

The Distortion Gap: Policymaking under Federalism and Interest Group Capture

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Which should be preferred in a federal system, state- or national-level policymaking? Though theory suggests that more voters are satisfied by local control, we identify new conditions under which national policymaking is preferred based solely on the distorting influence of interest groups. Even when interest groups capture state policymaking at the same rate as states' national representatives, a "distortion gap" exists between the two regimes. We find that national policymaking provides more aggregate welfare when voters widely disagree with moderately prevalent strong interest groups, refining Madison's prescription for national policymaking to counter local factions. We show that other justifications for national policymaking (such as avoiding spillovers and overcoming interest groups' easier capture of state than national politics) are not necessary to prefer national policies.

Under what circumstances are citizen preferences better satisfied by national rather than state policymaking? At first glance, local preferences will be best met by local policymaking, unless national policy can moderate an interstate "race-to-the-bottom," address transboundary concerns, or ensure efficient regulation of industries of national scope. Absent these circumstances, local policymaking should generate outcomes more closely aligned with the preferences of voters than a one-size-fits-all national policy (Oates 1972). So axiomatic, this statement has been described as "almost trivially obvious" (Oates 1999, 1122).

Here, we show that "interest group distortion"—the tendency of institutions to adopt policies contrary to voter preferences, but preferred by powerful interest groups—provides an additional rationale for national policymaking. Beginning with James Madison in *The Federalist Papers* ([1787] 1888), many authors have argued that a national government mitigates the harmful influence of localized "factions" who push for laws "adversed to the...aggregate interests of the

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community” (52). Yet these authors typically assume that national policymaking reduces interest group distortion only because interest group capture is worse at the state level than at the national level. We show that this assumption is not required for interest group distortion to provide an additional rationale for national-level policymaking, even when transboundary and uniformity concerns are absent.

Our core question lies at the heart of theories of federalism. Modern scholars tend to agree that state-level policymaking has an inherent advantage over national-level because devolution of power permits states to enact policies that are better tailored to local preferences. Recent articles examine the interplay of federalism and interest-group distortion identified by Madison in the context of the classic public choice work of Mancur Olson (1965).

Olson showed that discrepancies in relative political power can lead to policy outcomes preferred by concentrated minority interests even when the majority of voters oppose them. Some defenders of national policymaking assert that local governments are more susceptible to Olson’s “public choice pathologies” and that national legislation is thus more likely to avoid capture by powerful, distortive interest groups. But others question whether state institutions really are more susceptible to capture by interest group influence. Revesz (2001), for example, argues that there is no empirical basis for believing that under-regulation due to interest group influence is more prevalent at either level, and notes that interest groups may actually be more successful in distorting federal policymaking than state policymaking.

Both sides of this debate assume that interest group distortion informs the national-versus-state question only if interest groups are better able to capture policymaking at either the national or state level. In contrast to these authors, we show that interest group distortion sometimes justifies national-level policymaking even if interest groups are equally influential at the state and federal level. Even where interest groups are equally able to capture states’ legislatures and their federal representatives, the amount of policy distortion can vary between national and state policymaking—a phenomenon we term the “distortion gap.”

Our results support Madison’s claim that a national government can mitigate the harmful influence of factions, but without relying on an assumption that factions are more distortive at the local level. Instead, we depart from Madison by showing that whether national policymaking can prevent distortion by “factions” (i.e., interest groups) depends on the degree to which median voters disagree with strong interest groups. Our model identifies the conditions under which national policymaking better satisfies aggregate interests.

Our next section motivates our argument and summarizes our model in general terms. Thereafter, we relate our work to others’ assertions and findings, focusing on previous models of welfare in federal systems and of interest group behavior and

influence. The subsequent section develops our model in more detail, highlighting how preference conflict and interest group prevalence can determine the preferred locus of policymaking. Here we describe the high-disagreement, medium-group-prevalence region over which national policymaking maximizes welfare. To close, we identify high-profile policy areas that are likely to fall in this high-disagreement, medium-group-prevalence region, including important areas of environmental, safety, and social welfare policy. Our model provides support for national-level authority in these policy spheres.

Motivating Examples and Definitions

Consider a group of voters organized into subnational polities attempting to maximize their aggregate welfare in a federal system.¹ The fundamental question we seek to answer is, “should policy be made at the national or subnational level, and under what conditions?” A common stylized, default response contends

States should generally set policy, allowing local preferences to dictate outcomes. National policymaking is preferable only if regulatory uniformity fosters economic efficiency or if policies result in spillovers across state boundaries. If subnational units set their own policy, every such unit should be satisfied.

Dissatisfied individuals can then relocate, as society sorts into relatively homogeneous policy communities (Tiebout 1956).

However, this view is incomplete. Our central contribution revolves around demonstrating the following fact:

Interest group capture can distort outcomes and create conditions under which aggregate welfare is maximized by national rather than state policymaking. Most importantly, this result obtains even when interest groups capture state policymaking at the same rate that they capture states’ national representatives.

