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Permitting prohibitions in a model of statutory interpretation

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Abstract

We propose a model of statutory interpretation where the probability that courts will enforce a statute is endogenous to the statute itself. We obtain, first, that the enactment of legislation prohibiting something might raise the probability that courts will allow related things not expressly forbidden. We call that a 'permitting prohibition' and discuss examples that are consistent with the model. Second, we obtain that dispersion of court decisions might be greater with legislation that commands little court deference, than with legislation that commands none. Thus, within a certain range, legislation improvement might trade-off with court predictability.

KEYWORDS: adjudication; courts; prohibitions; legal uncertainty.

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1 Introduction

A simple truth about judicial systems is that legislation is less likely to be enforced when courts strongly disagree with it. Judges evaluate the 'rules of the game' before applying them to concrete cases, so deference to legislators is not automatic. The focal question in the ensuing literature is whether courts resist legislators in light of strictly legal reasons or motivated by ideology, self-interest or politics. Across the board, however, the assumption is that in forming their conviction about a statute, judges deploy their prior knowledge and learn only from the facts at hand and from the litigants. We take a different route.

Our starting point is that each statute contains useful information for courts to decide whether to defer to the legislator or not. Legislation thus signals to courts something about its own appropriateness. Accordingly, courts learn from the legislation. The learned lessons are however unclear. Legislation is often crafted by experts and reflects a tolerable balance of powers and views in society. But sometimes legislation crosses certain lines and should not be enforced. To tell one situation from the other, judges have to decipher the signal begotten from the statute. Hence the probability that a statute will be enforced in court is endogenous to the statute itself. This framework has non-trivial implications to the interaction between written legislation and court decisions. This paper proposes a model to study this issue.

In the model, Bayesian adjudicators are imperfectly informed about an issue. The legislation yields a clear implication, but it is not clear whether it has been appropriately designed.[1] Adjudicators use their knowledge to assess the legislation. Formally, they learn about the 'type of legislator': legislation from the ´good legislator' should always be followed but the 'bad legislator' is biased and misinformed. The larger the distance between the legislation and what an adjudicator would expect from a 'good legislator', the larger is the likelihood that the statute was enacted by a 'bad legislator' and should be rejected. As a result, the weight of the legislation on the adjudicator's decision decreases in the distance between the legislation and the adjudicator's prior beliefs. In equilibrium, the adjudicator will often enforce legislation as intended by the legislators even if it does not reflect the adjudicator's preferred policy choice; occasionally, however, the adjudicator will make a judgment call and overrule the legislator.[2]

If the average bias from bad legislators is sufficiently large, the model yields a non-monotonic relation between legislated prohibitions and prohibitions effectively imposed by adjudicators. Hence the enactment of a harsher statute sometimes causes adjudicators to

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[1] We are thus assuming away the problem of statutory ambiguity. On that topic, see Farnsworth et al. (2010).

[2] We realize that courts sometimes speak in terms of deference even when they are failing to do so, but we are concerned with the substance rather than the rhetoric of court decisions.

uphold a more lenient rule. For instance, the enactment of a statute that prohibits smoking beyond a certain point can make it more likely that adjudicators deem smoking before that same point as permitted. Similarly, a statute that prohibits recording without authorization can make it more likely that courts validate recording in the presence of authorization. And a statute that caps interest rates in private contracts at $x\%$ reduces the odds that courts will find unconscionable those contracts bearing interest rates of $(x - \varepsilon)\%$. We call situations of that sort as 'permitting prohibitions', because the permission is implicitly created by the enactment of a prohibition.

In order to understand the mechanism behind permitting prohibitions, consider the case of statutory interest caps, popularly known as "usury laws". Absent usury laws, very high interest rates are not prohibited. But a contract bearing interest rates of, say, 1000%, will probably be considered 'unconscionable'. In the terminology of our model, the legislated policy that "anything goes" (which arises in light of the absence of an interest rate ceiling) will be deemed to be that of a 'bad legislator'. Courts will then determine the maximum acceptable interest. Suppose they do that at the rate of, say, 40%, which then becomes the effective cap. Now contrast that with a scenario where Congress enacted a usury law at 50%. If (as we have assumed) the court's best judgment is that the appropriate interest rate cap is 40%, a legislated cap of 50% raises little disagreement. Hence the same court that would impose a 40% interest rate ceiling if legislation allowed any interest rate, would uphold the legislated 50% interest rate cap.

This usury law thus works as a permitting prohibition. In both cases, legislation permits the 45% contract (in the first case implicitly because there is no legislated cap; and in the second because the cap is set at 50%). Yet, with no ceiling courts invalidate the 45% contract whereas with a 50% ceiling courts validate it. As such, a 45% interest rate contract, while legislatively permitted in both scenarios, would only be deemed valid where there is a legislated cap of 50%. As can be seen, the existence of a celling changes how courts regulate transactions that are not expressly forbidden. This is how the enactment of a statutory prohibition can create a court permission.

Just like a statutory prohibition can raise the probability that courts permit things that are not statutorily prohibited (such as contracting with higher interest rates), the enactment of legislation permitting something may raise the probability that judges will prohibit related things not expressly permitted. To go back to the same example, in the presence of a legislated interest rate ceiling of 3% (too low) courts will probably overrule the legislator and apply their best judgment so as to place the threshold at 40%. But suppose the legislature replaces the 3% with a 35% interest cap, a generous legislative permission.

Now the legislated cap raises much less disagreement and is strictly enforced by courts. The interest rates tolerated by courts, however, paradoxically drop from 40% to 35%. So while the new usury law expressly extended the permission for parties to contract interest rates in the range of 3-35%, its actual effect was to prohibit contracts in the range of 35-40%. Here, the enactment of a permission in practice created a prohibition. These results can be visualized in Figure 1.

Legislated ceiling	Prevailing ceiling	Permitting prohibition	
		Legislated ceiling	Prevailing ceiling
None	40%	50% (down)	50% (up)

Legislated ceiling	Prevailing ceiling	Prohibiting permission	
		Legislated ceiling	Prevailing ceiling
3%	40%	35% (up)	35% (down)

Figure 1: Example of a permitting prohibition and a prohibiting permission

The second insight from the model is that the dispersion of court decisions may be greater with legislation that commands little deference from courts, than with legislation that commands none. Technically, this means that the relationship between the variance of decisions and some measure of the degree of disagreement of the median judge with the legislation might be non-monotonic. Assuming that greater judicial dereference is a proxy for better legislation, the implication is that within a certain range, legislative improvement may trade-off with legal certainty. As before, this result requires a potentially large bias from bad legislators.

