

CREDIT ASSIGNMENT AND FEDERAL ENCROACHMENT

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ABSTRACT:

Opportunistic encroachment by the national government on state policy domains erodes the robustness of federal unions. Theories of electoral and political safeguards of federalism suggest that the political process protects federalism's boundaries. This article develops a theory distinguishing risk-seeking and risk-avoiding political behavior and applies its insights to the debate about the sufficiency of the political process to police federalism. Under average conditions, the political process deters encroachment, but under more extreme conditions it fails: elected officials set policy according to the risk associated with their electoral retention rather than the policy's expected return to the voters or the health of the federation; this manipulation of the risk environment may lead a central government to encroach upon a state's domain opportunistically. The federal problem of credit assignment exposes a weakness in the political safeguards theory to protect federalism's boundaries: electoral mechanisms both encourage and discourage encroachment. Due to this fallibility in the political process, judicial intervention in federalism disputes may be justified.

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In *New York v. United States*,¹ the Supreme Court struck down a portion of a federal law regulating the disposal of low-level radioactive waste. The 5-member majority of the Court objected to a provision requiring states to take title of the radioactive waste they produced because it confused electoral accountability in the federal system. In an opinion written by Justice O'Connor, the justices reasoned that dissatisfied voters might punish the state politicians charged with executing the law, rather than the federal lawmakers responsible for writing it.²

The court justified its intervention by arguing that it wanted to bolster electoral accountability. Why would voters need the court's help? This paper highlights a flaw in the logic of electoral accountability and federalism. With the aid of a straightforward model, the paper derives conditions when elected officials would set policy according to the risk associated with their electoral retention, rather than the policy's expected return to the voters. Federalism suffers from a credit assignment problem: rather than serving as a constraint, policing federal action, under conditions described below the electorate is the motivation for the encroachment. The political process is insufficient—at times even counterproductive—and judicial safeguards demonstrate their usefulness.

The blurring of jurisdictional lines—and often electoral accountability—comes naturally to an evolving federation as powers are adjusted, both purposefully, in response

¹ *New York v United States*, 505 US 144 (1992).

² The court further elaborated their reasoning in *U. S. Term Limits v Thornton*, 514 US 779 (1995) and *Printz v United States*, 521 US 98 (1997), striking down state laws limiting the terms of federal representatives and a federal law requiring county sheriffs to conduct background checks on prospective handgun purchasers, respectively. In rejecting these laws, the court underscored the importance of independent accountability between levels of government for the vitality of federalism: the U.S. constitution “establish[ed] two orders of government, each with its own direct relationship, its own privity, its own set of mutual rights and obligations to the people who sustain it and are governed by it” (quoting from *U.S. Term Limits*, 514 US at 883).

to a changing environment, and as a by-product of political manipulation. The federal government can augment, parallel, or otherwise intervene in state government authority by encumbering state governments, for example by charging them with the execution of federal legislation on cleaner air and equal access for people with disabilities, or by implementing mandates that create federal regulatory power through its spending power. More severe federal encroachments include the assumption of full policy responsibility for duties traditionally carried out by the states, such as Roosevelt's establishment of the national welfare state, or Kennedy's 1963 federalization of Alabama's national guard to enforce school desegregation. Encroachment in other federal systems can be even more disruptive of the intergovernmental balance: in Argentina and India, encroachment can include federal dismissal of provincial legislatures and substitution of a federal manager, a federal suspension of the provincial democratic process that sometimes lasts for years.

Federalism is on its firmest footing when the boundaries between federal and state governments are consistent and changes are accepted as legitimate by all. What triggers opportunistic encroachment? There are two intuitive responses. First, the center may encroach for *partisan* reasons: there may be ideological differences between the center and region, or the center may be captured by some regions and get co-opted into a scheme to shift burdens from one region to another. Alternatively, the center may encroach on *efficiency* grounds: technological or informational advances make the center a more logical location for policy design and implementation. This article explores a third, counterintuitive motivation: *electoral* incentives encourage encroachment. The electoral incentives stem from federalism's divided structure, and as a structural problem, encroachment therefore becomes inherent to all federations.

Even among scholars who value federalism, there is some controversy regarding the appropriate mechanisms to guarantee the federal bargain against opportunistic encroachment. The primary safeguards are judicial, political, or structural, and much literature favors political or structural safeguards over judicial intervention.³ Political and structural safeguards include formal institutions (such as state representation in the Senate and the electoral college), informal mechanisms such as the party system, and the citizens themselves, through the electoral process.

For example, the Madisonian theory for maintenance of the balance between federal and state governmental powers relies on internal institutional constraints and electoral control. In Federalist 46, in response to concerns about intergovernmental rivalry, Madison writes:

The adversaries of the Constitution seem to have lost sight of the people altogether in their reasonings on this subject; and to have viewed these different establishments not only as mutual rivals and enemies, but as uncontrolled by any common superior in their efforts to usurp the authorities of each other. ... [T]he ultimate authority, ... resides in the people alone, and that it will not depend merely on the comparative ambition or address of the different governments whether either, or which

³ The primary sources for the political safeguards theory are Herbert Wechsler, *The Political Safeguards of Federalism: The Role of the States in the Composition and Selection of the National Government*, 54 Colum L Rev 543 (1954); William H. Riker, *Federalism: Origin, Operation, Significance* (Little, Brown and Co, 1964); Jesse H. Choper, *Judicial Review and the National Political Process: A Functional Consideration of the Role of the Supreme Court* (Univ Chicago, 1980); Larry D. Kramer, *Putting the Politics Back into the Political Safeguards of Federalism*, 100 Colum L Rev 215 (2000); Mikhail Filippov, Peter Ordeshook, and Olga Shvetsova, *Designing Federalism: A Theory of Self-Sustainable Federal Institutions* (Cambridge Univ, 2004).

of them, will be able to enlarge its sphere of jurisdiction at the expense of the other. ... [T]he event in every case should ... depend on the sentiments and sanction of their common constituents (Fed. 46, par. 1).

Madison, the original structural safeguards theorist, does not deny that the different governments might want to encroach upon one another's jurisdictions, but he argues that the watchful public will prohibit such encroachments unless they have decided that it is in their own best interests to allow it. The electorate restrains the federal government's motivation to encroach.

While political and structural safeguards theorists would criticize the *New York* court for its intervention, the Court agrees with them in spirit: the electoral process should not be impeded. This article pushes the Court's logic further. When the federal government encroaches to create an accountability problem, the electoral process has failed to safeguard federalism through its deterrence mechanism. This article argues that exclusive supervision of the federal bargain is beyond the capacity of the electorate because the electoral system creates contradictory impulses: at the same time that it controls the urge to encroach, it encourages encroachment. The article defines the conditions when the latter force will dominate, triggering encroachment.

I. THE PROBLEM OF CREDIT ASSIGNMENT

Dividing power—whether horizontally, through separation of powers, or vertically, as with federalism—creates two intertwined problems for republican government: efficiency and efficacy. First and foremost is the question of efficiency: how well does the electoral mechanism provide incentives for the fragmented

government to maximize the expected utility from its joint efforts? Secondly, if voters erect a constitution in the hopes of devising an efficient allocation of tasks between governments, how well does the electoral mechanism prohibit one government from encroaching on the jurisdiction of another? The problems are linked: the efficiency of the system depends on the efficacy of the mechanism that maintains it.

The problem can be generalized as follows. When a principal's utility—in our case, the voters'—depends upon the actions of two or more agents, and agents have some choice in their action, an efficient allocation of effort is not guaranteed. Consider this problem:

Table 1. An Example of Joint Product.

	Task A	Task B
Agent 1	7	4
Agent 2	0	6

Agents may work on task A or B. Cell values represent agent competence: higher values correspond to a higher ability, or a likelihood of completing a task successfully. The agents differ in their abilities on each task and from one another. If principals care about successful task completion, then they would implement a system to encourage agent efficiency. One simple system is to reward an agent by task performance; believing, intuitively, that agents would perform the task they do best. Agent 1 should do Task A and Agent 2 should do Task B; it seems unreasonable for Agent 1 to abandon Task A for B. Yet there are situations when it would do exactly that.

When problems satisfy two conditions:

- (1) Agents are rewarded based on a threshold evaluation and
- (2) Uncertainty confounds action and outcome

then agents may care more about variance than mean: while the principal's utility is a function of agent performance, it is also subject to influence by a fickle environment, and some activities might generate more uncertainty than others. Therefore rather than focus on what will happen on average, agents also care about the risk associated with an activity as they aim to maximize the likelihood that they surpass the threshold. The range of potential outcomes—how bad or how good an outcome can get—becomes equally important as its middling value. When agents can choose what activity to work on, they should consider both the expected value of the outcome, presumably correlated with their level of competence at doing the task, and the likelihood of the extremes.

