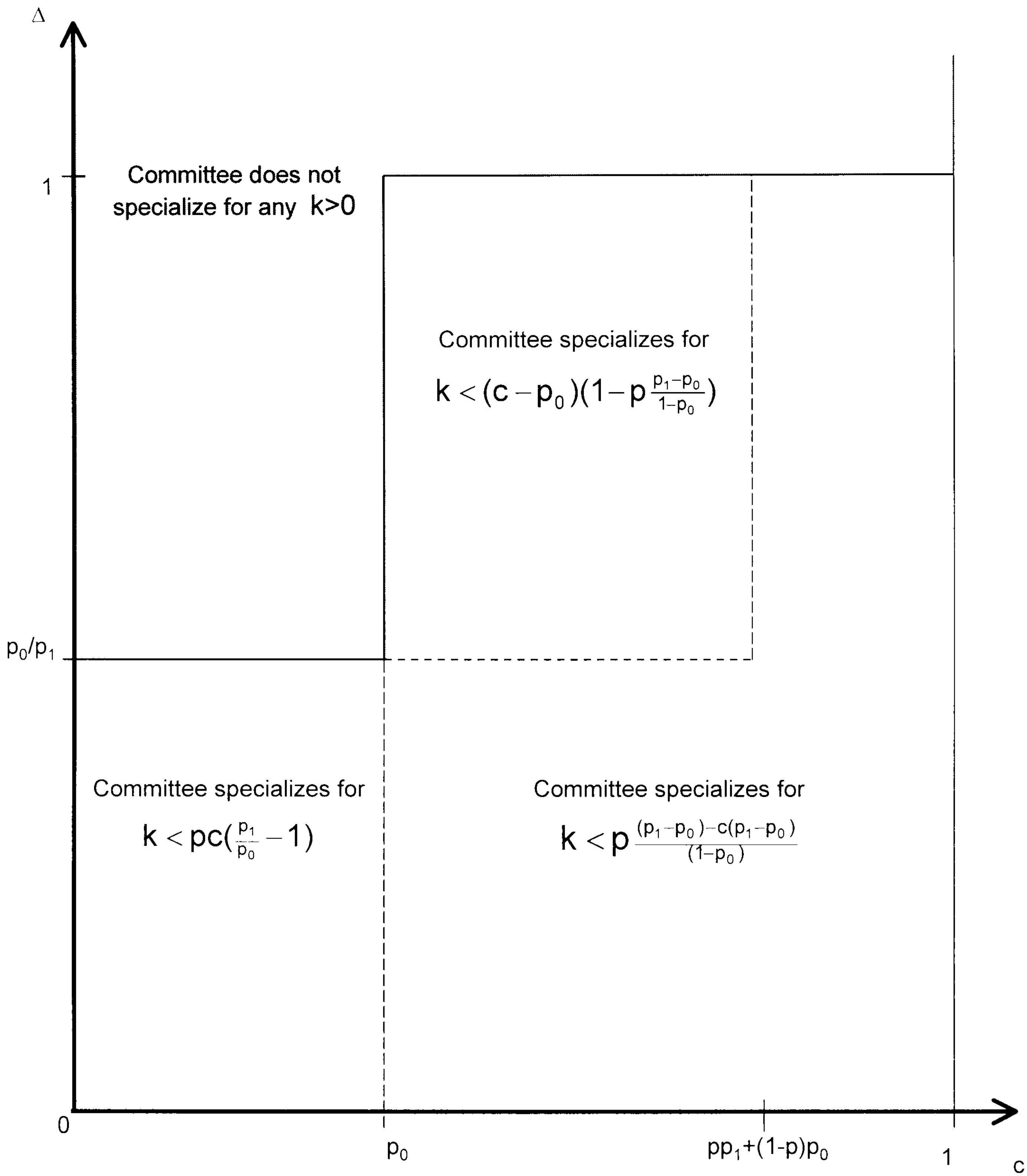


**Figure 5**

The floor's incentive to mandate hearings ($c>0$ and $p_1 > p_0$)