To grasp the intuition, contrast these two situations. First, an interest rate cap is legislated at a completely unreasonable level. For example, it is too low (3%) or too high (3000%). In either of these cases, all courts will reject the legislation (the likelihood that the legislation is appropriate will be considered too low). Thus the ceiling will be ignored (say, a very low ceiling is deemed an unconstitutional interference with the freedom of contract; a very high ceiling permits too many unconscionable loans). As such, courts validate contracts with interest rates above the unreasonably low legislated cap, or invalidate contracts with interest rates below the unreasonably high interest rate legislated cap. Either way, the legislator is overruled and a court-imposed interest rate cap arises as a byproduct of the court decisions. By allowing for disagreement between different courts, this cap is dispersed (say between 25% and 250%).

In the alternative scenario, the cap is legislated at a point deemed unreasonable by the majority of judges, but not by all. For example, the legislated cap is either "very low" (15%)

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or "very high" (300%), so some courts uphold these caps but most of them are deciding according to their own judgment calls. Crucially, courts that uphold the 15% interest rate ceiling are those that would otherwise choose a ceiling close to 25%; those which would choose a higher ceiling would consider the 15% cap inappropriate.

As a result, compared to a situation with a 3% interest rate ceiling, the 15% cap raises legal uncertainty because a credit contract with a 20% interest rate is subject to legal uncertainty in the latter case (some courts uphold the 15% ceiling) but not in the former case (all courts ignore the 3% ceiling).[3] These results can be visualized in Figure 2.

Bad legislation

Legislated ceiling	Range of prevailing ceilings
3%	25-250%
3000%	25-250%

Better legislation

Legislated ceiling	Range of prevailing ceilings
15%	15-250%
300%	25-300%

Figure 2: Example of statutory improvement raising legal uncertainty

Generalizing, when legislation is completely within the zone of acceptance, no judge discards it so the variance of court decisions is "small". When the legislation is completely outside the zone of acceptance, every judge discards it and the variance is "large". And when the legislation is considered acceptable by few judges only, the variance might be even greater, "very large". Hence one message of the paper is that institutional mechanisms (such as stare decisis) that moderate dispersion and reduce legal uncertainty become more important as courts become more active in their task of double-checking misguided legislation.

The rest of this article is divided as follows. Section 2 contains the literature review. Section 3 describes our model of statutory interpretation and demonstrates its implication for the enforcement of legislated prohibitions and dispersion of court decisions. Section 4 discusses examples of permitting prohibitions and prohibitting permissions from the real world. Section 5 concludes.

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[3] Similarly, the courts that uphold the 300% legislated interest rate ceiling are those that would otherwise choose a ceiling close to 250%, as those who would choose a lower ceiling would reject the null hypothesis that the 300% cap is appropriate. As a result, compared to a situation with a 3000% interest rate ceiling, the 300% legislated cap raises legal uncertainty because a credit contract with a 280% interest rate is subject to legal uncertainty in the latter case (some courts uphold the 300% ceiling) but not in the former case (all courts ignore the 3000% ceiling).

2   Related Literature

The fact that courts exercise judgment and some level of discretion in interpreting legislation has been known for a long time. Landes and Posner (1975) argued that courts tend to interpret statutes in much the same way that they interpret contracts. In contract law, the basic cannon for interpretation is the intention of the parties; similarly, courts interpret legislation in accordance with the original legislative understanding. Landes and Posners' reasoning infers court motives from results, and goes like this: if courts habitually placed their will above that of legislators, legislative bargains would be worth very little, so courts would effectively reduce the rents available to the legislators that profit from brokering the sale of legislation to interest groups. Such an arrangement would be of no interest to legislators and politicians, so the latter structure the judicial system in a way that insulates judges from the results of the cases they decide. Judges generally have tenure, fixed remuneration and few prospects of promotion. Having nothing to gain from being creative, courts presumably go along with legislators and enforce the political deals incorporated in legislation.

The Landes and Posner's argument was framed as a positive account – a description of, but not a prescription to, courts. Indeed, theirs is a testable hypothesis, but the supporting evidence is weak (Macey, 1986). Nevertheless, the enduring force of the Landes and Posner's proposition rests on its implied normative message, namely that in interpreting statutes courts should abide by the intention of the legislators because otherwise they will not only thwart the political system, but also increase legal uncertainty. This idea is developed in Easterbrook (1984). Alternative economic conceptions over the normatively desirable interpretative court strategy were formulated over time. Noticeably, Macey (1986) argued that courts should interpret statutes not as contracts but in a manner consistent with the stated public-regarding purpose of each statute, the objective being not to completely prevent interest groups from influencing lawmaking, but to raise the cost for doing so.[4]

The difficulties in coming up with a definitive economic benchmark for statutory interpretation helps explain why more recent work accepts (often implicitly) that some legal issues are amenable to a range of reasonable views that do not necessarily represent errors. Their approach can be framed more as exercises in social choice theory rather than in law and economics, because the focus is less on proposing efficient solutions to legal dilemmas and more on aggregating the different views of judges into a controlling conception.

Finding this controlling conception, however, is not easy, because the question of "what judges maximize?" has proven to be quite problematic (Cooter, 1983; Posner, 1993, 2005).

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[4] Other influential normative conceptions in this debate include those of Eskridge (1987) and Farber and Frickey (1991).

Limited evidence exists that in adjudicating cases judges maximize expected monetary (Anderson, Shughart II and Tollison, 1989; Toma, 1991) or political gains (Cohen, 1991; Morriss et al., 2005; Choi and Gulati, 2004), so judicial motivation remains a conundrum for theories that regard judges as strictly self-seeking actors (Epstein, 1990; Kornhauser, 1992a). To deal with this problem, even authors identified with the tradition of law and economics had to embrace richer versions of judicial utility. Richard Posner, for example, later analogized judges to nonprofit enterprises, voters and spectators at theatrical performances to construct judicial utility as a function of leisure, prestige, reputation, self-respect, the intrinsic pleasure of the work, and even "the other satisfactions that people seek in a job" (2008, p. 36; Epstein et al., 2013).

Some authors refine these ideas by distinguishing judicial utility that is derived from case dispositions (Badawi and Baker 2015; Cameron et al, 2000; Cameron and Kornhauser, 2006; Carrubba and Clark, 2012; Fischman, 2011; Cameron and Kornhauser 2015; Lax, 2003; Callander and Clark, 2013; Beim et al, 2014) and policies (Kornhauser 1992a, 1992b, 1995), or by empirically testing or factoring into the model institutional details of courts such as collegial and group decision-making (Kornhauser and Sager, 1986, 1993; Stearns, 2000) and panel composition effects (Revesz, 1997; Cross and Tiller, 1998; Sunstein et al. 2004). Recently, some studies documented the effects of other factors such as the presence of salient facts (Bordalo et al., 2015) and opinion authorship (Farhang et al., 2015).