If we add one more condition:

- (3) There is the possibility of shared responsibility for an outcome,

then we have all the makings of a credit assignment problem. Agents may have an incentive to encroach upon the activities of others to create ambiguity over responsibility for outcomes, with the objective of increasing probability that they surpass the evaluative threshold.⁴

⁴ Note the difference between this problem and the usual one in the teams literature: models such as Holmstrom and Alchian and Demsetz assume that the agents work on a common task and the principal observes joint output only. Bengt Holmstrom, *Moral Hazard in Teams*, 13 *Bell J Econ* 324 (1982); Armen A. Alchian and Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 *Amer Econ Rev* 777 (1972). Consider two men moving a piano. Rewards to the agents are based on the joint output: the movers are paid if the piano gets to its destination safely. In this paper, agents are a “team” only in the sense that principal utility depends upon each agent's output, but the agents can work on distinct tasks—or not—and are rewarded separately.

Consider the example in Table 1. Although Agent 1's competence on Task A is higher than Task B, if the reward threshold is 8, Agent 1 would still fall short by pursuing Task A. If Task B has higher variance associated with it, then Agent 1 may prefer to pursue Task B, hoping for the random event that would cause its evaluation to surpass the threshold. Rewards from risk-taking might be even more likely when it has the opportunity to twin its efforts, and share credit for positive outcomes, with the relatively more competent Agent 2.

These types of problems are common. Making partner in a law firm, earning tenure, getting reelected, and a company remaining solvent all depend upon threshold evaluations. In each case it is possible for an agent to benefit from confusion over who did what. Federalism creates a problem of credit assignment, opening a window of opportunity for the politically ambitious to claim responsibility for favorable outcomes. The credit assignment problem confuses voters about who is responsible for policy, giving politicians more incentives to encroach. Governments that encroach are not made up of politicians looking for ways to dodge electoral accountability; instead, the inverse may be true: political ambition by office-seeking politicians may drive a federal government to encroach on a state domain (and vice versa). Electoral motivations—and electoral accountability—fuel the evolution of shared jurisdictions.⁵

⁵ Volden is also interested in the connection between credit assignment and federal policy choice, including encroachment. Craig Volden, *Intergovernmental Political Competition in American Federalism*, 49(2) *Amer J Polit Sci* 327 (2005). Although the models are different on many dimensions, Volden makes two assumptions that set his results apart from mine importantly. First, he makes the assumption that voters know which level of government is most efficient at each activity. Second, he assumes that voters will punish a government for entering into a policy realm when another government is more efficient. I have chosen to have my voters respond to governmental performance and let the credit assignment be a random variable, rather than equal to relative capacity. Without it, we could not see the effects of playing variance off mean that I am able to generate. Moreover, by assuming that voters are perfectly able to distinguish

II. A MODEL OF ENCROACHMENT

To understand the conditions that support structurally-motivated encroachment, I begin with a minimal definition of federalism. Two electorally independent layers of government, central and regional, share powers, with some powers allocated as regional, some as central, and others as shared jurisdictions. For simplicity, consider a single agent at the center and a single agent at the regional level, both representing the same constituency (such as a Governor and a Senator). The central government's goal is to be reelected.

The center can choose to encroach or not.⁶ Its decision rule is simple: choose the action that maximizes its probability of being reelected. In making its decision about whether or not to encroach, it weighs four factors: its own competence in the policy domain, whatever handicap it suffers if it decides to encroach, the distribution of potential outcomes from its action (when it encroaches and when it does not), and the voters' reelection criteria. The following information is known by the central government:

governmental efficiency, and also perfectly willing to punish a government for behaving inefficiently, we would be unable to comment on the efficacy of the various safeguards of federalism.

⁶ This model considers the behavior of the central government. A full game would also model the effort expended by the regional government, to find conditions where it might expect, or even invite, encroachment. Before we can answer this question, we need to know that conditions where the federal government would be motivated to encroach. The analysis in this paper will show that governors who ignore important policy issues will see encroachment by strong Presidents, and governors who devote lots of resources to a particular area may see encroachment by weak Presidents.

GOVERNMENTAL COMPETENCE (C): The center is of variable ability, C , where $C \in [0, \infty]$.

HANDICAP (θ): To focus on the cases where one would be least likely to find encroachment, that is, to rule out cases where encroachment can be simply explained by efficiency, I make the assumption that the center is more competent within its own jurisdiction than within the regional government's. In other words, I assume that the central government has been allocated jurisdictions for which it is competent, but make no assumptions that it deserves, by merit of its talents, to acquire further powers. Instead, I assume that some obstacle handicaps the center's ability to perform on policy when it encroaches: perhaps it faces legal or political challenges that force it to adopt inefficient policy, or the start up costs of policy innovation are high, or perhaps it simply has limited capacity in the jurisdiction.

In the model, the center's handicap, θ , lies strictly between 0 and 1, guaranteeing that the center is strictly less competent in regional affairs than its own: $\theta C < C$.

UNCERTAINTY ($\omega : \delta, \varepsilon, \rho$): Environmental circumstances affect the translation of the center's action to electoral credit. This stochastic uncertainty, represented generically by ω , is assumed to be uniformly distributed⁷ on an interval which depends on the policy realm: the outcomes of some policies are much more predictable than others. When the center does not encroach, the parameter δ , $\delta \in (0, \infty)$, represents the positive extreme: how much better than expected the outcome can be, and $-\delta$ represents how much worse a policy may turn out.

⁷ The assumption of a uniform distribution simplifies the presentation, but the results hold for any symmetric distribution and the conclusions depend merely on the distribution on one side.

When the center encroaches, the policy domain changes; this new policy domain has a natural degree of uncertainty captured by the interval defined by ε rather than δ . An encroaching policy has an additional component to uncertainty: in encroaching, the center enters the turf of the regional government, and the success of the policy (and credit that the center may hope to claim from it) is affected by the regional government's ability, ρ . A highly talented regional government increases the likelihood of an outcome favorable to the voters, but in keeping with Justice O'Connor's reasoning in the *New York* decision, when jurisdictions are shared accountability is confused. The center may be able to claim credit for all that the regional government has accomplished, but on the downside, a talented regional government may also be better able to capture full credit for the outcome, and even cause the voters to resent the federal government's intervention. A regional government of low ability is unlikely to contribute to success of the policy, but it is also less likely to be able to claim credit for the accomplishments of the central government, and the voters are more likely to thank the center for its encroachment, rather than resent its intrusion. To simplify the exposition, the model will assume $\omega_\varepsilon \sim U[-\varepsilon\rho, \varepsilon\rho]$ as the uncertainty and interval boundary when the center encroaches. In the discussion of Corollary 3 I discuss the empirical implications of alternative functional specifications of the interval.

THRESHOLD (T): Voters are keenly interested in their own welfare; they are less interested in (or equivalently, capable of) patrolling constitutional boundaries. Voters do not judge the constitutionality of a government's action; they react to the outcomes of policy. Therefore, in this model, voters compare the policy output—specifically, their utility—against expectations about what their government should do for them. Following

convention,⁸ this standard is a threshold for reelection. If voter utility falls below the threshold, voters will not reelect the political agent.

OUTCOME (II): Finally, weighing these factors, the central government makes a decision to encroach or not. The performance of the government is a function of its action and the environmental unknowns. Policy outcomes provide some level of satisfaction, or utility, to the voters. Although the voters do not know whether the federal government encroached or not, to facilitate analysis, we index voter utility according to the government's action. When the center does not encroach, voter utility, Π_d , is affected only by the center's competence and the random effect of the environment. As discussed above, when the center encroaches, its action does not translate as neatly into a degree of voter satisfaction with the center. Voter satisfaction when the center encroaches, Π_e is determined by three parameters: first, the center's competence is

⁸ The voters base their decision on a retrospective evaluation of the incumbent's performance. Morris P. Fiorina, *Retrospective Voting in American National Elections* (Yale, 1981). The threshold is held in common, for example, it may be a collective economic judgment, akin to the findings of Kinder & Kiewiet, based upon a common knowledge data point, such as the growth rate in Fair's models. David R. Kinder and D. Roderick Kiewiet, *Economic Discontent and Political Behavior: The Role of Grievances and Collective Judgments in Congressional Voting*, 23(3) *Amer J Polit Sci* 495 (1979); Ray C. Fair, *The Effect of Economic Events on Votes for President*, 60 *Rev Econ & Stat* 159 (1978). Alternatively, in a heterogeneous population, one may view it as the median voter's preference. The voters' threshold is similar to Cox's exogenous variable of public expectation, and differs from game-theoretic models of retrospective voting, where voters compare campaign promises with outcomes during the incumbent's tenure. Gary W. Cox, *Making Votes Count: Strategic Coordination in the World's Electoral System* (Cambridge Univ, 1997); David Austen-Smith and Jeffrey Banks, *Electoral Accountability and Incumbency* in Peter Ordershook, ed, *Models of Strategic Choice in Politics* (Univ Michigan, 1989). In this model, voters evaluate the outcome against their expectations, and know whether or not a politician participated in policy in that area, but not whether or not the policy actually affected the outcome.

