Why Do Judges Read Statutes?*

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Abstract

The non-technical literature on statutory interpretation discusses how different methods of statutory interpretation can be differently "constraining" and can lead to different policy points. This is difficult to square with the standard rational-choice account of judicial decisionmaking, in which judges are ideologically motivated and only care about not being overridden by the legislature.

A rational-choice account of judicial decisionmaking that seeks to discuss the constraining effect of law must therefore either introduce additional motivations or show how statutory methods affect the probability of judicial overrides.

This paper takes the latter approach. I show, within the standard judicial-override model, how different assumptions about how the legislature overrides a judge alter the judge's decisionmaking.

I show a few surprising results.

When an override simply takes the form of a "very bad penalty" for the judge, he will in general deviate from his ideal point to the median of the distribution of legislators' preferences, in an effort to avoid being penalized.

However, if an override takes the form of an actual change of policy, not all overrides are created equal. Under some assumptions about legislative overrides, the judge never deviates from his ideal point, whether or not he has read the statute. Under other assumptions, the judge generally deviates from his ideal point and toward the median; but, once he then reads the statute, he may actually deviate *away from* the statutory point and back toward his ideal point.

The structure of a legislative override thus has more complex effects on judicial behavior than has previously been understood.

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1 Introduction

In Volokh (2008), I discussed how methods of statutory interpretation had a "constraining" effect on judges. In our judicial culture, judges have to write reasoned opinions, and they incur an "implausibility cost" when they write a less plausible opinion. Thus, if a statute has a "most plausible point" under some interpretive method, a judge's implausibility cost is minimized when he interprets the statute at that point, but increases as he deviates from that point.

A judge who only cares about plausibility will thus "comply with the law," i.e., write maximally plausible opinions. A judge who only cares about writing an opinion that embodies his own beliefs will ignore the law and write an opinion at his ideal point. The more the judge cares about plausibility, the more "pull" the statute exerts on his decisionmaking.

This paper attempts to formalize that intuitive model. Here, I assume a judge who only has ideological preferences. To the extent he deviates from his own ideal point, it is only to avoid being overridden by the legislature. Statutes play a special role in this model: The judge does not care in complying with them for his own sake, but he can use the policy established by the statute as a data point that reveals something about where legislative preferences lie, which will help him avoid being overridden.

If the judge has complete knowledge of where legislative preferences lie, he knows the range within which he will avoid an override, so reading the statute is useless to him. Reading the statute is also useless if legislative preferences have changed substantially and unpredictably since the statute was enacted, so the statutory point gives no information as to current legislative preferences.

However, if he is uncertain about legislative preferences—and if he has reason to believe that legislative preferences have not changed since the statute was adopted (for instance, if it is a recent statute)—then the statute at least tells him (1) that he has a safe harbor if he rules at the point established by the statute, (2) that the leftmost legislator's position lies to the left of the statutory point, and (3) that the rightmost legislator's position lies to the right of the statutory point. (I assume, for simplicity, that there are two legislators, a Congressman and a President.)

The judge's behavior depends on what process is followed in case of override. After presenting the "intuitive model" and discussing its inadequacies as a rational-choice account of judicial decisionmaking, I discuss three different override mechanisms:

- *The "very bad penalty" interpretation*: a judicial override is a constant very bad penalty, like a fine or impeachment.
- *The "closest point" interpretation*: in case of override, the legislature reverts to the closest point in the no-override range.
- *The "Nash bargaining" interpretation*: in case of override, the legislature reverts to the average between the best feasible point for the Congressman and the best feasible point for the President, where a legislator's "best feasible point" is defined as the point that maximizes his own utility subject to the other legislator's agreement that that point is no worse than the status quo.

Using this simple model, we can prove several results, some intuitive and some not so intuitive. First, if the judge does not read the statute, then:

- Under the "very bad penalty" interpretation, then the judge always deviates somewhat from his ideal point, in the direction of the median of the distribution of legislators' preferences. This is easy to understand, as an effort to avoid being overridden.
- However, once we move to more realistic conceptions of overrides—where an override consists of the legislature replacing the judge's ruling with a new policy that the pivotal legislators all prefer—this intuitive result no longer holds necessarily. In fact, under the simplest reversion rule, the "closest point" rule, *it is not optimal for the judge to deviate at all from his ideal point.*
- However, more punitive reversion rules can make the judge deviate from his ideal point. With the "Nash bargaining" rule, I give an example in which the judge deviates from his ideal point toward the median.

Now suppose the judge does read the statute. Does this have any effect?

- Under the "very bad penalty" interpretation, the judge always rules within the range between his ideal point and the statutory point. I give an example in which reading the statute makes the judge's ruling closer to the statutory point.

- However, under the "closest point" rule, the judge continues to always rule at his ideal point. *Reading the statute does not make the judge any more likely to deviate from his ideal point.*

- Most surprisingly, under more punitive reversion rules, the effects of reading the statute can be unpredictable. I give two examples where, under the "Nash bargaining" rule, reading the statute can make the judge rule closer to the statute, *or could make him rule further away from it.*

It is clear, then, that the existence of statutes has a complicated—and sometimes surprising—relationship to judicial decisionmaking.

This paper is the first step in a larger project. The next steps are:

- To discuss how a statutory method can be more or less "constraining." Intuitively, it seems as though some interpretive methods are highly determinate while others are less so; debates over textualism, intentionalism, and purposivism often engage this question. The question in this model is what rational-choice assumptions can make methods more or less constraining.

- To discuss how judicial decisionmaking change when more than one interpretive method is available. Empirically, we see different judges using different interpretive methods, and some judges changing from one to the other, sometimes opportunistically. Indeed, the pragmatic school of statutory interpretation explicitly holds that no one interpretive method is optimal in all cases. The question in this model is how judges would choose which method to adopt.

- To discuss the implications for empirical study of judicial decisionmaking. In Volokh (2008), I argued that judges' ability to choose methods from case to case can lead to a self-selection problem, where observing existing textualist opinions can lead us to incorrect conclusions about the true nature of textualism (as it would be if, say, textualism were mandated for all judges).

2 The intuitive model

2.1 Setup

Consider a judge deciding a case in which he has to interpret a statute. The decision in the case can be represented as a point x along a unidimensional policy spectrum. The judge has one interpretive method to choose from.

Let the judge's utility be:

$$v(x) \equiv u(x) - c(x).$$

Ideological utility The first component of judicial utility, $u(x)$, is "ideological utility" (or "agenda-based utility"), or the pleasure the judge gets from implementing his political agenda.

Assume the judge has an ideal point is J, and $u(x)$ is continuous and differentiable, has a maximum at J, and is concave (i.e., $u'(x) > 0$ for all $x < J$, $u'(x) < 0$ for all $x > J$, $u''(x) < 0$ for all x).

Implausibility cost The second component of judicial utility, $c(x)$, is "implausibility cost." Any interpretive method, when applied to a given statutory provision, is assumed to yield some "most plausible point." Since there is one interpretive method here, there is a single most plausible point, which we denote $x = M$. Without loss of generality, assume $J < M$.

A judge can render a decision different from $x = M$ in a case, but in doing so, he writes a less plausible point and thus incurs $c(x)$. Assume $c(x)$ is continuous and differentiable, has a minimum at M (i.e., $c'(x) < 0$ for all $x < M$, and $c'(x) > 0$ for all $x > M$), and is convex (i.e., $c''(x) > 0$ for all x).

2.2 The mutual pull of agenda and implausibility

Proposition 1 *Denote the judge's choice as* $x^*(J, M, c)$.