Alternatively, authors drawing on the tradition of positive political theory focused on the role of the judiciary in shaping policy rather than on judicial utility (e.g. Miller and Moe, 1983; McCubbins et al., 1987, 1989). While most studies focused on the effects of substantive policy preferences that are based on the judge's ideology (e.g., Segal and Cover, 1989; Martin and Quinn, 2002) and prejudices (Kastellec, 2013; Martin and Pyle, 2000; Sen, 2015), others focused on the interactions between the judiciary and other branches of government (Ferejohn and Shipan, 1990; Gely and Spiler, 1990, 1992; Eskridge and Ferejohn, 1992). In a seminal article focusing specifically on statutory interpretation, Ferejohn and Weingast (1992) proposed that judicial interpretations reflect the strategic setting in which they are announced. In passing legislation, legislatures calculate the risk of court invalidation; similarly, courts decisions reflect the external political reality, for failing to take it into account can always trigger the enactment of new legislation that rebuffs the courts' position.

Our approach is more closely related to Baker and Kornhauser (2015), who also build a model to understand judicial deference. However, they study whether an appellate court wants to impose its judgment over a possibly biased trial court that has more factual

information, while here, facts are known and the question is whether the legislation is appropriate. Our approach also bears similarity to Baker and Malani (2015) but in their model, judges learn from judges on sister circuits whereas here judges learn from legislators. In both cases, the model structure and applications are also very different.

The model developed herein crucially also advances a proposition about the dispersion of court decisions. This resonates with a discussion of legal uncertainty, which has been regarded as an economic problem for a long time. Famously, Max Weber (1922) went as far as to attribute the very emergence of capitalism in part to the ability of continental European legal systems to foster "calculability" through the rational codification of law. More recently, this view has been questioned, but just in part. The law and finance literature promoted the hypothesis that judge-made Common Law systems are better for financial development and economic growth than the Civil Law tradition that so captivated Weber (LaPorta et al., 1997, 1998; Botero et al., 2004; Johnson et al., 2000).

Yet, even in the United States, statutes enacted by legislatures have now become the primary source of law (Calabresi, 1982). Moreover, the notion that predictable courts are important for economic rationality and market coordination continues to loom large in economic thinking. It finds particular resonance in transactions costs economics (Coase, 1991; Williamson, 1999) and in some strands of the literature on law and development (Dam, 2006; Cooter and Schaefer, 2012).

In the modern law and economics literature, however, legal uncertainty has only been a derivative topic. The tradition in the field is to subsume legal uncertainty into the more normative-oriented category of "legal error". Indeed, the typical exercise in economic analysis of law is normative in character: an efficient benchmark is proposed and the non-conforming court decisions are treated as errors (Schwartz and Beckner III, 1998). With few exceptions (e.g. Rhee, 2012; Salama, 2012; Ramseyer and Rasmusen, 2013), legal uncertainty is then framed as a byproduct of error, and the prospects of more errors in adjudication entail the prospects of greater legal uncertainty.[5] Our contribution in this paper is different, as we are concerned with the interplay between legislation and legal uncertainty.

To sum up, economic research on judicial decisions has largely focused on understanding judicial preferences and impacts of institutional constraints on courts. This literature misses

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[5] The merger between legal uncertainty and legal error can be visualized, for example, in the discussion of accuracy in adjudication (Kaplow and Shavell, 1994, 1996). Take accident law for example, where the literature posits that courts are increasingly inaccurate as they depart from incentivizing optimal care. If increasing accuracy in adjudication were costless, courts would always decide cases correctly. But courts can only pursue accuracy up to a point, because more accuracy requires more information, which comes at a cost. Thus, courts make mistakes (that is, decide cases inaccurately). Legal uncertainty arises because in light of the prospects of court mistakes, individuals vary in their perception about how much they must invest in compliance in order to avoid liability. As a result, they may be over-deterred in beneficial activities or under-deterred in harmful activities (Craswell and Calfee, 1986; Polinsky and Shavell, 1989; Schinkel and Tuinstra, 2006).

the fact that judges not only react to, but also learn from legislation, which is the aspect we wish to address.

3 Model

Court cases characterized by a variable x are contested in court. The variable x may be the interest rate in a credit contract, decibels of noise, alcohol consumption by a driver, or even things harder to quantify such as intensity of outrage in public speech, and so forth.

There exists a maximum admissible value of x, denoted by X. Hence at stake is whether a certain conduct falls in the permitted area (where x is smaller than X) or in the prohibited area (where x is bigger than X). Much in law has to do with finding out X, that is, with delimitating the boundaries within which freedoms can be exercised.

Adjudicators are imperfectly informed and don't know what the ceiling should be – they do not know the exact value of X. In the above examples, X may be an interest rate ceiling (to detect unconscionability), maximum permitted noise level (to detect a nuisance), maximum blood alcohol concentration (to detect driving under the influence), or even a test for offensive language (to detect intentional infliction of emotional distress), and so on. For simplicity, X can be any number in the real line.[6]

There are 3 agents in the model:

1. Good legislator: he knows X and wants the maximum admissible value of x to be X.

2. Bad legislator: he is misinformed and biased. He wants the maximum admissible value of x to be B, where $B \sim N(X, \sigma_B^2)$. The variance σ_B^2 is common knowledge, but he does not know X. Knowing B and σ_B^2, he can infer a distribution for X. A large σ_B^2 indicates a large expected bias, in absolute value.

3. Adjudicator: she wants the maximum admissible value of x to be X, but is imperfectly informed about X. She gets a signal s, where $s \sim N(X, \sigma_s^2)$. The variance σ_s^2 is common knowledge, but she does not know X. Knowing s and σ_s^2, she can infer the distribution of X. A large σ_s^2 indicates that the signal s is not very informative about X.

A legislator is good with probability π. The good and bad legislators in the model capture, in a simple way, the idea that adjudicators evaluate the legislation using their own

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[6] In most practical cases, the set of admissible values for X and $\bar{x}$ is bounded, but nothing changes in the model if X represents the state of nature and the variable of interest (say, the interest rate ceiling) is a monotonic function of X with bounded support (for example, logit or probit transformations of X).

information about the problem. An adjudicator asks herself: was the legislation guided by good and accurate information? Was it enacted by well-intentioned legislators? In the model, this is represented by the adjudicator using her signal s and the legislation cap $\bar{x}$ to infer the type of the legislator.

The sequence of events is as follows:

1. The legislator chooses the legislated cap for x, denoted by $\bar{x}$.

2. The adjudicator learns s and chooses the effective cap on x, denoted by x^*. This is the maximum admissible value of x she will tolerate.