In our model, voters elect representatives to a national legislature and a state legislature.² Policy in a particular issue area can be set at either the national level or the state level. That is, either (i) the national legislature adopts a single, nationally uniform policy for all states; or (ii) the national legislature takes no action, and each state legislature adopts its own state-specific policy.³ We call the adopted policy *enforced*. For simplicity, we consider only a binary policy choice between two policies, *A* or *B*, in a particular policy arena. Thus, the national legislature may adopt *A* or *B* nationwide, or the national legislature may defer to the state legislatures, which each adopt *A* or *B* for their state.⁴

We say that each state *prefers* a particular policy, either *A* or *B*, based on that state’s median voter’s preference.⁵ For clarity, we assume that the interest group

concerned with the particular policy area prefers *B* in every state. Regardless of the state's preference, the interest group lobbies that state's representatives (both national and state) to support *B*. We consider a state *satisfied* if the locally enforced policy is the state's (median voter) preference, and *unsatisfied* if not.

We define *strong* interest groups as those powerful enough to defeat the state's median voter, should the two disagree. To be clear, a strong interest group may or may not disagree with the median voter. Group strength may come from "inside lobbying," where the group has access directly to legislators, or "outside lobbying," which involves mobilizing a subset of the public (Kollman 1998).⁶ If the group and the median voter do disagree and the interest group's preferred policy is chosen over that of the voters, we describe the outcome as *distortion*. Distortive groups force the adoption of their preferred policy at the expense of the state median voter's preferred policy. Each state's national delegation votes in the national legislature for the policy that the state would adopt under state policymaking.

We focus on two factors. The first is the incongruity of preferences between voters and interest groups across the states. Assuming the interest group prefers policy *B*, high incongruity occurs when the majority of states prefer *A*. The second factor is the prevalence of strong interest groups, by which we mean the fraction of states in which the interest group is sufficiently powerful to capture legislators. We assume that the ability of an interest group to capture a particular state's representatives in the national legislature is the same as its ability to capture that state's state legislature. That is, if the interest group is strong in a particular state, the interest group controls the state legislature's policy choice, and the votes of the state's representatives in the national legislature. We also assume that preference incongruity and interest group strength are independent.⁷

Interest group capture creates a distortion gap—a difference between the proportion of satisfied states under national versus state policymaking—that advantages national policymaking even when strong interest groups are equally prevalent at both levels. Two illustrative examples follow.

Example 1: suppose 90 percent of the states prefer *A*, and no interest groups are able to capture legislators. Under state policymaking, each state will adopt the policy preferred by its median voter, and every state will be satisfied. Under national policymaking, the majority of states will support *A*, so *A* will be adopted and the 10 percent of the states that preferred *B* will be dissatisfied. State policymaking yields 100 percent satisfaction, while national policymaking only yields 90 percent satisfaction. Thus, *state policymaking is preferred*.

Example 2: suppose again that 90 percent of the states prefer *A*, but strong interest groups supporting *B* are in 40 percent of the states. Under state

policymaking, only 60 percent of the *A*-preferring states, but all of the *B* preferring states, will be satisfied. Overall,

$$\underbrace{60\% \times 90\%}_{A \text{ states w/o IG}} + \underbrace{10\%}_{B \text{ states}} = \underbrace{64\%}_{\text{Total Satisfied}}$$

of the states will adopt the policy preferred by their median voter. Under national policymaking, the states whose representatives vote for *A* will still outnumber those voting for *B* 54 percent (0.60×0.90) to 46 percent ($0.40 \times 0.90 + 0.10$). Even though some legislators are captured, *A* will be adopted and the 10 percent of the states whose median voter preferred *B* will be dissatisfied. National policymaking again yields 90 percent satisfaction, while state policymaking yields only 64 percent satisfaction. Thus, unlike in example 1, *national policymaking is preferred*.

As these two examples show, whether state or national policymaking produces greater aggregate satisfaction depends on the degree of preference incongruity between voters and groups, and the prevalence of interest groups able to capture legislators. However, we caution readers from inferring from these examples that more strong groups always militates for national policymaking; we show below that this is not the case, and the relationship is more nuanced. We review related findings in the next section before generalizing the result of these examples in the section thereafter.