(a) Under these assumptions, $x^*(J, M, c) \in (J, M)$.

(b) A "more determinate" interpretive method "constrains" the judge more. That is, given $\alpha > 1$*, we have:*

$$\begin{cases} |x^*(J, M, \alpha c) - M| < |x^*(J, M, c) - M| \\ \lim_{\alpha \to \infty} x^*(J, M, \alpha c) = M \end{cases}.$$

(c) Similarly, a "less determinate" interpretive method "constrains" the judge less. That is, given $\alpha \in (0, 1)$*, we have:*

$$\begin{cases} |x^*(J, M, \alpha c) - J| < |x^*(J, M, c) - J| \\ \lim_{\alpha \to 0} x^*(J, M, c) = J \end{cases}.$$

Proof. (a) The judge chooses x to maximize $v(x)$. The derivative of $v(x)$ is:

$$v'(x) \equiv u'(x) - c'(x).$$

Evaluating this derivative at J, we obtain:

$$v'(J) = u'(J) - c'(J) > 0,$$

and since:

$$v''(x) \equiv u''(x) - c''(x) < 0 \text{ for all } x, \tag{1}$$

we have:

$$x^*(J, M, c) > J.$$

Similarly, evaluating the derivative at M, we obtain:

$$v'(M) = u'(M) - c'(M) < 0,$$

and since $v''(x) < 0$ (by (1)), we have:

$$x^*(J, M, c) < M.$$

(b, c) Denote by $v_\alpha(x)$ the judicial utility function when implausibility cost is $\alpha c(x)$. The judge chooses x to maximize $v_\alpha(x)$. The derivative of $v_\alpha(x)$ is:

$$v'_\alpha(x) \equiv u'(x) - \alpha c'(x).$$

Evaluating this derivative at $x^*(J, M, c)$, we obtain:

$$\begin{aligned} v'_\alpha(x^*(J, M, c)) &\equiv u'(x^*(J, M, c)) - \alpha c'(x^*(J, M, c)) \\ &\equiv u'(x^*(J, M, c)) - c'(x^*(J, M, c)) \\ &\quad -(\alpha - 1)c'(x^*(J, M, c)) \\ &= -(\alpha - 1)c'(x^*(J, M, c)), \end{aligned}$$

which is positive for $\alpha > 1$ and negative for $\alpha < 1$. Since it is clear that $v''_\alpha(x) < 0$ for all x, we thus have:

$$\begin{cases} x^*(J, M, \alpha c) > x^*(J, M, c) \text{ for } \alpha > 1 \\ x^*(J, M, \alpha c) > x^*(J, M, c) \text{ for } \alpha \in (0, 1). \end{cases}$$

Now evaluate the derivative at any point $x_0 \in (J, M)$:

$$v'_\alpha(x_0) \equiv u'(x_0) - \alpha c'(x_0),$$

which is positive for large enough α and negative for α close enough to 0. Thus, for large enough α, $v'_\alpha(x) = 0$ for some $x > x_0$, and thus $x^*(J, M, \alpha c) > x_0$. Therefore, $\lim_{\alpha \to \infty} x^*(J, M, \alpha c) = M$. Similarly, for α close enough to 0, $v'_\alpha(x) = 0$ for some $x < x_0$, and thus $x^*(J, M, \alpha c) < x_0$. Therefore, $\lim_{\alpha \to 0} x^*(J, M, \alpha c) = J$. ■

Example Suppose $u(x) \equiv -(x - J)^2$ and $c(x) \equiv \alpha(x - M)^2$. Then the judge chooses x to maximize $v(x) \equiv -(x - J)^2 - \alpha(x - M)^2$. His first-order condition is:

$$v'(x^*) \equiv -2(x^* - J) - 2\alpha(x^* - M) \equiv -2(1 + \alpha)x^* + 2J + 2\alpha M = 0,$$

which implies:

$$x^* = \frac{J + \alpha M}{1 + \alpha} = \frac{1}{1 + \alpha} J + \frac{\alpha}{1 + \alpha} M = \frac{1}{1 + \alpha} J + \left(1 - \frac{1}{1 + \alpha}\right) M,$$

and since $v''(x) \equiv -4 < 0$, x^* is a maximum. We can see immediately that x^* is a weighted average of J and M with weights 1 and α, respectively, and that therefore, x^* is between J and M for any positive weight α, approaches M as α increases, and approaches J as α decreases.

2.3 Problems with this model

The main problem with this model is that it is ad hoc; while the idea that judges have ideological preferences is quite standard (see, e.g., Eskridge & Frickey (1994), p. 33; Kennedy (1986); but see Posner (1993), pp. 3, 13–15), it is unclear why judges would also care about the plausibility of their opinions.

One possibility would be judges' internalized responsibility to produce reasoned decisions. This is possible, but for a rational-choice model, one would want to either (1) simply assume a preference for producing reasoned decisions, which seems ad hoc, or (2) make this preference emerge from underlying preferences, for instance the ideologically based preference to not be overridden, which stems from the same source as the ideological preference that makes judges want to rule at their ideal point.

Moreover, if judges seek plausibility because they fear being overriden by the legislature, or being overruled by higher courts (which themselves fear legislative overrides), it is unclear how these implausibility costs interact with the standard theory of legislative overrides (see, e.g., Marks (1989), pp. 10–32) and the view that judges decide cases seeking to avoid overrides (see, e.g., Ferejohn & Weingast (1992), pp. 574–76).

The following models therefore try to build up a rational-choice model of how interpretive methods can constrain even when judges have solely ideological preferences.

3 The ideological model with full information

Assume there are two unitary legislators whose assent is required to pass a law: A Congressman whose ideal point is C and a President whose ideal point is P. Without loss of generality, assume that $C < P$.

(For simplicity, I ignore the division of Congress into a separate Senate and House of Representatives, both of which have to assent to legislation. I also ignore the collective nature of Congress and assume, again for simplicity, that, on this one-dimensional spectrum, one can limit one's attention to the median Congressman. Finally, I ignore the possibility of veto overrides, where Congress can pass a law without the President's consent.)

The judge now only has ideological preferences $u(x)$, which behave as in section 2.

As long as the judge chooses $x \in [C, P]$, he will be immune to legislative override: Any move away from x would move away from either C or P.

If the judge chooses $x \notin [C, P]$, then there exists $\hat{x} \in [C, P]$ that is closer to both C and P. For example, if $x < C$, then $\hat{x} = C$ is closer to both C and P; and likewise for $\hat{x} = P$ if $x > P$. (Think of this as the "closest point" reversion rule.) If $x \notin [C, P]$, suppose the legislature overrides x and establishes some new point $\hat{x}^C(x; C, P)$ if $x < C$, and a point $\hat{x}^P(x; C, P)$ if $x > P$, both of which are in the interval $[C, P]$.

It is clear that the judge cannot do better than to choose:

$$x^*(C,P) \equiv \begin{cases} J \text{ if } J \in [C,P], \\ C \text{ if } J < C, \text{ and} \\ P \text{ if } J > P. \end{cases} .$$

In this model, there is never a legislative override. Moreover, a judge never benefits by reading the statute. Methods of statutory interpretation and notions of plausibility play no role.

4 The ideological model with an uncertain override range

This section complicates the previous model, by showing what the judge will do when he is uncertain as to the location of C and P. Wherever he rules, his ruling will be upheld if it is between C and P, and overridden if it is outside of that range. We must therefore make assumptions about what exactly the legislature will do in case of an override.