The good legislator's strategy is a mapping from X to $\bar{x}$. His expected loss function is given by

$$L_G = E(x^* - X)^2$$

The bad legislators's strategy is a mapping from B to $\bar{x}$. His expected loss function is given by

$$L_B = E(x^* - B)^2$$

An adjudicator's strategy is a mapping from $\bar{x}$ and s to x^*. Her expected loss function is given by

$$L_A = E(x^* - X)^2$$

3.1 The effective cap

The following proposition establishes how legislators and adjudicators behave in the equilibrium we are interested.[7]

Proposition 1 *There is an equilibrium where:*

1. *A good legislator chooses $\bar{x} = X$.*

2. *A bad legislator chooses $\bar{x} = B$.*

3. *Adjudicators follow an effective threshold x^* given by:*

$$x^*(s, \bar{x}) = p\bar{x} + (1 - p)\frac{\bar{x} + Vs}{1 + V} \tag{1}$$

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[7] There are many uninteresting equilibria in this model. For example, suppose legislators always choose random numbers, unrelated to X or B, and adjudicators always ignore the legislation. This is an equilibrium, nobody has incentives to deviate, but not an interesting equilibrium. Alternatively, suppose the good legislator always chooses $\bar{x} = X + \kappa$, where κ is a constant, and the bad legislator always chooses $\bar{x} = B + \kappa$. The adjudicator would always subtract κ from $\bar{x}$ and everything would work exactly as in Proposition 1, but legislators would be communicating in a rather strange language. Our analysis focuses on the equilibrium characterized in Proposition 1.

where

$$p = \frac{1}{1 + \frac{(1-\pi)}{\pi} \frac{1}{\sqrt{1+V}} \exp\left\{ \frac{(s-\bar{x})^2}{2\sigma_s^2} \frac{V}{1+V} \right\}} \tag{2}$$

and

$$V = \frac{\sigma_B^2}{\sigma_s^2}$$

Proof. *See the appendix.* ■

Intuitively, the adjudicator uses Bayes rule in order to calculate the probability that the legislator is good given her two pieces of information, s and $\bar{x}$. This is given by the expression in (2). Note that the probability that the legislator is good reaches its maximum value at $s = \bar{x}$ and goes towards zero as s moves away from $\bar{x}$ (note that as $s - \bar{x}$ increases, the second term in the denominator grows exponentially). Intuitively, the biased legislator adds an extra disturbance to $\bar{x}$. Hence, if s and $\bar{x}$ are close to each other, it is more likely that this extra disturbance was not added, i.e., it is more likely that the legislator is good.

The expression in (1) then yields the expected value of X for the adjudicator, which minimizes her loss function. The first term in the RHS of (1) is the probability that the legislator is good times X in that case (which is equal to $\bar{x}$). The second term in the equation is the probability that the legislator is bad times the expected value of X in that case. In turn, the expected value of X in case the legislator is bad is a weighted average between $\bar{x}$ (which is equal to B in this case) and s. The weight on the private signal s is given by V, which is the ratio between σ_B^2 and σ_s^2. The ratio V is a measure of the expected amount of bias in the legislation relative to the expected amount of noise in the adjudicator's information. If σ_s^2 is relatively large, then the expected bias is relatively small, hence the weight on the adjudicator's signal is small.

Proposition 1 leads to our main result, summarized in Proposition 2.

Proposition 2 *If V is sufficiently small, x^* is always increasing in $\bar{x}$.*

However, if V is sufficiently large, x^* is not monotonically increasing in $\bar{x}$. For some values of $\bar{x}$, a stricter legislated cap (lower $\bar{x}$) leads to a more lenient effective cap (larger x^*). These are permitting prohibitions. In this case, there are also prohibitting permissions, as a more lenient legislated cap (larger $\bar{x}$) leads to a stricter effective cap (smaller x^*).

Proof. *See the appendix.* ■

In order to understand the effects of the legislated cap $\bar{x}$ on the effective cap x^*, suppose that $\bar{x}$ is larger than s (the reasoning for $\bar{x} < s$ is analogous). An increase in $\bar{x}$ has two effects: it increases the expected value of X for a given probability that the legislator is

good; but it raises the probability that the legislator is bad, and thus reduces the weight attributed to $\bar{x}$. Permitting prohibitions may occur if the second effect is strong enough.

When V is sufficiently small, there is relatively little bias. Hence, from the adjudicator's point of view, a larger cap $\bar{x}$ is more likely to reflect a larger X rather than a biased legislator. However, if V is large, as the cap $\bar{x}$ moves away from s, the adjudicator starts to attribute a larger probability of a biased legislator. This may lead to permitting prohibitions.

The numerical example in Figure 3 helps to illustrates the results. The signal s is set to zero, the variance σ_s^2 is normalized to 1 and $\pi = 1/2$. The horizontal axis shows legislated caps $\bar{x}$ from -4 to 4.[8] The dotted lines correspond to $x^* = 0$ (the legislation is completely ignored) and $x^* = \bar{x}$ (the adjudicator follows the legislation strictly). The different panels consider difference values of σ_B, thus reflecting different average biases (in absolute value). In this case, $V = \sigma_B^2$.
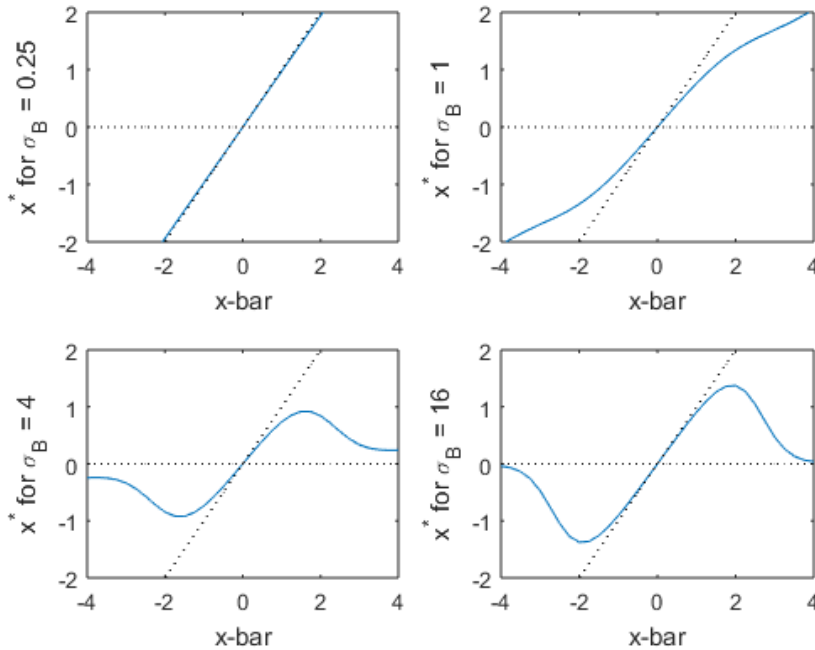

Figure 3: Each graph plots the effective threshold x^* as a function of the legislated threshold $\bar{x}$ in case $s = 0$, $\sigma_s = 1$ and $\pi = 1/2$ for different values of σ_B.