It is perfectly intuitive to think that the voters might have two different thresholds depending upon the center's activity. Such amendment to the model would generate further comparative statics but not affect the current results. For parsimony, the model has a single threshold.

modified by the handicap parameter, and second, the uncertainty surrounding the credit the center derives from its action is a function of the policy domain's natural random variance and the region's simultaneous activities, including its attempts to claim credit.

Voter utility follows the schedule:

$$\Pi_d = C + \omega_d, \omega_d \sim U[-\delta, \delta]$$

when the center does not encroach, and

$$\Pi_e = \theta C + \omega_e, \omega_e \sim U[-\varepsilon\rho, \varepsilon\rho] \text{ and } \theta \in (0, 1)$$

when it does. Recall that θ is the central government's handicap when it encroaches on the regional government's policy domain.

III. RESULTS

Ideally, the central government would compare the expected utility of each alternative action and choose the action with the higher expected utility to the voters. In this model, the central government would compare the expected values of encroaching and restraint. By assumption, the central government is better able to accomplish its own projects than those in the regional jurisdiction (recall $\theta < 1$). So, given the fact that the expected value of not encroaching is higher, why would a benevolent, public-serving central government ever encroach? That is, why would the electoral mechanism within the political safeguards of federalism fail?

We must bear in mind that politicians are not rewarded for maximizing the voters' total utility, but instead, by meeting a threshold for reelection. They don't need to be perfect, merely good enough. Just as a gambler puts down another bet on the chance that

he might win big, a politician might pursue a risky policy to maximize his reelection chances.

When making decisions under uncertainty with the objective of surpassing a threshold, the range of possible outcomes matters as much as expected value. Weitzman contained the following elegant insight: when hoping to generate the highest possible outcome, one might accept a lower average payoff if it includes higher variance.⁹ Politically, the goal is often to avoid the possibility of the worst occurring, so in political science we should extend his insight to include cases where one might sacrifice average expectation for lower variance, if it improves the downside outcome. I employ and extend this logic to derive conclusions relating the ability of the two governments, voter expectations, and encroachment.

Not all central government agents are equally capable. In this model reelection is determined by an evaluation—a measure of voter satisfaction—that is compared to the voter’s threshold. Some governments are sufficiently capable that they expect to exceed the threshold, without encroaching. For others the expectation is more pessimistic.

Consider the competence of the central government relative to the voters’ threshold. Those of higher type would like to distinguish themselves from the lower types, and the lower would like to disguise their low ability. The results show that both high and low types find it advantageous to encroach to compare themselves to the regional government in their appeal to the voters, but under different conditions. Figures 1 and 2 graph the probability that the center is reelected for each level of ability. In Figure 1, the government does not encroach. It is always reelected if its ability is above

⁹ Martin L. Weitzman, *Optimal Search for the Best Alternative*, 47 *Econometrica* 641 (1979).

$T + \delta$, and never reelected if its ability is below $T - \delta$. For types between $T - \delta$ and $T + \delta$, the probability of reelection increases linearly. At $C = T$, the center has even odds of reelection.

FIGURE 1 ABOUT HERE

In Figure 2, the government encroaches. The internal endpoints change to reflect the different noise term and the center's handicap. Recall that the center is not as capable when it encroaches as when it doesn't; in a sense, it uses its resources less efficiently. Therefore, it has to be more talented than if it did not encroach to enjoy even odds of reelection. (Note that the midpoint, now $\frac{T}{\theta}$, is larger than T .)

FIGURE 2 ABOUT HERE

Figure 3 combines Figures 1 & 2 and considers the case of relatively high policy uncertainty, attributable to the variance in the policy environment, ε , or to the high ability of the regional government, ρ . Figure 3 shows that a low type center (relative to the threshold for reelection) has an incentive to encroach when the outcome in the regional policy domain is more uncertain than the outcome in the central government's own policy domain. Proposition 1 formalizes this graphical intuition.

FIGURE 3 ABOUT HERE

Proposition 1: For large $\varepsilon\rho$, ($\varepsilon\rho$ greater than $T(1-\theta) + \delta\theta$), and $C < C^*$, where

$$C^* = \frac{T(\varepsilon\rho - \delta)}{\varepsilon\rho - \theta\delta} \text{ the center will encroach.}$$

Proof. Consult Figure 3. The probability that the voters' utility is above T (and the center reelected) when the center does not encroach is:

$$(C - T + \delta) \left(\frac{1}{2\delta} \right), \text{ for } C \in [T - \delta, T + \delta]$$

and the probability the voters' utility is above T when the center encroaches is:

$$\left(C - \frac{T + \varepsilon\rho}{\theta} \right) \left(\frac{\theta}{2\varepsilon\rho} \right), \text{ for } C \in \left[\frac{T - \varepsilon\rho}{\theta}, \frac{T + \varepsilon\rho}{\theta} \right].$$

The center will refrain from encroaching when the probability of being reelected with no encroachment is greater than with encroachment. Solving for C^* :

$$(C - T + \delta) \left(\frac{1}{2\delta} \right) \geq \left(C - \frac{T + \varepsilon\rho}{\theta} \right) \left(\frac{\theta}{2\varepsilon\rho} \right),$$

which reduces to:

$$C(\varepsilon\rho - \delta\theta) \geq T(\varepsilon\rho - \delta). \quad (1)$$

Since we are interested in $\varepsilon\rho \geq \delta\theta$, we can rewrite the inequality as:

$$C \geq \frac{T(\varepsilon\rho - \delta)}{\varepsilon\rho - \theta\delta} = C^*.$$

It remains to be shown that $C^* \geq T - \delta$, because for $C \geq T - \delta$, the probability that the center is reelected for not encroaching is 0.

$$\frac{T(\varepsilon\rho - \delta)}{\varepsilon\rho - \delta\theta} \geq T - \delta$$

Simplifying:

$$T\varepsilon\rho - T\delta \geq T\varepsilon\rho - \delta\varepsilon\rho - T\delta\theta + \theta\delta^2$$

$$\varepsilon\rho \geq T(1 - \theta) + \delta\theta,$$

which holds by assumption.

The center may be tempted to encroach when its ability is low enough that the output of its efforts is anticipated to fall short of the reelection threshold. The decision depends upon the comparison of the upside risk: which action, encroaching or not, provides the highest probability of reelection due to the variance in the outcome space? Low type centers are attracted to high variance policy environments. They don't compare the worst cases: they seek to maximize the slim likelihood that their action generates an outcome that exceeds the threshold. But not all centers of low ability will encroach: their ability must be sufficiently low (but not too much so), and the anticipated evaluation must be sufficiently uncertain. For an intuitive graph of the logic, see Figure 4, which represents the problem when ω is distributed normally. While the expected outcome decreases when the center encroaches, the probability that an outcome exceeds the threshold may increase for centers of low ability. The shaded region represents the increased likelihood that a center of low competence is reelected if it encroaches.

FIGURE 4 ABOUT HERE

Proposition 1 characterizes federalism's credit assignment problem: one government may try to profit by the confusion caused by shared jurisdictions. With the reduction of crime or the construction of a highway, voters aren't sure whom to credit for

a positive outcome.¹⁰ When the regional government is talented, the policy outcome is more likely to be pleasing to the voters. All else equal, centers of low ability will be more likely to encroach on regions of high ability, hoping to capture some of the credit for the policy's success. It is a straightforward corollary of the proposition that the more certain the regional policy environment (i.e. ε approaching 0), the more competent the region must be.

Now consider the case when the policy uncertainty is diminished by encroachment, as depicted by Figure 5.