Without reading the statute First, we can derive the judge's behavior when there is no statute to read—or if the judge does not bother to read the statute.

His behavior depends on his views on the distribution of legislature preferences; suppose that all legislators are draws from a common legislative distribution L with density function $f(x)$, which we assume has full support. Call the two legislators L_1 and L_2, and define $C \equiv \min\{L_1, L_2\}$ and $P \equiv \max\{L_1, L_2\}$. Note the joint distribution and density functions of C and P, defined for $c < p$:

$$\begin{aligned} F_{C,P}(c,p) &\equiv \Pr(C < c \cap P < p) \equiv \Pr(C < c \cap P \in (C,p)) \\ &\equiv 2\Pr(L_1 < c \cap L_2 \in (L_1,p)) \equiv 2\int_{-\infty}^{c}\int_{x}^{p} f(x)f(y)dydx \\ &\equiv F^2(p) - (F(p)-F(c))^2, \\ f_{C,P}(c,p) &\equiv \frac{\partial^2}{\partial c \partial p} F_{C,P}(c,p) \equiv 2f(c)f(p). \end{aligned}$$

If the judge rules at a point x, he will avoid an override provided $x \in [C,P]$, which happens with probability:

$$\Pr(x \in [C,P]) \equiv \Pr(C < x \cap P > x) \equiv 2F(x)(1-F(x)).$$

Otherwise, the legislature overrides him, typically establishing points $\hat{x}^C(x;C,P)$ or $\hat{x}^P(x;C,P)$ as described in section 3. (However, the first illustration, the "very large penalty" reversion rule, simply assumes that the legislature penalizes the judge with a constant low utility $\hat{u}$.) The judge will then have utility $u(\hat{x}^C(x;C,P))$ or $u(\hat{x}^P(x;C,P))$, respectively.

Thus, the judge's utility is:

$$v(x;C,P) \equiv \begin{cases} u(x) \text{ if } x \in [C,P] \\ u(\hat{x}^C(x;C,P)) \text{ if } x < C \\ u(\hat{x}^P(x;C,P)) \text{ if } x > P \end{cases}$$

and so his expected utility (taking the expectation over C and P, though I will henceforth omit those subscripts on the expectation) is:

$$\begin{aligned} E_{C,P}v(x) \quad \equiv \quad & 2F(x)(1-F(x))u(x) \\ & + \int_x^\infty \int_c^\infty u(\hat{x}^C(x;c,p))f_{C,P}(c,p)dpdc \\ & + \int_{-\infty}^x \int_{-\infty}^p u(\hat{x}^P(x;c,p))f_{C,P}(c,p)dcdp. \end{aligned} \tag{2}$$

The judge's utility, of course, depends on what specific form the override takes. I derive specific results for three different models of legislative overrides—the "very bad penalty" interpretation, the "closest point" rule, and the "Nash bargaining" rule.

After reading the statute Why would the judge want to read the statute, if the probability of override only depends on his position relative to that of the pivotal legislators?

Reading the statute may be useful to the judge because it offers him a way of finding a clue as to the location of C and P. Suppose again there is a single interpretive method, with a most plausible point M. It is reasonable to suppose that—given constant legislative preferences—$C < M$ and $P > M$.

Thus, at least the judge can avoid an override by ruling at $x = M$. Moreover—if $C < M$ and $P > M$ are the only facts one uses—one can derive new, truncated distributions of C and P, which will aid the judge in gauging the costs and benefits of deviating from M. (If we know something more about legislative bargaining, we can do even better, but suppose that we only use the fact that M is within the no-override range.)

The new distribution function of C, for $x < M$ and given that $C < M$ and $P > M$, is $\Phi_C(x) = \frac{F(x)}{F(M)}$, and the density function is $\phi_C(x) = \frac{f(x)}{F(M)}$. Suppose, without loss of generality, that $J < M$. The judge can avoid an override as long as $x > C$, that is, with a probability $\Phi_C(x)$.

His expected utility is thus:

$$Ev(x) \equiv \frac{F(x)}{F(M)}u(x) + \int_x^M \int_M^\infty u(\hat{x}^C(x;c,p))\frac{f(c)f(p)}{F(M)(1-F(M))}dpdc. \tag{3}$$

Summary of results The results are interesting:

- Under the "very bad penalty" interpretation, the judge deviates from J toward the median of f. After the judge reads the statute, we continue to have deviation from the judge's ideal point, in the direction of the statutory point. I give an example that shows how the judge's ruling is closer to the statutory point than it was before he read the statute. However, overrides are not a constant penalty, but rather the adoption of some alternative policy point, so it is important to see how the judge acts under more realistic override rules.

- It turns out that, under the "closest point" override rule, *the judge does not deviate from his ideal point at all.* After the judge reads the statute, he continues to stay at his ideal point, and does not deviate toward either the median of f or toward the statutory point M. *The statute makes him no more likely to comply with the law.*

- The "Nash bargaining" rule is more punitive and does lead to some deviation from the ideal point. I provide an example that shows how the judge can deviate in the direction of the median of f. After the judge reads the statute, the results are surprising. I give two examples where the judge deviates from his ideal point toward the statutory point. However, the existence of the statute does not always pull the judge toward the statute. In fact, *the judge's optimum may move closer to the statutory point after he has read the statute, or it may move further away.*

4.1 Illustration: Very large penalty

As a simplified illustration, suppose that the legislature imposes a very large penalty on the judge, which gives the judge a constant utility $\hat{u}$ which is "extremely low."

This penalty could be impeachment, censure, or whatever else the judge dislikes. One thing it is *not* is an actual statutory reversion point, which would be more realistic. It doesn't make sense to thing of the "very large penalty" as a "very bad reversion point" because this would involve at least two unrealistic features: (1) it could involve the legislature's choosing a point that is disastrous for all involved, including the legislators themselves, and (2) it is a constant and thus doesn't depend on the precise value of x, only on the fact that x is outside of the range $[C, P]$.

The use of the "very large penalty" is thus merely as a preliminary illustration to generate intuition.

Without reading the statute Instead of (2) (which expresses expected utility when we have a statutory reversion point), we have:

$$\begin{aligned} E\hat{v}(x) \equiv\; & 2F(x)(1-F(x))u(x) \\ & + \int_x^\infty \int_c^\infty \hat{u} f_{C,P}(c,p)\,dp\,dc + \int_{-\infty}^x \int_{-\infty}^p \hat{u} f_{C,P}(c,p)\,dc\,dp, \end{aligned}$$

and the first-order condition is:

$$\begin{aligned}
\frac{d}{dx}E\hat{v}(x^*) &\equiv 2F(x^*)(1-F(x^*))u'(x^*) + 2f(x^*)(1-2F(x^*))u(x^*) \\
&\quad - \int_{x^*}^{\infty} 2\hat{u}f(x^*)f(p)dp + \int_{-\infty}^{x^*} 2\hat{u}f(c)f(x^*)dc \\
&\equiv 2F(x^*)(1-F(x^*))u'(x^*) + 2f(x^*)(1-2F(x^*))u(x^*) \\
&\quad -2\hat{u}f(x^*)[(1-F(x^*)) - F(x^*)] \\
&\equiv 2F(x^*)(1-F(x^*))u'(x^*) + 2f(x^*)(1-2F(x^*))(u(x^*)-\hat{u}) \\
&= 0.
\end{aligned} \tag{4}$$

(The second derivative is:

$$\begin{aligned}
\frac{d^2}{dx^2}E\hat{v}(x) &\equiv 4f(x)(1-2F(x))u'(x) + 2F(x)(1-F(x))u''(x) \\
&\quad +[2f'(x)(1-2F(x)) - 4f^2(x)](u(x)-\hat{u});
\end{aligned}$$

all terms of this expression are negative (for the negativity of the first term, see the proof of Proposition 2 below) except for the $2f'(x)(1-2F(x))$ term, whose sign depends on that of $f'(x)$. Therefore, not all solutions of the first-order condition are necessarily maxima. However, it is clear that $E\hat{v}(x^*)$, being continuous and bounded above (by $u(J)$), has a maximum, and that the first-order condition is satisfied at this maximum.)