In the top left panel, σ_B is 0.25, so the bias is usually very small in comparison to σ_s. This captures a situation where either the adjudicator is not very well informed or there is little bias. For an adjudicator, a large distance between s and $\bar{x}$ is more likely to have

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[8] In case the legislator is good, this horizontal axis considers signals from -4 to 4 standard deviations from the mean, so a tiny minority (around 0.01%) of signals will be outside this range.

occurred because s happened to be far from X. A large bias is an unlikely cause of the discrepancy. Intuitively, the adjudicator knows little about X and the legislator is not very biased. Hence if $\bar{x}$ is far from what the adjudicator expected, it is more likely that her expected value of X was far from the truth. The implication here is that x^* closely follows $\bar{x}$. The adjudicator defers to the legislation.

In the top right panel, σ_B is 1, which is equal to σ_s. The bias is not so small, so differences between s and $\bar{x}$ could be due to a biased legislator or to noise in the adjudicator's signal. The adjudicator is unsure. Hence the effective threshold x^* will be somewhere in between her signal ($s = 0$) and the legislated threshold $\bar{x}$. In the picture, for a given $\bar{x}$, the value of x^* will be between the horizontal and the inclined dotted lines. Still, x^* is always increasing in $\bar{x}$.

In the bottom left panel, σ_B is 4 times larger than σ_s. For low values of $\bar{x}$, x^* is close to $\bar{x}$. Intuitively, the bad legislator is potentially very biased, so an $\bar{x}$ coming from a bad legislator will usually be far from s. Therefore, an $\bar{x}$ close to s indicates that the legislator is probably good. Intuitively, if the bias is potentially large and the legislation is in line with what the adjudicator would expect, the legislation has likely been enacted by a good legislator. Hence for $\bar{x}$ close to s, the adjudicator will attribute a high weight to the legislation. However, if $\bar{x}$ is, say, 3 standard deviations away from s, it is unlikely that the legislator is good. It is much more likely that $\bar{x}$ has been picked by a bad legislator. Hence x^* gets closer to s.

Permitting prohibitions occur in the regions of the graph where x^* is decreasing in $\bar{x}$. In the bottom left panel of the Figure, as $\bar{x}$ goes from 1.5 to 3, the probability that the legislator is good goes from reasonably large to quite small. In consequence, when $\bar{x} = 1.5$, the adjudicator attributes a relatively large weight to the legislation; but when $\bar{x} = 3$, the weight on the legislation is much smaller, so x^* is actually close to the adjudicator's signal, which is zero in the example.

Finally, the bottom left panel shows a case where σ_B is 16 times larger than σ_s. This captures a situation where the adjudicator is very well informed in comparison to the expected bias (in absolute size). If the distance between $\bar{x}$ and s is between -1 and 1 standard deviation, the adjudicator is quite sure that the legislator is good. The legislated threshold $\bar{x}$ is around what she would expect, a biased legislator would likely choose a very different $\bar{x}$. Hence she ignores her own information and defers to the legislation. However, this changes when the distance between $\bar{x}$ and s gets closer to 2, as the suspicion that the legislator is bad starts to kick in. From then on, increases in $\bar{x}$ only reinforce this suspicion, leading to lower values of x^*. When the distance between the legislated cap and the signal is close to 4 standard deviations σ_s, the effective cap x^* is very close to s. In this case, the

adjudicator is completely ignoring the legislation and using her signal only.

3.2 Discussion

Permitting prohibitions are likely to occur when the adjudicator has better information than the bad legislator but the good legislator has even better information. Intuitively, permitting prohibitions take place when the adjudicator has reasons to follow the legislation when it is deemed good, but reasons to ignore it when it is deemed bad.

For the sake of tractability, we have assumed that the good legislator is sure about X and the bad legislator knows nothing besides B. In reality, bad legislators are likely to have more information about X and good legislators might make mistakes as well. Still, as long as bad legislators act differently from good legislators, the main insights from this model should still apply to more complicated cases: changes in $\bar{x}$ would affect the probability of the legislator being good (from the point of view of an adjudicator), and this could open door to permitting prohibitions. Future research on statutory interpretation might explore the implications of more complicated information structures.

In the model, no cost to ignore the legislation is imposed. Instead of assuming imperfect information, one could build a model on the premise that judges have ideal thresholds but face a fixed cost if they ignore the legislature. Importantly, permitting prohibitions would not naturally arise in this environment. Consider an adjudicator with an ideal interest rate cap of 50% a year. Say the cost of ignoring the legislation would make her willing to accept interest rate caps up to 80% – her effective cap. There is no reason to think that a change in the legislated cap from 80% to 100% would lead her to reduce her effective cap from 80% to, say, 70%. Her decision about a contract with interest rates of 75% should be the same in both cases, since neither her disutility from allowing this contract nor the cost from ignoring the legislation have been affected.

3.3 Rules and court predictability

In the absence of any legislation, an adjudicator would have no information other than her signal s. Hence the cap effectively imposed by the adjudicator x^* would be equal to s. In consequence, the standard deviation of x^* would be equal to the standard deviation of s, which is σ_s. Hence, with no legislation, the dispersion of decisions would mirror the dispersion in adjudicators' opinions.

In contrast, if a statute determining a cap $\bar{x}$ were followed by all adjudicators, we would have $x^* = \bar{x}$ always. The standard deviation of x^* would be zero. A clear rule that is always followed eliminates legal uncertainty regardless of whether it is a good or a bad rule. In

the model, this is basically what happens when V is very small.

But what if V is large? How would a rule establishing a cap $\bar{x}$ affect the dispersion of effective thresholds x^*?

It is perhaps not surprising that if V is large, some dispersion in x^* would remain, as adjudicators would not simply follow the statute. However, it is actually possible that the existence of a statute might increase the standard deviation of x^*: certain rules might actually raise legal uncertainty. This section shows this by means of an example.

Consider an example with a large V, similar to the case plotted in the bottom right graph of Figure 3. The variances are $\sigma_s = 1$ and $\sigma_B = 16$, and $\pi = 1/2$. The ideal cap X is normalized to 0. There is a continuum of adjudicators, each with a signal s_i, where $s_i \sim N(X, \sigma_s^2)$, as before. Conditional on X, the signals are independent from each other. One adjudicator is randomly selected.

Each signal s_i implies a different probability p from (2) and hence a different effective cap x^* from (1). Using these expressions, we can compute numerically the probability distribution of x^*. Figure 4 shows the distribution of the effective cap x_i^* for three different values of $\bar{x}$.