FIGURE 5 ABOUT HERE

Proposition 2: *For low $\varepsilon\rho$, and particularly for $\varepsilon\rho$ less than $T(\theta - 1) + \theta\delta$, and $C > C^*$,*

where $C^ = \frac{T(\varepsilon\rho - \delta)}{\varepsilon\rho - \delta\theta}$, the center will encroach.*

Proof: See Figure 4. The proof is the same as for Prop. 1, up to equation (1). Now, the

size of $\varepsilon\rho$ shrinks. By assumption, $\varepsilon\rho < \delta\theta$, implying that for $C^* \leq \frac{T(\varepsilon\rho - \delta)}{\varepsilon\rho - \delta\theta} = C^*$, not

encroaching has a higher payoff for low center types. It remains to be shown that

$C^* \leq T + \delta$, since for $C^* > T + \delta$ the center has a full probability of being reelected if it

does not encroach. Given $C^* = \frac{T(\varepsilon\rho - \delta)}{\varepsilon\rho - \delta\theta}$,

¹⁰ Of course, consistent with this result, a struggling center may search within its own policy domains, dedicating its effort to the policy with the highest upside potential.

$$\frac{T(\varepsilon\rho - \delta)}{\varepsilon\rho - \delta\theta} \leq T + \delta$$

$$T\varepsilon\rho - T\delta \geq T\varepsilon\rho - \delta\theta T + \delta\varepsilon\rho - \theta\delta^2$$

$$T(\theta - 1) + \delta\theta \geq \varepsilon\rho$$

which holds by assumption.

While it is intuitive to consider the advantages to a struggling national leader of associating himself with a successful state government or gambling on risky policies, Proposition 2 argues the opposite: A strong national leader will get involved in regional policies that have not been successful when there is less variance in outcome, flipping Weitzman's insight on its head. If you are likely to be reelected, don't take risks. Encroachment may be less risky. In Proposition 2, the interval of potential policy outcomes is smaller when the center encroaches. The size of this interval is a function both of the uncertainty of the policy environment and of the talent of the regional government. When ε is small relative to δ , the low type center has no gambling payoff from playing entering the region's policy sphere. When ρ is small—the regional government is relatively untalented—a low type center has no incentive to encroach, as there is no credit to claim.

However, the higher type center will find it profitable to encroach to minimize the (already small) likelihood that the voter satisfaction with their effort falls below the threshold. The policy domain when the center encroaches may just have a more certain outcome associated with it, or the reduced interval may be attributed to the low ability of the regional government. When the regional government is of low ability, the voters are aware of the region's weakness (or may be more easily convinced of it by the campaigning center), and may reward the center for regional successes. Under these

conditions, when the region cannot handle its responsibilities, center encroachment is serendipitous for the voters. Again, there would be a tradeoff between ε and ρ : the less certain the policy outcome from encroachment, the lower the region's ability must be for encroachment to be attractive to the center. Figure 6 presents the normal distribution case. Again, note that while the expected outcome decreases when the center encroaches, the probability that an outcome falls short of the threshold may decrease for centers of high ability. The shaded area represents the reduction in likelihood that a central government of high competence fails to meet the voters' threshold for reelection if it encroaches.

FIGURE 6 ABOUT HERE

In federalism, a balanced division of powers is maintained when the center respects the region's policy jurisdictions. The next two propositions reveal circumstances that deter encroachment. In Proposition 3, no center encroaches when the policy uncertainty from encroachment is moderate. In Proposition 4, no moderately-abled center encroaches, regardless of the policy risk.

Proposition 3: *When the policy uncertainty from encroachment is moderate, (when $\varepsilon\rho \in (\varepsilon\rho_L, \varepsilon\rho_H)$, where $\varepsilon\rho_L = T(\theta - 1) + \delta\theta$ and $\varepsilon\rho_H = T(1 - \theta) + \delta\theta$, no type of center will encroach.*

Proof: The proof is in parts. Consider two cases: Case A, when $\varepsilon\rho \in [\delta\theta, \delta\theta + T(1 - \theta))$, and Case B, when $\varepsilon\rho \in (\delta\theta - T(\theta - 1), \delta\theta]$.

If A, then the probability of reelection given no encroachment is greater than the probability with encroachment by:

$$\varepsilon\rho \leq \delta\theta + T(1 - \theta)$$

which implies

$$\frac{T - \varepsilon\rho}{\theta} \geq T - \delta.$$

For $C < T - \delta$, the probability of reelection is 0 when the center does not encroach.

Thereafter, the probability increases with slope $\frac{1}{2\delta}$ until $C = T + \delta$. For $C > T + \delta$, the probability of reelection is 1.

With encroachment, for $C < \frac{(T - \varepsilon\rho)}{\theta}$, the probability of reelection is 0. For $C > \frac{(T - \varepsilon\rho)}{\theta}$, the probability increases with slope $\frac{\theta}{2\varepsilon\rho}$, to $C = \frac{T + \varepsilon\rho}{\theta}$, when it equals 1.

Since $T - \delta < \frac{T - \varepsilon\rho}{\theta}$ and $\frac{1}{2\delta} > \frac{\theta}{2\varepsilon\rho}$, it follows that the probability of reelection is greater with no encroachment than from encroachment.

Case B is proven with a similar argument.

Proposition 3 describes the optimal action by the center when the policy outcome interval associated with encroachment is of moderate size. The center never encroaches, regardless of its competence. In contrast, Proposition 4 captures the notion that moderately-talented centers have no incentive to encroach.

Proposition 4: *Centers of moderate competence, $C \in \left(T, \frac{T}{\theta}\right]$, do not encroach.*

Proof: Follows from Propositions 1 and 2.

Figure 7 illustrates all propositions. Proposition 1 established the claim that centers of low ability would encroach to increase their probability of reelection as long as the policy uncertainty was high. For high levels of encroachment policy uncertainty, where $\varepsilon\rho$ exceeds $\varepsilon\rho_H$, the darkly shaded area in the lower right of Figure 7 indicates the levels of central government competence that would be tempted to encroach given the level of regional competence. This area is bounded below by $T - \delta$ and above by C^* , which extends asymptotically toward T . In Proposition 2, it is the central government of high ability that is tempted to encroach to minimize its downside risk. In Figure 7, Proposition 2 is illustrated by the darkly shaded region in the upper left of the drawing. For low levels of encroachment policy uncertainty (less than $\varepsilon\rho_L$), the solid line denotes the critical level of central government competence, C^* , and the darkly shaded triangle above this line indicates the types of central agents that would maximize their probability of reelection by encroaching when the outcome uncertainty from encroachment is low.

While Propositions 1 and 2 establish conditions for encroachment, Propositions 3 and 4 lay out conditions for no encroachment: these federalism safety zones are highlighted with the lightly shaded cross in Figure 7. Proposition 3 established an interval of encroachment policy uncertainty where no center would ever encroach and Proposition 4 posits a range of central government types—those with marginally

satisfactory abilities—that would not encroach. The lightly-shaded cross in Figure 7 represents these regions. Centers of moderately satisfactory ability ($C \in [T, T/\theta]$) will never encroach for electoral reasons. And regional policy environments with moderately uncertain outcomes will not attract encroachment.

FIGURE 7 ABOUT HERE

Several comparative statics may be derived from Propositions 3 and 4.

Corollary 1: *As T , the performance threshold for reelection, increases, fewer centers will encroach.*

Proof: The horizontal interval of no encroachment is $\frac{T}{\theta} - T$. The vertical range of no encroachment, $\varepsilon\rho_H - \varepsilon\rho_L$, is equivalent to $[T(1 - \theta) + \delta\theta] - [T(\theta - 1) - \delta\theta]$, which simplifies to $2T(1 - \theta)$. As θ decreases or T increases, these intervals grow larger.

Increasing the threshold increases the range of moderate uncertainty in the outcome from encroachment, and in this range, no center has an incentive to encroach. The more voters expect from their politicians, the less they will encroach.

Corollary 2: *As θ , the center's ability to perform the region's job, decreases, fewer centers encroach.*

Proof: See proof for Corollary 1.

Corollary 2 provides an intuitive comparative static: as the center's handicap grows greater it will be less eager to encroach upon the regional governments. Influences on the handicap measure include the possibility that the jurisdictions are more closely policed. Electoral or political enforcement are potential sources of supervision; another is the threat of judicial review.

Corollary 3: *Centers of low ability will be less likely to encroach as the regional government becomes more competent (as ρ increases). However, high ability centers may become more likely to encroach.*

Proof: Follows from Propositions 1 and 2.

Corollary 3 demonstrates a condition for encroachment: in an echo of Madison, when the two levels of government have distinct abilities, where one is talented in a policy domain and the other is not, encroachment may be attractive to the center. When the center encroaches, the credit it receives for a policy is confounded by whatever actions the regional government is taking in that same policy area. On the positive side, the center may be able to claim credit for all of what the region does in addition to its own efforts, but it also risks losing credit for its contribution to the outcome because the region is simultaneously claiming credit. The degree of credit to be reaped, or lost, is

correlated with the region's competence; for notational convenience it is simply equated to ρ .