Proposition 2 *The judge chooses x^* between J and L_M, where L_M is the median of the distribution of L (i.e., $F(L_M) = \frac{1}{2}$). He chooses $x^* = J$ or $x^* = L_M$ iff $L_M = J$. Moreover, $\lim_{\hat{u}\to-\infty} x^* = L_M$.*

Proof. (a) First, we prove that $x^* = J$ iff $L_M = J$.

If $x^* = J$, then $u'(x^*) = 0$, and (4) implies that $F(x^*) = \frac{1}{2}$, which means $L_M = J$.

If $L_M = J$, then $F(J) = \frac{1}{2}$, and (4) is satisfied at $x^* = J$.

(b) Next, we prove that $x^* = L_M$ iff $L_M = J$.

If $x^* = L_M$, then $F(x^*) = \frac{1}{2}$, and (4) implies that $u'(x^*) = 0$, which means $x^* = J$.

If $L_M = J$, then the proof of (a) implies that $x^* = L_M$.

(c) Now we prove that, when $L_M \neq J$, x^* is strictly between J and L_M.

Observe that (4) reduces to:

$$\frac{1-2F(x^*)}{u'(x^*)} = -\frac{F(x^*)(1-F(x^*))}{f(x^*)(u(x^*)-\hat{u})} < 0, \tag{5}$$

so the sign of $1-2F(x^*)$ must be the opposite of the sign of $u'(x^*)$.

Therefore, $x^* > J$ (i.e., $u'(x^*) < 0$) iff $F(x^*) < \frac{1}{2}$ (i.e., $x^* < L_M$).

Conversely, $x^* < J$ (i.e., $u'(x^*) > 0$) iff $F(x^*) > \frac{1}{2}$ (i.e., $x^* > L_M$).

Thus, x^* is strictly between J and L_M.

(d) Now we prove that $\lim_{\hat{u}\to-\infty} x^* = L_M$. Considering (5), we see that the right-hand side approaches 0 as $\hat{u} \to -\infty$, since all the other terms in the expression are bounded, and $f(x^*)$ is bounded away from 0, on the interval $[J, L_M]$. Therefore, the left-hand side must also approach 0. Because $u'(x^*)$ is bounded on the interval $[J, L_M]$, this means that $1 - 2F(x^*)$ must approach 0, which means $F(x^*)$ must approach $\frac{1}{2}$, which means that x^* must approach L_M. ■

In other words, the judge deviates from his ideal point J in the direction of the median of the distribution of the legislator's position, the more so (eventually) as the override penalty increases.

Example Suppose that $u(x) = -(x - J)^2$, and that the legislative position is distributed uniformly on $[0, 1]$, so $f(x) = 1$ and $F(x) = x$ for $x \in [0, 1]$, and $L_M = \frac{1}{2}$. The judge's expected utility is:

$$\begin{aligned} E\hat{v}(x) &\equiv -2x(1-x)(x-J)^2 + \hat{u}(1-x)^2 + \hat{u}x^2 \\ &\equiv (-2x+2x^2)(x^2-2xJ+J^2) + \hat{u}(1-2x+2x^2) \\ &\equiv 2x^4 - 2x^3(1+2J) + 2x^2(2J+J^2+\hat{u}) - 2x(J^2+\hat{u}) + \hat{u}, \end{aligned}$$

and so his first-order condition is:

$$\begin{aligned} \frac{d}{dx}E\hat{v}(x^*) &\equiv -2(1-2x^*)((x^*-J)^2+\hat{u}) - 4x^*(1-x^*)(x^*-J) \qquad (6) \\ &\equiv 8x^{*3} - 6x^{*2}(1+2J) + 4x^*(2J+J^2+\hat{u}) - 2(J^2+\hat{u}) \\ &= 0. \end{aligned}$$

Since $\frac{d}{dx}E\hat{v}(J) = 2\hat{u}(2J-1)$, it is clear that $x^* = J$ iff $J = \frac{1}{2}$. Since $\frac{d}{dx}E\hat{v}(J) = 4\hat{u}\left(J - \frac{1}{2}\right)$ while $\frac{d}{dx}E\hat{v}\left(\frac{1}{2}\right) = J - \frac{1}{2}$, it is clear that the derivative of $E\hat{v}(x)$ has opposite signs at J and $\frac{1}{2}$ and therefore has a zero between these. Moreover, as $\hat{u} \to -\infty$, $\frac{d}{dx}E\hat{v}(x^*)$ is dominated by the terms $4x\hat{u} - 2\hat{u} = 2\hat{u}(2x-1)$; thus, as $\hat{u} \to -\infty$, $x^* \to \frac{1}{2} = L_M$. Note, finally, that the second derivative of $E\hat{v}(x)$ is:

$$\begin{aligned} \frac{d^2}{dx^2}E\hat{v}(x) &\equiv 24x^2 - 12x(1+2J) + 4(2J+J^2+\hat{u}) \qquad (7) \\ &\equiv 4[6x^2 - 3x(1+2J) + 2J + J^2 + \hat{u}], \end{aligned}$$

which is negative for all $J \in [0, 1]$ and $\hat{u} < 0$; so the solutions are indeed maxima.

After reading the statute It is clear that the judge will limit himself to the range $x \in [J, M]$. Ruling at $x = J$ is at least as good as ruling at any $x < J$, since a lower J increases the chance that the judge will incur a penalty while simultaneously leading to a worse policy outcome for the judge. For analogous reasons, ruling at $x = M$ is at least as good as ruling at any $x > M$.

Instead of (3), the judge's expected utility is:

$$
\begin{aligned}
E\hat{v}^M(x) &\equiv \frac{F(x)}{F(M)}u(x) + \left(1 - \frac{F(x)}{F(M)}\right)\hat{u} \\
&\equiv \frac{F(x)}{F(M)}(u(x) - \hat{u}) + \hat{u}.
\end{aligned}
$$

The judge then chooses $\tilde{x}$ to maximize $E\hat{v}^M(x)$:

$$
\frac{d}{dx}E\hat{v}^M(\tilde{x}) \equiv \frac{f(\tilde{x})}{F(M)}(u(\tilde{x}) - \hat{u}) + \frac{F(\tilde{x})}{F(M)}u'(\tilde{x}) = 0. \tag{8}
$$

Note that this expression is correct for $\tilde{x} \leq M$; if (8) is satisfied at a value above M, then the optimum is a corner solution at $\tilde{x} = M$. (As before, the second derivative, which is:

$$
\frac{d^2}{dx^2}Ev^M(x) \equiv \frac{f'(x)(u(x) - \hat{u}) + 2f(x)u'(x) + F(x)u''(x)}{F(M)}, \tag{9}
$$

is not guaranteed to be negative, as the first term depends on the sign on $f'(x)$. However, it is clear that either there is a maximum at which the first-order condition is satisfied, or there is a corner solution at $\tilde{x} = M$.)