The top chart in Figure 4 shows the case where $\bar{x} = X = 0$. The legislation is correct and adjudicators should follow it. The solid curve shows the equilibrium distribution of x^* while the dashed curve shows the distribution of s – which would be the distribution of x^* in the absence of legislation. Although strictly speaking adjudicators deviate from the legislation, the deviations are small. Around 93% of the adjudicators follow an effective cap x^* that is in the interval $[-0.5, 0.5]$. In the absence of legislation, less than 40% of them would follow a cap in this interval. In this case, a good statute is inducing better decisions and raising court predictability.

The bottom chart in Figure 4 shows the case where $\bar{x} = 16$. The legislation is very far from adjudicators' signals – which are normally distributed with mean zero and standard deviation 1. The dashed curve shows the distribution of s – which would be the distribution of x^* in the absence of legislation. It is exactly the same as in the top graph – the scale of the y-axis is very different. The solid curve shows the equilibrium distribution of x^*. They are almost identical. Adjudicators are convinced the legislation is bad and are simply ignoring it. As a result, adjudicator behave almost as if there was no legislation.

Things are more interesting in the middle chart of Figure 4. The statute prescribes $\bar{x} = 3$, which is seen as too large by most adjudicators, but not too far off by several of them. Again, the dashed curve shows the distribution of signals and the solid curve shows the distribution of effective caps. Clearly, the latter exhibits a substantially larger
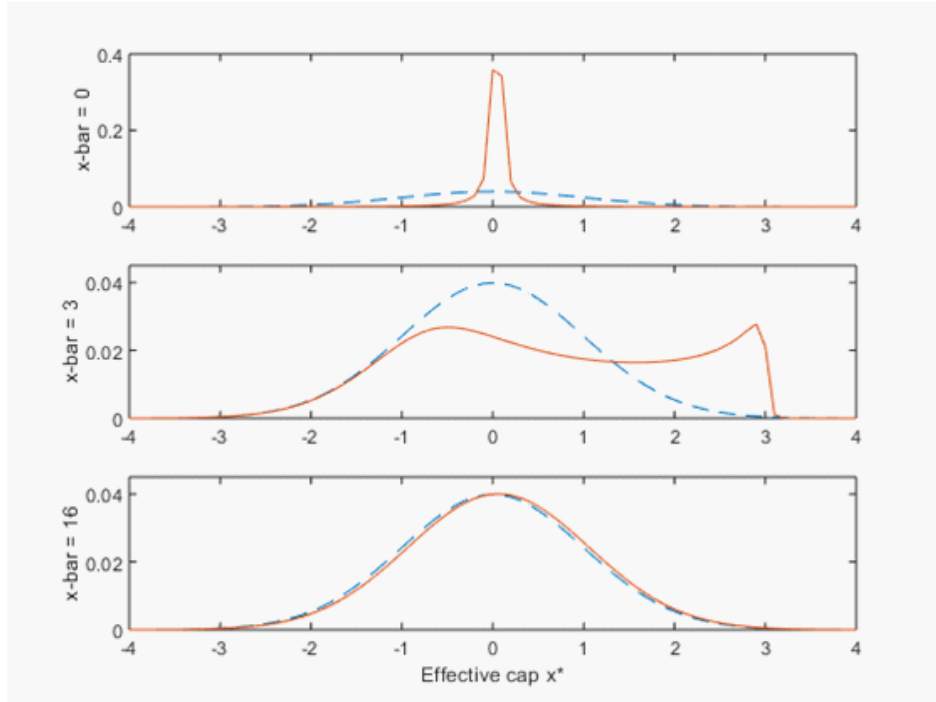
Figure 4: Distribution of the effective cap x^* for $\bar{x} = 0$, $\bar{x} = 3$ and $\bar{x} = 16$

dispersion. The existence of a rule is actually raising legal uncertainty. How can this happen?

When $\bar{x} = 3$, adjudicators with low signals (say, $s_i < -1$) will ignore the legislation; adjudicators with intermediate signals will be somewhat affected by the legislation; and adjudicators with high signals (say $s_i > 1$) will act according to a threshold x^* that is very close to 3. Since those who would choose a relatively low x^* are not affected and those who would choose a relatively high x^* choose an even larger one, the dispersion in x^* is larger than it would be in the absence of legislation.

Legislation deemed good by adjudicators leads to a reduction in the dispersion of effective caps, as shown in the top graph of Figure 4. Legislation that is simply ignored has no effect on the dispersion of caps, as shown in the bottom graph of Figure 4. The key insight behind the result in the middle graph of Figure 4 is that a somewhat extreme statute will be followed by some who would otherwise choose less extreme caps, but will be ignored by those in the other side of the distribution.

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4 Examples

The key result of the model is a non-monotonic relation between legislated bounds and bounds effectively imposed by courts. We now illustrate how this result can in practice create permitting prohibitions.

Older life insurance policies in the United States habitually contained a "suicide exclusion" whereby coverage would be denied to the beneficiaries of a deceased person who voluntarily took her life.[9] Yet judges and juries were often uncomfortable with upholding the suicide exclusion, normally for a concern with protecting an innocent beneficiary from ruin (a non-working wife with children, for example).[10]

To invalidate the suicide exclusion, courts often employed a curious line of reasoning. Under the law, suicide is the intentional act of a person enjoying all her mental faculties. The problem is that those who commit suicide are in principle insane, and the acts of the insane are not valid. As such, insurance companies could only deny recovery if they could prove that the persons who took out their lives were sane in doing so.[11] But fulfilling this burden of proof was evidently difficult, not least because the person whose sanity was in question was already dead, so courts could then recharacterize suicides as accidents and maintain the right to recovery under the insurance policy.[12] Insurance companies tried to deal with this problem by drafting the suicide exclusion so as to encompass "suicide, sane or insane", but that broader wording was often to no avail and courts would usually still void the exclusion.[13]

Due to understandable concerns with adverse selection and moral hazard, almost all state legislators in the United States passed legislation prohibiting the exclusion when the suicidal took her life two years or more after the policy was issued. This rule is now inscribed in the books of most American states (Tseng, 2004).[14] As a result, US courts have now basically dropped the argument that a suicide is in principle insane (at least insofar as the two-year gap is concerned) and insurance policies are now drafted accordingly.[15] This is

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[9] See Knickerbocker Life Ins. Co. v. Peters, 42 Md. 414, at 417 (1875).

[10] Columbian Nat'l Life Ins. Co. v. Wood, 193 Ky. 395, at 397 (1922). But see Bigelow v. Berkshire Life Insurance Co., 3 Otto 284, at 286-287 (1876) (accepting contractual limitation of liability).