The empirical implications of this theory will depend upon the functional specification of $\omega_e = f(\varepsilon, \rho)$. Throughout the formal text, I have assumed that the uncertainty is the product of ε and ρ , but the relationship may take any number of forms, including the sum of the elements, their product, or the minimum or maximum. In general, an additive functional form will maximize the predicted frequency of encroachment by low type centers, while a multiplicative one will minimize it. The opposite effect occurs with high type centers, since they are less likely to encroach as the uncertainty from encroachment increases.

When ω_e is determined by either the minimum or maximum of the parameters ε or ρ , the effect on frequency is again conditional on the type of center. If only the maximum of the two components matters, we'd expect a higher frequency of encroachment by low ability centers (and less by high types), because if either parameter is of high value, it is sufficient to trigger the encroachment of low competence centers. If the uncertainty associated with encroachment is determined by the minimum of the two parameters, then both parameters must be high in order to maximize the uncertainty and increase the frequency of encroachment by low type centers. Again, the effect is reversed for high type centers.

IV. IMPLICATIONS FOR POLITICAL SAFEGUARDS

Voters judge a government's actions by its performance, by its return to them. As long as the division of authority between the federal and state governments is at least

approximately efficient, violations of the boundaries will show up as governmental underperformance. In this paper we see that there are conditions that would cause the electorate to fail to patrol federalism's boundaries—even to be counterproductive. The results call into question the adequacy of political remedies for federal opportunism.

In the corollaries we are best able to evaluate the electoral mechanism within the political safeguards argument. We see that structural and political deterrents are sufficient to prevent encroachment in many cases, particularly when governments are average or risk is moderate. However, when the federal and state governments are differently abled, or the policy risk differs substantially, automatic constraints fail to prevent the secondary effect of the electoral system: in its attempt to surpass the voters' threshold for reelection, a center of low talent will encroach upon a competent region (or risky policy domain), and a talented center will encroach upon a challenged region or low-uncertainty policy realm. It is in these exceptional cases that a federal system would want a back-up plan, a way to correct encroachment *ex post*, when its *ex ante* protections fail.

Furthermore, since both gifted and mediocre politicians encroach, the credit assignment problem creates zones of ambiguity: encroachment is not a signal about a politician's type. If only low-competence centers encroached, then encroachment would signal ability, and sophisticated voters would vote the incumbent out of office. In the examples above, talented leaders and inexperienced opportunists alike profit by creating shared jurisdictions to take advantage of the potential to claim credit for another level's actions. Additionally, both types pursue the same political tact: they attempt to pass the region off as weak in order to claim credit. In trading the mean for variance—in some

cases more, in some cases less—they maximize the probability of generating an outcome that rises above the threshold for reelection.

In sum, electoral politics create incentives for many types of central governments to encroach. We can also derive results of the opposite character: there are central governments that would never encroach, regardless of the credit-claiming potential from encroachment, and there are degrees of policy uncertainty that eliminate all temptation to encroach. These bands of no encroachment may be seen in Figure 7. In this figure we see both the potential and the limits of electoral control to safeguard federalism.

It may be that Madison had his fingers crossed while writing so confidently about the voters' supervisory capacity in *Federalist* 46. To cite these statements by Madison is to ignore the founders' purpose in writing a new constitution. Certainly, the electorate showed its inadequacy when charged with a parallel patrol under the Articles of Confederation, where they were the sole sanction (apart from the non-trivial consequence of union failure) available to keep the states from behaving opportunistically, shirking on their responsibilities to the union. The transformation of the Articles of Confederation to the Constitution introduced a system of safeguards designed to complement the electorate, with fragmentation of the center through internal checks and balances being the primary force proposed. Over time, two other safeguards emerged: the judiciary established its independence, and the party system developed, introducing complexity to the electoral safeguards.

The voters' weakness is clear. First, the federal system incapacitates them. If voters could evaluate their overall welfare, they could link the elections of all candidates, throwing out all incumbents when they are dissatisfied. Unitary systems, like Great

Britain, enjoy this feature. But a federal system is different. Federalism divides up tasks and tools between layers of government, separating the dimensions of examination, the use of the tools, and often even making the elections between layers of government disjoint, injecting a temporal gap as well. One benefit of this fragmentation often touted is that it improves electoral accountability. The election of governor does not imply the reelection of an incumbent president, or vice versa. However, it requires voters to evaluate performances separately at the same time that they are charged with policing jurisdictional boundaries.

Second, even if the voters could appraise their overall welfare and learn to link it back to the division of power, contrary to the optimism of *Federalist 46* they are unlikely to be able to develop meaningful sentiments about the constitutional allocation of authority, nor can they sanction violations precisely. More promising is the development of the integrated party system,¹¹ which when properly structured may overcome the deficits of pure electoral control by supplementing the voters' monitoring and sanctioning capacities. This paper shows that there are broad areas where political/electoral control works well. However, with the party system as safeguard the main flaw remains: the safeguard is attuned to electoral gain, the same motivator of federal encroachment. Despite their complexity, party systems at their root depend upon electoral victory, and as Figure 7 shows, the coverage of any safeguard that relies on electoral incentives is incomplete.

The circumstantial failure of political safeguards highlights an advantage of a redundant, independent safeguard, and suggests why we might welcome judicial

¹¹ Filippov, Ordershook, and Shvetsova, *Designing Federalism* (cited in note 3).

involvement the when electoral accountability hits its limits. Freed from direct electoral fetters, the court may not make the same errors prone to electoral or political safeguards. One obvious prescription based upon these results is the need to protect the independence of the judiciary: if the court is beholden to the federal government, it is unable to patrol the federal government's actions, and therefore is an incompetent insurance against the failures of political safeguards.

As evaluator of governmental action the judiciary has a second advantage over political safeguards: it can be effective in narrow contexts. A safeguard that relies ultimately on electoral approval or rejection over a broad slate of activities is too crude to hope to manage efficiently a multi-dimensional boundary. But judicial disputes are intrinsically fine-grained. Working with complaints of one party against another over a defined injury, only the court's pronouncements of principle transform the suit from idiosyncrasy to a standard with broad application. Unlike the electorate who must accept or reject the whole portfolio of governmental actions, or the political party system, which may make more specific denunciations of action, but does so out of a desire to succeed electorally, the judiciary can make marginal adjustments to the division of authority, or prevent them. The introduction of an alternative, independent safeguard with the ability to "work around the edges" presents an opportunity to improve the overall efficiency of the union.

At a minimum, the potential for judicial enforcement of federal-state legislative boundaries is a redundant handicap on the federal government's decision to encroach. When the counterincentives provided by political safeguards fail to prevent encroachment, judicial intervention can step in to minimize the damage done by

encroachment. Such intervention can only be successful if the judiciary is sufficiently independent of federal influence, and if the judiciary develops doctrine that allows for some natural shift in jurisdictional boundaries while preventing electorally-motivated but inefficient encroachment.

V. CONCLUSION

A healthy federation does not maintain static boundaries dividing authority between levels of government but instead adapts the boundaries in response to new technologies and changing societal conceptions. Adaptation is important; it is what makes federalism robust. At the same time, not all change to the division of authority is good. Sometimes the boundaries are manipulated opportunistically. To maintain a robust federation, a safeguard must distinguish between beneficial change and opportunistic transgressions.

Political safeguards are valuable but not infallible; not all politically-supported adjustments are good for federal efficiency. In many cases the institutional structure, party politics, and the electoral system may be sufficient to police intergovernmental jurisdictional boundaries, but this article shows that exceptions will occur, even when the system functions as designed. The formal model in this paper stacks the deck *against* encroachment, and yet finds that encroachment will occur, not for partisan reasons, not for efficiency reasons, but because of electoral incentives. The very institution intended to suppress jurisdictional drift in the political safeguards theory has a secondary, opposite effect: it motivates disrespect for constitutional limitations when encroachment alters the uncertainty in voters' electoral evaluations. Under conditions derived here, the secondary effect will dominate, and encroachment will occur. Electoral correction is sufficient for

average situations, but prone to error in the extremes of government competence and the variance in policy outcomes. The likelihood of encroachment varies with voter expectations (encroachment occurs less frequently when expectations are higher) and the imposition of obstacles to handicap the center's performance in the region's jurisdiction. However, encroachment cannot be fully eliminated.

The key is the problem of credit assignment. No one, especially not the voters, can trace consequence back to cause perfectly. To evaluate the performance of their representative, voters examine policy, platform, legislation, implementation, and reactions. When jurisdictions intersect, multiple representatives often claim credit for good policy outcomes. In a federal system, federal representatives can encroach on states' authorities in order to create a credit assignment problem, where voters are unsure whom among their elected representatives deserves re-election.