Note also that the derivative is positive at $x = J$, so it is not optimal for him to stay at his ideal point. Thus, the solution will be some $\tilde{x} \in (J, M]$.

If, before reading the statute, the judge would have chosen some $x^* \leq J$ or some $x^* > M$, the discussion above indicates that he would do better to switch to some point within $(J, M]$; so in those cases, reading the statute moves him in the direction of M. (I cannot rule out that, if $x^* > M$, the judge might overshoot M and choose some $\tilde{x} < M$.)

Now, let us consider the case where $x^* \in [J, M]$. Does the statute make him move to some point closer to M? To answer this question, consider $\frac{d}{dx}E\hat{v}^M(x^*)$, that is, the derivative of the judge's utility at the point he would have chosen if he were ignorant of the statute.

We know that, when $F(x^*) = \frac{1}{2}$, we have $x^* = J$. Then the derivative of expected utility, evaluated at the previous optimum, x^*, is:

$$
\frac{d}{dx}E\hat{v}^M(x^*) = \frac{d}{dx}E\hat{v}^M(J) = \frac{f(J)}{F(M)}(u(J) - \hat{u}) > 0.
$$

And when $F(x^*) \neq \frac{1}{2}$, (4) reduces to:

$$
u(x^*) - \hat{u} = -\frac{F(x^*)(1 - F(x^*))}{f(x^*)(1 - 2F(x^*))}u'(x^*).
$$

The derivative, (8), then becomes:

$$
\begin{aligned}
\frac{d}{dx}E\hat{v}^M(x^*) &= \frac{u'(x^*)F(x^*)}{F(M)}\left(1 - \frac{1 - F(x^*)}{1 - 2F(x^*)}\right) \\
&= -\frac{u'(x^*)F^2(x^*)}{F(M)(1 - 2F(x^*))},
\end{aligned}
$$

which is positive, since we know from Proposition 2 that $u'(x^*)$ and $1-2F(x^*)$ have opposite signs.

So $\frac{d}{dx}E\hat{v}^M(x^*) > 0$ in all cases when $x^* \in [J, M]$. Therefore, the judge's optimum before having read the statute is no longer optimal once he has read the statute, and so the judge benefits from reading the statute. This does not necessarily mean that the judge moves toward M, since, as shown in (9), the second derivative of expected utility, evaluated at x^*, is not guaranteed to be negative. However, the following example (where $f'(x) \equiv 0$ because legislators are uniformly distributed) shows how the judge's optimum can indeed move toward M.

Example Consider again the example where L is uniformly distributed on $[0, 1]$, and $u(x) = -(x-J)^2$. The judge's expected utility is:

$$E\hat{v}^M(x) \equiv -\frac{x(x-J)^2}{M} + \left(1 - \frac{x}{M}\right)\hat{u},$$

and so his first-order condition is:

$$\frac{d}{dx}E\hat{v}^M(\tilde{x}) \equiv \frac{-3\tilde{x}^2 + 4J\tilde{x} - (J^2 + \hat{u})}{M} = 0,$$

which has solutions at $\tilde{x} = \frac{2}{3}J \pm \frac{1}{3}\sqrt{J^2 - 3\hat{u}}$. However, the second derivative of $E\hat{v}^M(x)$ is:

$$\frac{d^2}{dx^2}E\hat{v}^M(x) \equiv \frac{-6x + 4J}{M},$$

which is negative for $x > \frac{2}{3}J$. So the only maximum is at $\tilde{x} = \min\left\{\frac{2}{3}J + \frac{1}{3}\sqrt{J^2 - 3\hat{u}}, M\right\}$ (since there will be a corner solution at M if the first-order and second-order conditions are satisfied at some point to the right of M). Interestingly, the judge's optimum is independent of M, unless it actually hits a corner solution at M.

Finally, let us check whether, when $x^* \in (J, M)$, the optimum moves to the right after the judge reads the statute—that is, whether $\tilde{x} > x^*$. We do so by establishing that $\frac{d}{dx}E\hat{v}(\tilde{x}) < 0$. It can be checked algebraically that

$$\frac{d}{dx}E\hat{v}\left(\frac{2}{3}J + \frac{1}{3}\sqrt{J^2 - 3\hat{u}}\right) = -\frac{2}{27}\left[\left(J^2 - 3\hat{u}\right)^{\frac{3}{2}} - J(9\hat{u} + J^2)\right],$$

which is negative at least for all $J \in [0, 1]$ and $\hat{u} < 0$. By (7), $\frac{d^2}{dx^2}E\hat{v}(x) < 0$ for all $J \in [0, 1]$ and $\hat{u} < 0$. Thus, x^*, which satisfies $\frac{d}{dx}E\hat{v}(x^*) < 0$, is to the left of $\tilde{x}$. (Clearly, when $x^* \in (J, M)$ and $\tilde{x} = M$, it is trivial that x^* is to the left of $\tilde{x}$.)

4.2 Illustration: "Closest point" reversion rule

Without reading the statute Now, suppose we limit ourselves to reversion rules that merely involve the legislature's choosing a new point (and do not incorporate any other "penalties" for the judge). This seems reasonable: In the first place, the no-override range is only significant because the legislature will override the judge's decision when the decision is outside of the range; and in the second place, it is unclear whether the legislature can bring any other meaningful sanctions to bear on the judge.

We can see that not every reversion rule of this type makes the judge deviate from his ideal point J.

Suppose, for instance, the legislature, in case of override, chooses the "closest point" reversion rule, as described in section 3:

$$\begin{aligned} \hat{x}^C(x; C, P) &\equiv C, \\ \hat{x}^P(x; C, P) &\equiv P. \end{aligned}$$

The judge then chooses x^* to maximize $Ev(x)$. Differentiating (2), and noting that $\frac{\partial \hat{x}}{\partial x} \equiv 0$:

$$\begin{aligned} \frac{d}{dx}Ev(x^*) &\equiv 2F(x^*)(1 - F(x^*))u'(x^*) + 2f(x^*)(1 - 2F(x^*))u(x^*) \\ &\quad - \int_{x^*}^{\infty} 2u(x^*)f(x^*)f(p)dp + \int_{-\infty}^{x^*} 2u(x^*)f(c)f(x^*)dc \\ &\equiv 2F(x^*)(1 - F(x^*))u'(x^*) + 2f(x^*)(1 - 2F(x^*))u(x^*) \\ &\quad -2f(x^*)(1 - F(x^*))u(x^*) + 2f(x^*)F(x^*)u(x^*) \\ &\equiv 2F(x^*)(1 - F(x^*))u'(x^*) \\ &= 0, \end{aligned}$$

so the judge will choose x^* such that $u'(x^*) = 0$—in other words, $x^* = J$. The "closest point" reversion rule is insufficiently punitive to make the judge do anything but choose his own ideal point.

Example Consider again that L is uniformly distributed on $[0, 1]$, and that $u(x) = -(x - J)^2$. The judge's expected utility is:

$$\begin{aligned} Ev(x) &\equiv -2x(1 - x)(x - J)^2 - 2\int_x^1 (c - J)^2(1 - c)dc - 2\int_0^x (p - J)^2 p dp \\ &\equiv x^4 - \frac{4}{3}x^3(1 + J) + 2x^2 J - \frac{1}{6} + \frac{2}{3}J - J^2 \end{aligned}$$

and so his first-order condition is:

$$\frac{d}{dx}Ev(x^*) \equiv 4x^{*3} - 4x^{*2}(1 + J) + 4x^* J \equiv 4x^*(x^* - J)(x^* - 1) = 0,$$

which has solutions at $x^* = 0$, $x^* = 1$, and $x^* = J$. However, the second derivative of $Ev(x)$ is:

$$\frac{d^2}{dx^2}Ev(x) \equiv 12x^2 - 8x(1 + J) + 4J = 4(3x^2 - 2x(1 + J) + J),$$

which is positive for $x = 0$ and $x = 1$ and negative for $x = J$. Therefore, $x^* = J$ is the only maximum. (Note that in the main discussion, the critical points at $x = 0$ and $x = 1$ would not have shown up, since the general discussion used $-\infty$ and ∞ as bounds. It is intuitively clear that the judge does not improve his expected utility by ruling infinitely far out in either direction.)