[11] See New York Life Ins. Co. v. Dean, 226 Ky. 597, 11 S. W. 2d 417 (1928); Ladwig v. National Guardian Life Ins. Co., 247 N.W. 312 (Wis. 1933); and Muzenich v. Grand Carniolian Slovenian Catholic Union, 154 Kan. 537, 119 P 2d 504 (1941). But see Strasberg v. Equitable Life Assur. Soc. U.S., 281 App. Div. 9, at 13-14 (1952); Dent v. Virginia Mut. Benefit Life Ins. Co., 226 A. 2d 166, at 167 (D.C. App. Ct. 1967) (holding a presumption of sanity and ascribing to the plaintiffs the burden of proving insanity of the deceased).

[12] Mutual Life Insurance Co v. Terry, 15 Wall. 580, at 591 (1872); Knickerbocker Life Ins. Co. v. Peters, 42 Md. 414, at 421 (1875); and Ladwig v. National Guardian Life Ins. Co., 247 N.W. 312, at 314 (Wis. 1933).

[13] See Equitable Life Assur. Soc. v. Bailey, 284 S.W. 403, at 404 (1926); and Christensen v. New England Mut. Life Ins. Co., 197 Ga. 807, at 809-812 (1944).

[14] In a few states the legislated exception covers only one year and in a few others there is no such legislation.

[15] See McKinnon v. Lincoln Benefit Life Company, 162 Fed. Appx. 223, at 227 (2006); Mitchell v. American General Life Insurance Company, 2014 U.S. Dist. LEXIS 93742, at 5-6, 8 (2014); and Collins v. Unum Life Insurance Company of America, 2016 U.S. Dist. LEXIS 60628, at 31, 34, 37 (2016).

exactly a situation where a legislation imposing a prohibition (suicide exclusions are not valid after two years) raised the prospects that judges allow related things not expressly forbidden by legislation (the suicide exclusion being held valid within the two-year period after the policy was issued).[16]

The non-monotonic relation between legislated and court-imposed bounds also generates the opposite phenomenon. Just like a statutory prohibition can cause courts to permit things that are not statutorily prohibited (such as a suicide exclusion in an insurance policy), the enactment of legislation permitting something may cause courts to prohibit related things not expressly permitted.

To illustrate, consider the legal battles in Canada over Quebec's legislation on commercial signs. In 1977, the Charter of the French Language defined French as the official language of the provincial government.[17] That lead to a long legal battle (Richez, 2014). In 1988, the Supreme Court of Canada ruled that the sections of the Charter prohibiting the use of languages other than French on commercial signs violated freedom of expression and were unconstitutional.[18] In response, the Charter was amended, first to permit English inside (Bill 178) and later outside (Bill 86) commercial establishments, and only insofar as French remained "markedly predominant". The new wording of the statute stands as good law.

On the face of it, the Charter amendments represent a permission: the original statutory policy was 'no English'; the new one was 'English acceptable if French predominates'. However, the fact that the Charter amendments were enacted in response to a Supreme Court decision that had struck down the original wording changes their actual significance. These permissions had the practical effect of creating a prohibition over something that originally had not been expressly permitted, that is, the use of English as the predominant language. The new statute is thus a prohibiting permission.

Examples can also be found in more traditional, classic topics of private law. Consider for example the issue of the remedies available to a party who is aggrieved due to a contractual breach. In France, the Napoleonic Civil Code famously ascribed the remedy of damages, not of specific performance.[19] Early on, however, courts severely restricted the application of this rule only to obligations personal in character (painting of a portrait, for example).[20] Thus, and contrary to statutory wording, specific performance was effectively the preferred remedy and was upheld by courts whenever possible.

It took 212 years for this statutory rule to be changed. While explicitly recognizing the

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[16] Most of the factual background on the history of life insurance discussed in this section can be found in Schuman (1993).

[17] See Charter of the French Language, R.S.Q., ch. 11 (1977), art. 1 (also known as Bill 101).

[18] Ford v. Quebec (AG), [1988] 2 SCR 712.

[19] Art. 1142 of the 1804 Civil Code. See Rowan (2017) for details on the evolution of French remedies for breach of contract.

[20] See Szladits (1955).

central place of specific performance as remedy for contractual breach, the 2016 amendment to the Civil Code also established that a court should not determine specific performance in case of "manifest disproportion between [the cost of specific performance] to the promisor and the benefit to the promisee". The dynamics created by the latter statutory change resembles a prohibiting permission, because a qualified permission (for courts to determine specific performance of an unfulfilled contractual obligation) ends up restricting courts ability to do so (because now courts specific performance is no longer available as a matter of right, and can be resisted on grounds of proportionality and reasonableness).

Thus, what we have is precisely the non-monotonic relation between legislated and court-imposed restrictions. As such, the statutory authorization for specific performance is likely to cause courts to enforce specific performance less – and not more – frequently.

In any case, the non-monotonic relation between legislated rules and rules effectively imposed by courts is not completely new in the empirical literature. Using data from criminal cases in the United Kingdom, Bindler and Hjalmarsson (2018) study the effects of the abolition of capital punishment in the 1800s on the behavior of juries. The abolition of capital punishment is a reduction in punishment severity, not a permission as in our paper, but there might be a connection between our theory and their results. Following a reasoning similar to that in our model, legislation prescribing capital punishment to certain crimes could be deemed excessively tough by courts. If this is the case, a reduction in punishment severity could lead to an increase in the chances of conviction. This is exactly what they find.

Similarly, experimental research has shown that the enactment of caps on the amount that juries can establish as damages increases the awards in low-value cases that would otherwise generate smaller awards (Hinsz and Indahl, 1995; and Robbennolt and Studebaker, 1999). This result is attributed to anchoring, the cognitive bias of relying too much on the piece of information that is offered first (such as a statutory damage cap). However, anchoring cannot explain the result found by Robbennolt and Studebaker (1999) that the passing of a legislated cap on punitive damages can increase the variance of court decisions. An explanation along the lines of Section 3.3 cannot be discarded.

5 Final remarks

We proposed a model of the choice concerning enforcement of a statute based on the signal emitted by the statute at hand. The results crucially depend on how well-informed courts are and how biased legislation might be. This model raises several questions beyond those specifically discussed here. A theoretical one has to do with the dynamics of courts

and legislatures concerning prohibitions. We showed that once courts are considered, the enactment of a prohibition can create a permission to contract. However, our model is static, while the examples discussed suggest that there may be a dynamic component in the interplay of courts and legislatures.