Therefore, rather than rely upon a single safeguard, an additional one may complement the electoral guard, as an auxiliary protection, to use Madison's language from Federalist 51. It is in this capacity that judicial intervention is most useful. The court helps to balance the democratic tension between majority rule and minority rights; by avoiding the pitfalls of short-term electoral gain, it may improve federalism as well. Judicial patrol of the division of authority can be a beneficial complement to political safeguards. Politicians not only toot their own horn, but (to mix a metaphor) may try to steal the thunder of others. A deed well done might be rewarded, but only if your own name is attached to it. Voters do not re-elect based upon the ability of a politician to dish out praise. Uncontrolled intergovernmental competition, a lurid prospect for any federation hoping for efficiency and longevity, can be motivated by nothing more sinister

than jostling for limelight. The judiciary, when freed from political influence, may offer a remedy.¹²

¹² Other references for this paper include Alexander Hamilton, James Madison, and John Jay, *The Federalist Papers* (J.M. Dent, 1992[1911]); James Madison, *Journal of the Constitutional Convention*, E.H. Scott, ed (Scott, Foresman, 1893); James Madison, *The Vices of the Political System of the United States* in Robert Rutland, et al, eds, *The Papers of James Madison*, vol 9 (Univ Pr Virginia, 1975); Paul Peterson, *The Price of Federalism* (Brookings, 1995).

Figure 1:
The Probability of Reelection by the Center's type, when the Center does not encroach.

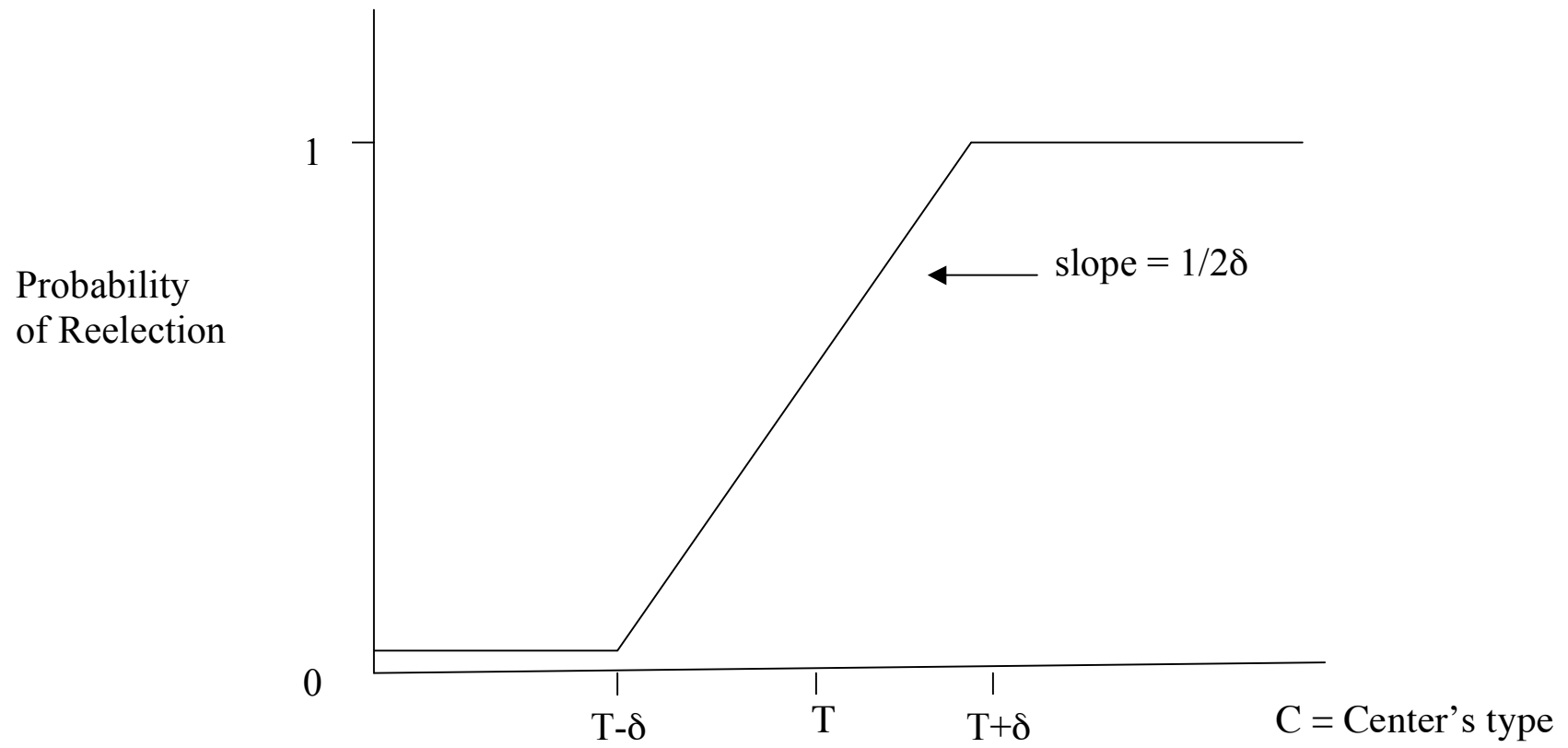


Figure 2: The Probability of Reelection by the Center's type, when the Center encroaches

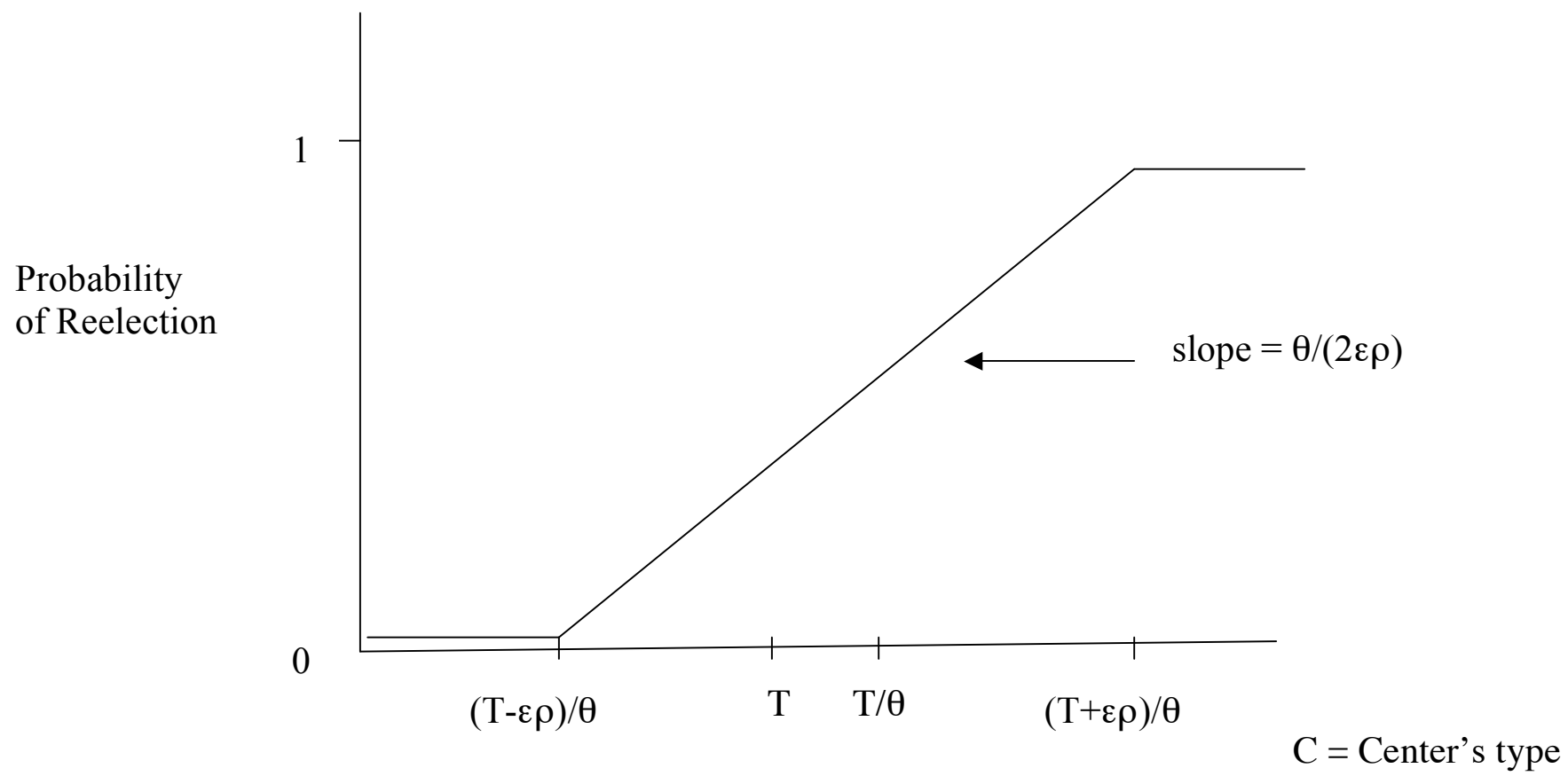


Figure 3: The probability of reelection by the Center's type, when the Center encroaches and when it doesn't, for high $\varepsilon\rho$. Central governments with ability in the interval $[(T-\varepsilon\rho)/\theta, C^*]$ will encroach.