After reading the statute The judge will limit himself to the range $x \in [J, M]$, since a ruling at $x = J$ is better for the judge than any $x < J$, and a ruling at $x = M$ is better for the judge than any $x > M$.

In this case, after he reads the statute, (3) reduces to:

$$Ev^M(x) \equiv \frac{F(x)}{F(M)}u(x) + \int_x^M u(c)\frac{f(c)}{F(M)}dc,$$

and he chooses $\tilde{x}$ to maximize $Ev^M(x)$:

$$\begin{aligned}\frac{d}{dx}Ev^M(\tilde{x}) &\equiv \frac{f(\tilde{x})}{F(M)}u(\tilde{x}) + \frac{F(\tilde{x})}{F(M)}u'(\tilde{x}) - u(\tilde{x})\frac{f(\tilde{x})}{F(M)} \\ &\equiv \frac{F(\tilde{x})}{F(M)}u'(\tilde{x}) \\ &= 0,\end{aligned}$$

so the judge will choose $\tilde{x}$ such that $u'(\tilde{x}) = 0$—in other words, $\tilde{x} = J$. Just as before reading the statute, the "closest point" reversion rule is insufficiently punitive to make the judge do anything but choose his own ideal point. Whether the judge reads the statute or not makes no difference.

Example Consider again the example where L is uniformly distributed on $[0, 1]$, and $u(x) = -(x - J)^2$. The judge's expected utility is:

$$\begin{aligned}Ev^M(x) &\equiv -\frac{x}{M}(x-J)^2 - \frac{1}{M}\int_x^M (c-J)^2 dc \\ &\equiv \frac{-3x(x-J)^2 - (M-J)^3 + (x-J)^3}{3M} \\ &\equiv \frac{-3x^3 + 6x^2J - 3xJ^2 - M^3 + 3M^2J - 3MJ^2 + x^3 - 3x^2J + 3xJ^2}{3M} \\ &\equiv \frac{-2x^3 + 3x^2J - M^3 + 3M^2J - 3MJ^2}{3M},\end{aligned}$$

and so his first-order condition is:

$$\frac{d}{dx}Ev^M(x^*) \equiv \frac{-6x^{*2} + 6x^*J}{3M} \equiv \frac{-6x^*}{3M}(x^* - J),$$

which has solutions at $x^* = 0$ and $x^* = J$. However, the second derivative of $Ev^M(x)$ is:

$$\frac{d^2}{dx^2}Ev^M(x) \equiv \frac{-12x}{3M},$$

which is negative at $x = J$ but zero at $x = 0$. Therefore, the only maximum of $Ev^M(x)$ is at $x^* = J$. (Note again that the $x = 0$ critical point did not show up in the main discussion, where we used the bounds $-\infty$ and ∞; but it is clear that the judge does not improve his expected utility by ruling infinitely far to the left.)

4.3 Illustration: "Nash bargaining" reversion rule

Without reading the statute A more punitive reversion rule—and one that is probably more realistic—would be the "Nash bargaining" rule. Suppose, for instance, that the judge chooses some point $x < C$, and suppose that legislators have symmetric preferences around their ideal points.

Then the Congressman's best reversion point would be $\hat{x} = C$ (which the President would agree to, since it's closer to the President's ideal point P.)

And the President's best feasible reversion point would be $\hat{x} = C + (C - x) = 2C - x$, the point just as far to the right of C as x was to the left of C; this is because any point further right than this would be vetoed by the Congressman, who would prefer to stay at x. (This assumes that $2C - x < P$; otherwise, the President's best feasible reversion point would be $\hat{x} = P$.)

Likewise, if $x > P$, the President's best reversion point would be $\hat{x} = P$, while the Congressman's best feasible reversion point would be $\hat{x} = P - (x - P) = 2P - x$ or $\hat{x} = C$, whichever is greater.

If the Congressman and President are Nash bargainers, then we would predict that they would choose the midpoint of their best feasible reversion points:

$$\hat{x}^C(x; C, P) \equiv \begin{cases} \frac{3C-x}{2} & \text{if } 2C - x < P \\ \frac{C+P}{2} & \text{otherwise} \end{cases} ,$$

and:

$$\hat{x}^P(x; C, P) \equiv \begin{cases} \frac{3P-x}{2} & \text{if } 2P - x > C \\ \frac{C+P}{2} & \text{otherwise} \end{cases} .$$

Then (2) becomes:

$$\begin{aligned} Ev_N(x) \equiv\ & 2F(x)(1 - F(x))u(x) \\ & + \int_x^\infty \int_c^{2c-x} u\left(\frac{c+p}{2}\right) f_{C,P}(c,p)dpdc \\ & + \int_x^\infty \int_{2c-x}^\infty u\left(\frac{3c-x}{2}\right) f_{C,P}(c,p)dpdc \\ & + \int_{-\infty}^x \int_{-\infty}^{2p-x} u\left(\frac{3p-x}{2}\right) f_{C,P}(c,p)dcdp \\ & + \int_{-\infty}^x \int_{2p-x}^p u\left(\frac{c+p}{2}\right) f_{C,P}(c,p)dcdp, \end{aligned}$$

and the first-order condition is (after several cancellations):

$$\begin{aligned}
\frac{d}{dx}Ev_N(x^*) &\equiv 2F(x^*)(1-F(x^*))u'(x^*)+2f(x^*)(1-2F(x^*))u(x^*) \\
&\quad -\int_{x^*}^{\infty} u(x^*)f_{C,P}(x^*,p)dp+\int_{-\infty}^{x^*} u(x^*)f_{C,P}(c,x^*)dc \\
&\quad -\frac{1}{2}\int_{x^*}^{\infty}\int_{2c-x^*}^{\infty} u'\left(\frac{3c-x^*}{2}\right)f_{C,P}(c,p)dpdc \\
&\quad -\frac{1}{2}\int_{-\infty}^{x^*}\int_{-\infty}^{2p-x^*} u'\left(\frac{3p-x^*}{2}\right)f_{C,P}(c,p)dpdc \\
&= 0.
\end{aligned}$$

This, in turn, can be simplified to:

$$\begin{aligned}
\frac{d}{dx}Ev_N(x^*) &\equiv 2F(x^*)(1-F(x^*))u'(x^*) \\
&\quad -\int_{x^*}^{\infty} u'\left(\frac{3c-x^*}{2}\right)f(c)(1-F(2c-x^*))dc \\
&\quad -\int_{-\infty}^{x^*} u'\left(\frac{3p-x^*}{2}\right)f(p)F(2p-x^*)dp \\
&= 0.
\end{aligned} \tag{10}$$

We can see that $x^*=J$ is a solution if $J=L_M$ (that is, if the judge's ideal point happens to be the median of the distribution of legislators' positions), and if we also assume that $f(x)$ is symmetric around L_M and that $u(x)$ is symmetric around the judge's ideal point J. To see this, plug $x^*=J$ into (10). The first term vanishes because $u'(J)=0$. As for the second and third terms, they cancel each other out; one can derive this by observing, first, that $u'(x)=-u'(2J-x)$ (from the symmetry of u around J); second, that $f(x)=f(2J-x)$ (from the symmetry of f around $L_M=J$); third, that $1-F(2C-J)=F(3J-2C)$ (this follows from the second point); and, finally, by introducing a change of variables $t=2J-C$. It is intuitively clear that $x^*=J$ is not just a critical point of $\frac{d}{dx}Ev_N(x)$, but also a minimum.