Moreover, the idea that statutory prohibitions can generate permissions helps explain an old intuition, namely that much of the existing regulatory activity aims at enlarging rather than shrinking private markets. For instance, in standard economic models usury laws reduce the amount of loans in the economy, but these models do not take into account the court activism in curbing loans deemed as 'unconscionable'. The mechanism of permitting prohibition shows that well-chosen statutory interest rate caps may reduce the probability of successful lawsuits and lead to higher effective interest rate caps – and that might explain the endurance of numerous usury laws worldwide, including in developed countries. These and other applied questions are left for future research.

A   Proofs

A.1   Proof of Proposition 1

First, suppose the good legislator chooses $\bar{x} = X$ and the bad legislator chooses $\bar{x} = B$ (we will later verify these claims). In order to minimize her loss function, the adjudicator chooses $x^* = E(X|s, \bar{x})$, the expected value of X considering all her information. Using Bayes rule, the adjudicator calculates the probability that the legislator is good given s and $\bar{x}$. For that, we need the probability density of signal s conditional on both types of legislators. In case the legislator is good, $\bar{x} = X$, hence the signal $s \sim N(\bar{x}, \sigma_s^2)$, so the probability density of s is given by

$$\phi\left(s - \bar{x}; 0, \sigma_s^2\right)$$

where $\phi(a; \mu, \sigma)$ denotes the probability density of a normally distributed variable with mean μ and standard deviation σ evaluated at a. In case the legislator is bad, since $\bar{x} = B$, $\bar{x} - X \sim N(0, \sigma_B^2)$. Using $s \sim N(X, \sigma_s^2)$, we get that $s \sim N(\bar{x}, \sigma_s^2 + \sigma_B^2)$. Hence the probability density of s conditional on the legislator being bad is

$$\phi\left(s - \bar{x}; 0, \sigma_s^2 + \sigma_B^2\right)$$

Hence, the probability the adjudicator is good is given by

$$p = \frac{\pi\phi\left(s - \bar{x}; 0, \sigma_s^2\right)}{\pi\phi\left(s - \bar{x}; 0, \sigma_s^2\right) + (1 - \pi)\phi\left(s - \bar{x}; 0, \sigma_s^2 + \sigma_B^2\right)}$$

$$= \frac{1}{1 + \frac{(1-\pi)}{\pi}\frac{\phi\left(s - \bar{x}; 0, \sigma_s^2 + \sigma_B^2\right)}{\phi\left(s - \bar{x}; 0, \sigma_s^2\right)}}$$

Using the expression for the probability density of the normal distribution, we get the expression for $p(s - \bar{x})$ in (2).

The adjudicator then calculates the expected value of X. In case the legislator is good, $X = \bar{x}$. In case the legislator is bad, simple Bayes rules for normal distributions imply a conditional expected value of X given by

$$\frac{\sigma_s^2\bar{x} + \sigma_B^2 s}{\sigma_s^2 + \sigma_B^2} = \frac{\bar{x} + Vs}{1 + V}$$

Minimization of the adjudicator's loss function leads to $x^* = E(X|s, \bar{x})$, which yields the expression in (1).

Now suppose the good legislator chooses $\bar{x} = X$ and the adjudicator follows the threshold in (1). Minimization of the bad legislators's loss function leads to $\bar{x} = E(x^*|B)$. From the point of view of a bad legislator,

$$E(x^*|B) = \frac{\bar{x} + VE(s)}{1 + V} + E\left(p(s - \bar{x})\frac{V}{1 + V}(\bar{x} - s)\right)$$

and since $E(s) = B$, choosing $\bar{x} = B$ implies

$$E(x^*|B) = B + E\left(p(s - B)\frac{V}{1 + V}(B - s)\right)$$

and since $p(s - B) = p(B - s)$ and s is simmetrically distributed around B, the second term is zero, so $E(x^*|B) = B$.

Last, suppose the bad legislator chooses $\bar{x} = B$ and the adjudicator follows the threshold in (1). Minimization of the good legislators's loss function leads to $\bar{x} = E(x^*|X)$. From the point of view of a good legislator,

$$E(x^*|X) = \frac{\bar{x} + VE(s)}{1 + V} + E\left(p(s - \bar{x})\frac{V}{1 + V}(\bar{x} - s)\right)$$

and since $E(s) = X$, choosing $\bar{x} = X$ implies

$$E(x^*|X) = X + E\left(p(s - X)\frac{V}{1 + V}(X - s)\right)$$

and since $p(s - X) = p(X - s)$ and s is simmetrically distributed around X, the second term is zero, so $E(x^*|X) = X$.

A.2   Proof of Proposition 2

The derivative of p with respect to $\bar{x}$ can be written as

$$\frac{\partial p}{\partial \bar{x}} = -p(1-p)\frac{V}{1+V}\frac{(\bar{x}-s)}{\sigma_s^2}$$

We can write x^* as

$$x^* = \frac{\bar{x}+Vs}{1+V} + p\frac{V}{1+V}(\bar{x}-s)$$

hence

$$\frac{\partial x^*}{\partial \bar{x}} = \frac{1}{1+V}\left[1 + pV\left(1 - (1-p)\frac{V}{1+V}\frac{(\bar{x}-s)^2}{\sigma_s^2}\right)\right] \tag{3}$$

It is easy to see that

$$\lim_{V\to 0}\frac{\partial x^*}{\partial \bar{x}} = 1$$

Since this derivative is continuous in V, we get the first claim: for sufficiently small V, the derivative of x^* with respect to $\bar{x}$ is always positive.

For the second claim, let's write $p(\bar{x}-s)$ as the probability the legislator is good from (2). Note that

$$\lim_{V\to\infty} p(0) = 1$$
$$\lim_{\bar{x}-s\to\infty} p(\bar{x}-s) = 0$$

In words, when V is large, $p(0)$ is close to 1 and as $(\bar{x}-s)$ goes towards infinity, $p(\bar{x}-s)$ goes to zero. Hence for large values of V, there will exist some $\bar{x}-s = \Delta$ such that $p(\Delta) = 1/2$. Using (2) and manipulating yields

$$\Delta = \sqrt{\frac{1+V}{V}2\sigma_s^2\left[\log\left(\frac{\pi}{1-\pi}\right) + \log\left(\sqrt{1+V}\right)\right]}$$

Using the expression in (3), we get that for large V, for $\bar{x}-s = \Delta$ such that $p(\Delta)=1/2$,

$$\frac{\partial x^*}{\partial \bar{x}} = \frac{1}{1+V}\left[1 + \frac{V}{2}\left(1 - \left[\log\left(\frac{\pi}{1-\pi}\right) + \log\left(\sqrt{1+V}\right)\right]\right)\right]$$

Taking the limit yields

$$\lim_{V\to\infty}\frac{\partial x^*}{\partial \bar{x}} = -\infty$$

Using continuity, for large values of V, $\partial x^*/\partial \bar{x}$ is negative when $p = 1/2$, hence x^* is not monotonically increasing in $\bar{x}$.

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