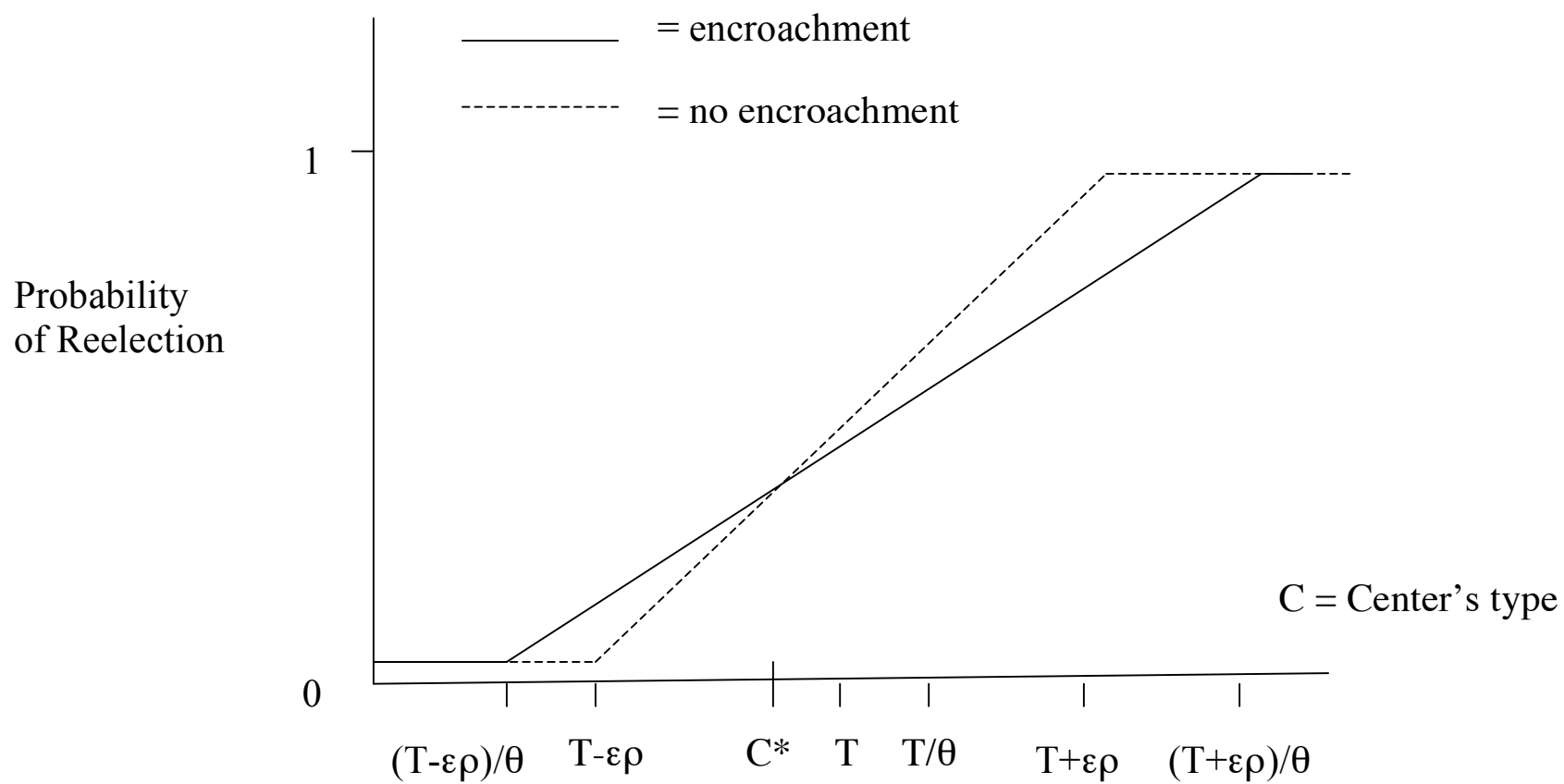


Figure 4: Proposition 1 illustrated when the uncertainty is distributed normally. While the expected outcome decreases when the center encroaches, the probability that an outcome exceeds the threshold may increase for centers of low ability. The shaded area represents the gain in likelihood of reelection if a center of low competence encroaches.

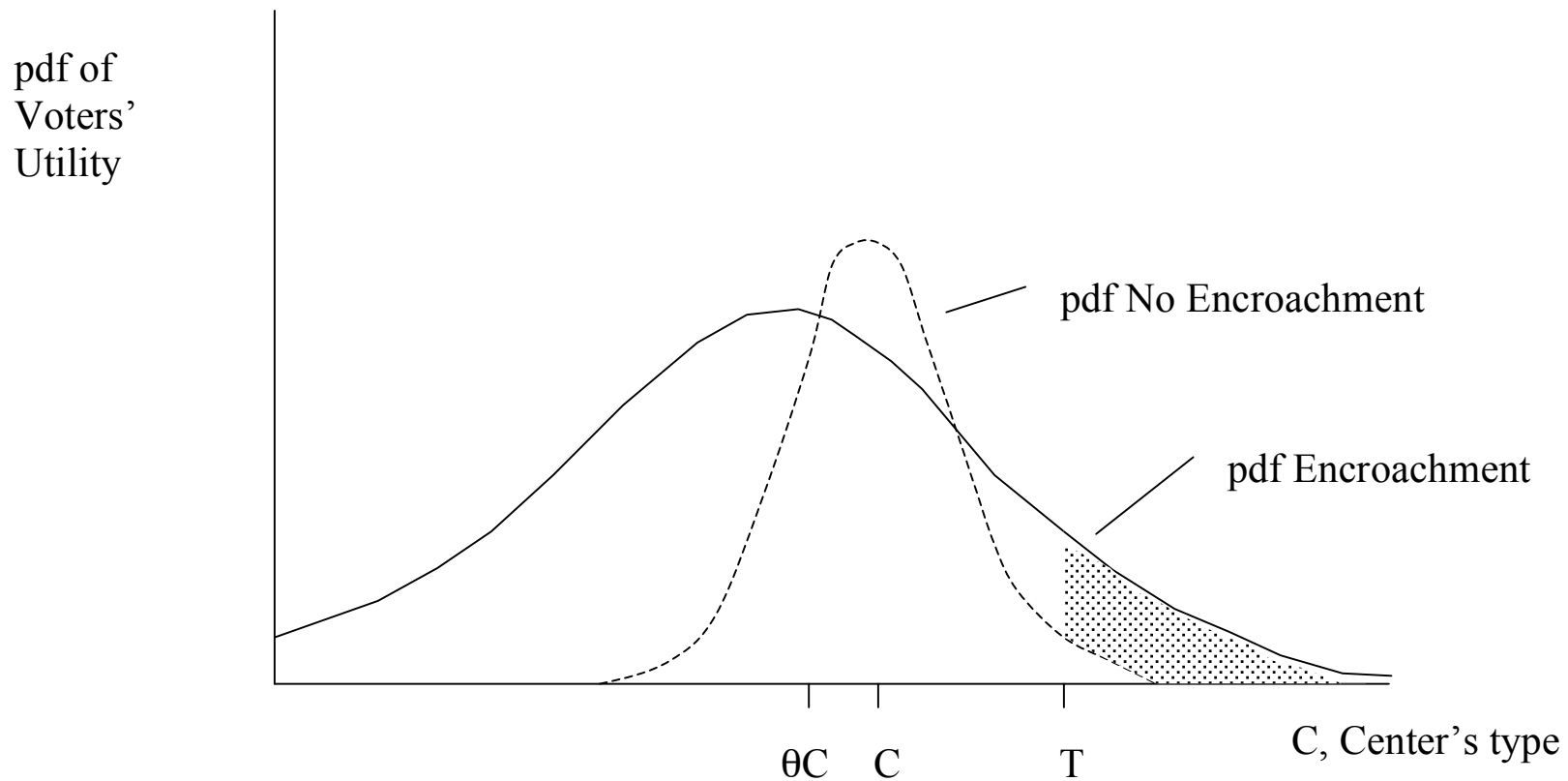


Figure 5: Probability of reelection by the Center's type, when the Center encroaches, and when it doesn't, for low $\epsilon\rho$.