Because this expression is complicated, it will be more convenient to continue the illustration with an example.

Example Consider again the example where L is uniformly distributed on $[0,1]$, and $u(x)=-(x-J)^2$. We must alter the calculation of the judge's expected utility to take into account the fact that policy points are limited to the finite interval $[0,1]$. The reversion points are:

$$\hat{x}^C(x;C,P)\equiv\begin{cases}\frac{3C-x}{2} & \text{if } 2C-x<1 \text{ and } 2C-x<P \\ \frac{C+P}{2} & \text{if } 2C-x>1 \text{ or } 2C-x>P\end{cases},$$

and:

$$\hat{x}^P(x;C,P)\equiv\begin{cases}\frac{3P-x}{2} & \text{if } 2P-x>0 \text{ and } 2P-x>C \\ \frac{C+P}{2} & \text{if } 2P-x<0 \text{ or } 2P-x<C\end{cases}.$$

The judge's expected utility is thus:

$$\begin{aligned}
Ev_N(x) \equiv\ & 2F(x)(1-F(x))u(x) \\
& + \int_x^{\frac{x+1}{2}} \int_c^{2c-x} u\left(\frac{c+p}{2}\right) f_{C,P}(c,p)dpdc \\
& + \int_x^{\frac{x+1}{2}} \int_{2c-x}^{1} u\left(\frac{3c-x}{2}\right) f_{C,P}(c,p)dpdc \\
& + \int_{\frac{x+1}{2}}^{1} \int_c^{1} u\left(\frac{c+p}{2}\right) f_{C,P}(c,p)dpdc \\
& + \int_0^{\frac{x}{2}} \int_0^{p} u\left(\frac{c+p}{2}\right) f_{C,P}(c,p)dcdp \\
& + \int_{\frac{x}{2}}^{x} \int_0^{2p-x} u\left(\frac{3p-x}{2}\right) f_{C,P}(c,p)dcdp \\
& + \int_{\frac{x}{2}}^{x} \int_{2p-x}^{p} u\left(\frac{c+p}{2}\right) f_{C,P}(c,p)dcdp,
\end{aligned}$$

and the first-order condition is (after several cancellations):

$$\begin{aligned}
\frac{d}{dx}Ev_N(x^*) \equiv\ & 2F(x^*)(1-F(x^*))u'(x^*) + 2f(x^*)(1-2F(x^*))u(x^*) \\
& - \int_{x^*}^{1} u(x^*) f_{C,P}(x^*,p)dp + \int_0^{x^*} u(x^*) f_{C,P}(c,x^*)dc \\
& - \frac{1}{2}\int_{x^*}^{\frac{x^*+1}{2}} \int_{2c-x^*}^{1} u'\left(\frac{3c-x^*}{2}\right) f_{C,P}(c,p)dpdc \\
& - \frac{1}{2}\int_{\frac{x^*}{2}}^{x^*} \int_0^{2p-x^*} u'\left(\frac{3p-x^*}{2}\right) f_{C,P}(c,p)dpdc \\
=\ & 0.
\end{aligned}$$

This, in turn, can be simplified to:

$$\frac{d}{dx}Ev_N(x^*) \equiv \frac{19}{4}x^{*3} - x^{*2}\left(5J+\frac{37}{8}\right) + x^*\left(5J+\frac{1}{8}\right) - \frac{1}{2}J + \frac{1}{8} = 0. \quad (11)$$

We can calculate that $\frac{d}{dx}Ev_N(J) = -\frac{1}{4}J^3 + \frac{3}{8}J^2 - \frac{3}{8}J + \frac{1}{8}$, which is equal to 0 if $J = \frac{1}{2}$, and the second derivative, $\frac{d^2}{dx^2}Ev_N(J) = \frac{17}{4}J^2 - \frac{17}{4}J + \frac{1}{8}$, is negative at $J = \frac{1}{2}$; so it is optimal for the judge to stay at his ideal point if his ideal point is the median.

When $J \neq \frac{1}{2}$, we can also verify that $\frac{d}{dx}Ev_N(J)$ and $\frac{d}{dx}Ev_N\left(\frac{1}{2}\right)$ are of different signs: $\frac{d}{dx}Ev_N(J) = -\frac{1}{4}J^3 + \frac{3}{8}J^2 - \frac{3}{8}J + \frac{1}{8}$ and $\frac{d}{dx}Ev_N\left(\frac{1}{2}\right) = \frac{3}{4}J - \frac{3}{8}$, and the product of these is strictly negative when $J \neq \frac{1}{2}$. Therefore, $\frac{d}{dx}Ev_N(x)$ must have a zero between J and $\frac{1}{2}$.

After reading the statute If $C \in \left[x, \frac{x+M}{2}\right]$, then the Congressman would agree to any reversion in the range $[x, 2C-x]$; and since $2C-x<M$, it is clear that P is outside of this range. Thus, Nash bargaining will lead to the reversion point $\frac{3C-x}{2}$.

If $C \in \left[\frac{x+M}{2}, M\right]$, then we must distinguish two cases. The Congressman would still agree to any reversion in the range $[x, 2C-x]$, so Nash bargaining will lead to the reversion point $\frac{3C-x}{2}$ as long as $P > 2C-x$. However, if $P < 2C-x$, then Nash bargaining leads to the reversion point $\frac{C+P}{2}$.

Thus, the reversion points will be the following:

$$\hat{x}^C(x; C, P) \equiv \begin{cases} \frac{3C-x}{2} \text{ if } C < \frac{x+M}{2} \\ \frac{3C-x}{2} \text{ if } C > \frac{x+M}{2} \text{ and } P > 2C-x \\ \frac{C+P}{2} \text{ if } C > \frac{x+M}{2} \text{ and } P < 2C-x \end{cases}.$$

The judge's expected utility will then be (referring back to (3)):

$$\begin{aligned} Ev_N^M(x) &\equiv \frac{F(x)}{F(M)}u(x) + \int_x^{\frac{x+M}{2}} u\left(\frac{3c-x}{2}\right)\frac{f(c)}{F(M)}dc \\ &+ \frac{1}{F(M)(1-F(M))}\int_{\frac{x+M}{2}}^{M}\left[\begin{array}{c} \int_M^{2c-x} u\left(\frac{c+p}{2}\right)f(p)dp \\ +u\left(\frac{3c-x}{2}\right)\int_{2c-x}^{\infty} f(p)dp \end{array}\right] f(c)dc \\ &\equiv \frac{F(x)}{F(M)}u(x) + \int_x^{\frac{x+M}{2}} u\left(\frac{3c-x}{2}\right)\frac{f(c)}{F(M)}dc \\ &+ \frac{1}{F(M)(1-F(M))}\int_{\frac{x+M}{2}}^{M}\left[\begin{array}{c} \int_M^{2c-x} u\left(\frac{c+p}{2}\right)f(p)dp \\ +u\left(\frac{3c-x}{2}\right)(1-F(2c-x) \end{array}\right] f(c)dc. \end{aligned}$$

We will continue with an example.

Example Consider again the example where L is uniformly distributed on $[0,1]$, and $u(x) = -(x-J)^2$. We again alter the reversion points to take account of the boundaries of the policy spectrum $[0,1]$. If $\frac{x+1}{2} < M$ (that is, if $x < 2M-1$), the reversion points are:

$$\hat{x}^C(x; C, P) \equiv \begin{cases} \frac{3C-x}{2} \text{ if } C < \frac{x+M}{2} \\ \frac{C+P}{2} \text{ if } C \in \left(\frac{x+M}{2}, \frac{x+1}{2}\right) \text{ and } P < 2C-x \\ \frac{3C-x}{2} \text{ if } C \in \left(\frac{x+M}{2}, \frac{x+1}{2}\right) \text{ and } P > 2C-x \\ \frac{C+P}{2} \text{ if } C > \frac{x+1}{2} \end{cases}.$$

and so the judge's expected utility is:

$$\begin{aligned} Ev_N^M(x) &\equiv -\frac{x(x-J)^2}{M} - \frac{1}{M}\int_x^{\frac{x+M}{2}}\left(\frac{3c-x}{2} - J\right)^2 dc \\ &-\frac{1}{M(1-M)}\int_{\frac{x+M}{2}}^{\frac{x+1}{2}}\left[\begin{array}{c} \int_M^{2c-x}\left(\frac{c+p}{2}-J\right)^2 dp \\ +\left(\frac{3c-x}{2}-J\right)^2(1-2c+x) \end{array}\right] dc \\ &-\frac{1}{M(1-M)}\int_{\frac{x+1}{2}}^{M}\int_M^1\left(\frac{c+p}{2}-J\right)^2 dpdc. \end{aligned} \quad (12)$$

And if $\frac{x+1}{2} > M$ (that is, if $x > 2M - 1$), the reversion points are:

$$\hat{x}^C(x; C, P) \equiv \begin{cases} \frac{3C-x}{2} \text{ if } C < \frac{x+M}{2} \\ \frac{C+P}{2} \text{ if } C > \frac{x+M}{2} \text{ and } P < 2C - x \\ \frac{3C-x}{2} \text{ if } C > \frac{x+M}{2} \text{ and } P > 2C - x \end{cases} .$$

and so the judge's expected utility is:

$$\begin{aligned} Ev_N^M(x) \quad \equiv \quad & -\frac{x(x-J)^2}{M} - \frac{1}{M} \int_x^{\frac{x+M}{2}} \left(\frac{3c - x}{2} - J \right)^2 dc \\ & -\frac{1}{M(1-M)} \int_{\frac{x+M}{2}}^{M} \left[\begin{array}{c} \int_M^{2c-x} \left(\frac{c+p}{2} - J \right)^2 dp \\ + \left(\frac{3c-x}{2} - J \right)^2 (1 - 2c + x) \end{array} \right] dc. \end{aligned} \tag{13}$$

To keep this example manageable, let us consider some numerical examples.

Consider $J = 0.1$. By (11), if the judge does not read the statute, he rules at approximately 0.235. The median of the legislators' distribution (0.5) exerts some pull on him, because he does not want to be overridden. Now consider three different examples of what the judge could discover by reading the statute:

- First, suppose he reads the statute and finds that $M = 0.5$. He maximizes his expected utility as expressed in (13) (since $2M - 1 = 0$). He now rules at approximately 0.245. Reading the statute has made him deviate *toward* the statute.

- Second, suppose he reads the statute and finds that $M = 0.4$. Maximizing the same portion of the expected utility function (since $2M - 1 = -0.2 < 0$), he now rules at approximately 0.206. Reading the statute has made him deviate *away* from the statute and back toward his ideal point. Reading the statute has given him good news—he has discovered that the no-override range was closer to his ideal point than he had feared. Instead of deviating toward the median of the ex-ante distribution (0.5), he could now deviate toward the statutory point, which is closer to him. Thus, he can now afford to rule closer to his ideal point.

- Third—just to illustrate the interaction of (12) and (13)—suppose he reads the statute and finds that $M = 0.9$. Since $2M - 1 = 0.8$, he must focus on two ranges—$x \in [0.1, 0.8]$ (for which he maximizes his expected utility as expressed in (he maximizes his expected utility as expressed in (12)) and $x \in [0.8, 0.9]$ (for which he maximizes his expected utility as expressed in (13)). Maximizing (13), we find that there is no interior minimum; therefore, we check the value of expected utility at the bounds of the domain and obtain -0.502 for $x = 0.8$ and -0.64 for $x = 0.9$. Now focusing on the range $x \in [0.1, 0.8]$, we maximize (12) and obtain an interior minimum of $x = 0.323$, which gives an expected utility of -0.266. Therefore, the judge rules at 0.323, meaning that he moves *toward* the statute.

5 Discussion

The previous sections have shown two surprising results.

First, under the "closest point" reversion rule, the judge never deviates from his ideal point, whether or not he reads the statute. Basically, this rule is not punitive enough. The rule may *seem* punitive—if the judge rules at $x = 0.2$ and the override range is $[0.4, 0.7]$, then the override will be to 0.4, which does seem bad. But it is not punitive *on the margin*. Suppose the judge starts out at some x between his ideal point J and the median L_M, or between his ideal point and the statutory point M; and suppose he is considering a small movement toward J. He experiences a first-order increase in his utility from moving closer to his ideal point—roughly speaking, the probability of no-override times $u'(x)$. However, the decrease in his utility from the increase in override probability is only second-order, because if this small movement causes an override, this means that he has just crossed the position of a pivotal legislator, say $x = C$, and under the "closest point" rule, the override point is just equal to C.

Therefore, nothing prevents him from moving all the way to J. So a reversion rule will only affect the judge if it is sufficiently punitive on the margin.

Second, under another reversion rule, like the "Nash bargaining" rule, the judge is not guaranteed to move closer to the statutory point M, relative to where he would have moved if he had not read the statute. Reading a statute may have effects that pull in different directions. First, reading a statute gives the judge better information about where legislative preferences lie, so his previous optimum will in general no longer be optimal. Because M is a safe haven—he will never be overruled at M provided legislative preferences have not changed—he may seek to avoid override by going to the corner solution at M. However, reading a statute may also give the judge good news about legislative preferences; to the extent he was seeking to avoid an override by moving toward the median, he may now decide that he can afford to move closer to his ideal point J.

Thus, the existence of statutes has a complex and unpredictable effect on judges' compliance with the law. We cannot assume that the existence of a statute increases the likelihood that the judge will rule according to the statute.

6 Next steps

The next steps in this project may include:

- Discussing how a statutory method can be more or less "constraining." Intuitively, it seems as though some interpretive methods are highly determinate while others are less so; debates over textualism, intentionalism, and purposivism often engage this question. The question in this model is what rational-choice assumptions can make methods more or less constraining.

- Discussing how judicial decisionmaking change when more than one interpretive method is available. Empirically, we see different judges using different interpretive methods, and some judges changing from one to the other, sometimes opportunistically. Indeed, the pragmatic school of statutory interpretation explicitly holds that no one interpretive method is optimal in all cases. The question in this model is how judges would choose which method to adopt.

- Discussing the implications for empirical study of judicial decisionmaking. In Volokh (2008), I argued that judges' ability to choose methods from case to case can lead to a self-selection problem, where observing existing textualist opinions can lead us to incorrect conclusions about the true nature of textualism (as it would be if, say, textualism were mandated for all judges).

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