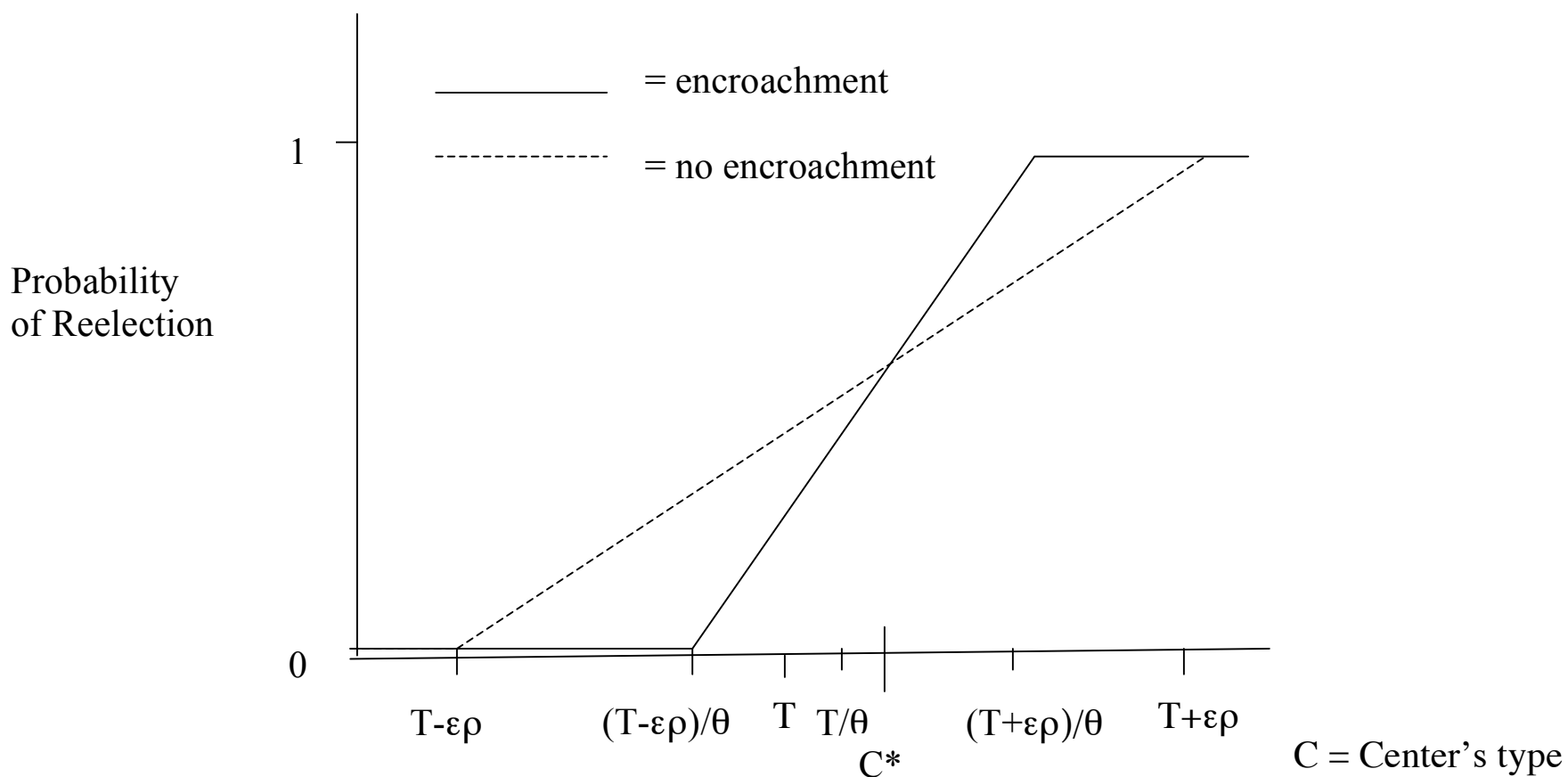
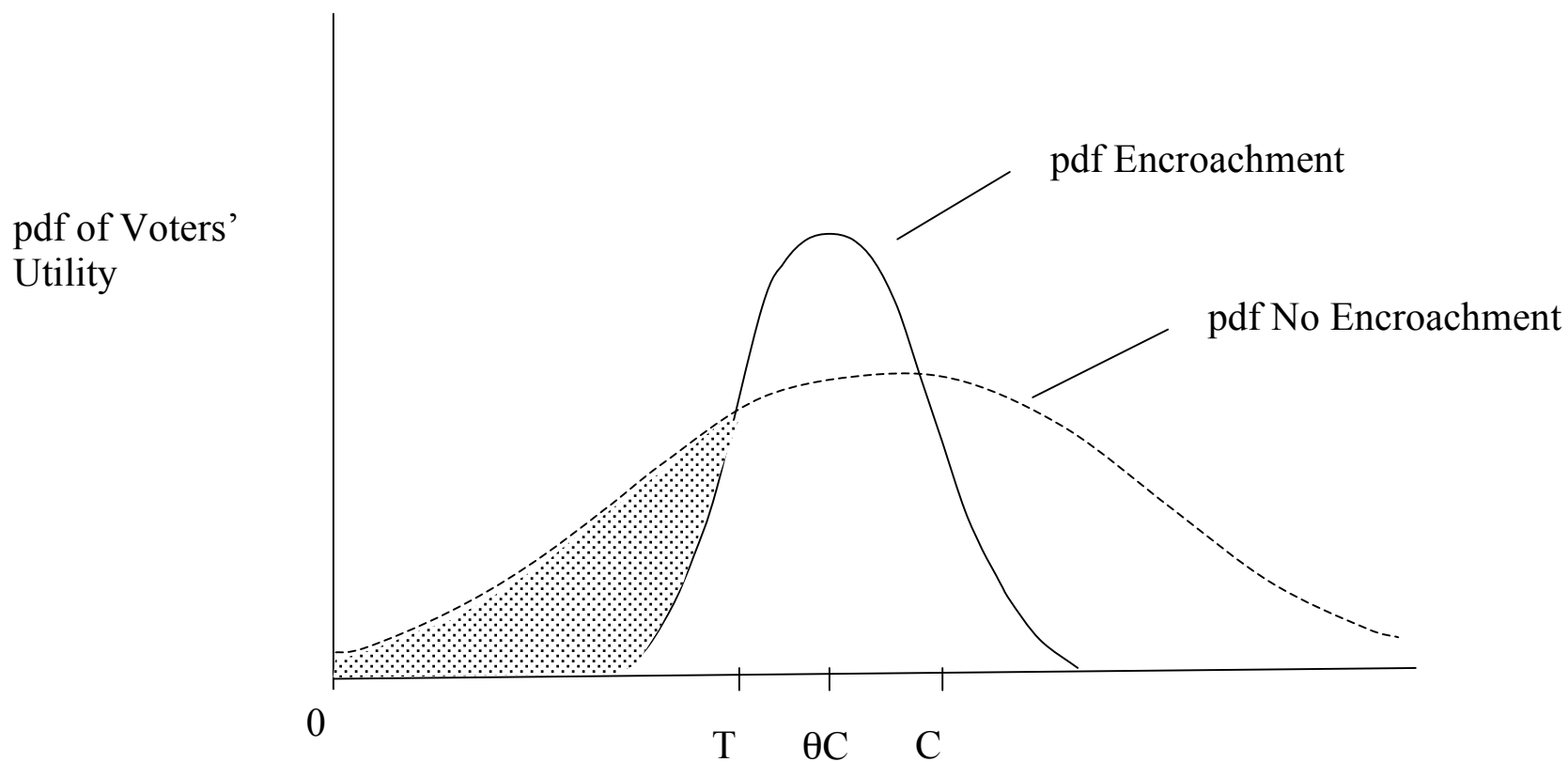


Figure 6: Proposition 2 illustrated when the uncertainty is distributed normally. While the expected outcome decreases when the center encroaches, the probability that an outcome falls short of the threshold may decrease for centers of high ability. The shaded area represents the reduction in likelihood that a central government of high competence fails to meet the voters' threshold for reelection if it encroaches.



C = Center's type

Figure 7: The relationship between C^* and $\varepsilon\rho$. The solid line indicates C^* at every level of uncertainty associated with encroachment, $\varepsilon\rho$. The darkly shaded regions indicate levels of central government ability that encroach for a given $\varepsilon\rho$. In the lightly shaded areas, no encroachment occurs.