Interest Groups and Intergovernmental Policymaking

While our result appears unique in the literature, it accords with some others' findings. Several related lines of empirical and theoretical work motivate us. First, considerable empirical research demonstrates that interest groups, both the direct objects of regulation and others, frequently do affect state policy outcomes.⁸ However, this influence is not uniform across policy areas or groups, and research should consider state-level interest groups' strength, not just their existence (Lowry 1992; Gerber and Teske 2000). Second, other scholars note that the degree of policy preference heterogeneity across states importantly determines which level of government can most efficiently provide goods, and thus which level of government can maximize aggregate welfare (Ellingsen 1998; Volden 2005). Third, as many theorists argue, discrepancies in relative political power may lead to legislative or bureaucratic outcomes that favor concentrated minority interests over diffuse majority ones (Olson 1965). Whether such discrepancies exist, and if so whether they irrevocably damage democracy is the subject of much scholarly debate (Dahl 1956; Schattschneider 1960; Verba, Scholzman, and Brady 1995). Farber and Frickey (1991) and Mitchell and Munger (1991) provide introductory summaries of this debate and related models from political science and economics.

Others describe how interest groups influence policy decisions by all branches of government, particularly decisions by legislatures and administrative agencies.⁹ There is nothing approaching consensus, however. Citing the Olsonian logic, some argue that political power imbalances are worse at the state level than at the national level, to the benefit of business groups (Stewart 1977; Esty 1996).¹⁰ On the other hand, the states have been found to adjust Clean Air Act policies in response to local citizens' interest groups, while the national EPA is not substantially influenced by such group pressure (Wood 1991, 1992). Similarly, Hills (2007) argues that business seeks federal standards and preemption of state laws that are responsive to local public interests.¹¹ Others argue that citizens' groups exert disproportionate and ultimately unpopular power in national policymaking (Adler 1995). Still others see the imbalances between national and state levels as less clear (Revesz 2001; Adelman and Engel 2008). However, these analysts seem to imply that if the imbalance between citizens and private interests is the same at the national and state levels, then the imbalance provides no information about whether national- or state-level policymaking should be preferred.

We disagree, and demonstrate the importance of group power imbalances, even when those imbalances are identical across national and state levels. We consider the level of distortion to be one summary of the state or national interest group population ecology (Gray and Lowery 1996). Specifically, we conceive of state distortion as the net influence on the legislature of the competing lobbying efforts of interest group coalitions (Holyoke 2009).¹² Other authors refer to distortion as the net "skew" or "tilt" of the interest group community (Schlozman and Tierney 1986).

Legislatures can select the policy preferred by their state's median voter, or the policy preferred by a lobbying interest group.¹³ To fix ideas, in the context of an environmental policy choice, if the Sierra Club can lobby a state legislature into passing an antipollution measure that the median voter opposes, we say that policy distortion exists in that state. Similarly, if a manufacturing lobby can prevent a popular antipollution policy from passing, we say that policy distortion exists. Thus, distortion occurs when the interest group disagrees with the median voter and is powerful enough to win. Like Wilson (1980), we view distortion toward business groups and distortion toward citizens groups as two sides of the same coin.

We do not assume that strong groups are more prevalent at either the national or the state level, while other authors' results rely on such an assumption. Instead, we show that a distortion gap exists even in the absence of other policy-specific concerns (see e.g., Inman and Rubinfeld 1996). With equal probability of interest group capture of state policymaking and states' national representatives, the preferred regime is conditional on preference conflict across states and the prevalence of strong groups.

We hope to convey that even constitutionally symmetric states have varied relationships to national policy (Tarlton 1965; Watts 1998). States' median voters may prefer different policies; states may have or lack powerful interest groups in particular policy areas; states' voters may support or oppose a nationally determined policy. We acknowledge the importance of concerns of efficiency, spillover, and undesirable incentives. In particular, we note that even positively valued spillovers can create conditions for preferring national-level policymaking (Besley and Coate 2003). However, we demonstrate that national-level policymaking can be preferred, even when none of these concerns obtains.

Focusing on the choice of the policymaking locus and uncovering a result intuitively similar to Volden (2005), we note that our model is not simply a special case of the other.¹⁴ Our approach is also consistent with continuous choices under "cooperative federalism." Our model informs whether the national government should set a regulatory minimum that states can then strengthen. One could use our finding to argue that a national baseline should be set when strong groups are moderately prevalent and disagree with substantial majorities. Symmetric logic applies when voters prefer a policy ceiling rather than floor.

Several scholars address issues of shared national–state responsibility that we do not. Volden (2005, 337) argues that under some conditions, joint regulatory policy dominates either a pure state- or a national-level regime. Similarly, others have argued that increases in the sharing of policy responsibility across levels of government make notions of mutually exclusive dual federalism obsolete (Beer 1978). We acknowledge the intermixing of national, state, and local jurisdiction that determines American policy, but are motivated by cases where a clear choice must be made.

Others take the important step of introducing electoral and legislative politics into models of goods provision under federalism. Besley and Coate (2003), for example, argue that with minimal spillovers and heterogeneous states, subnational policymaking dominates national policymaking. In particular, they state, "Centralization produces the surplus maximizing public goods levels only when the districts are identical and spillovers are complete" (2625). We demonstrate that, given distortion, centralization can produce better aggregate outcomes for nonidentical districts with no spillovers.

Modeling Welfare under Federalism and Capture

Below we illustrate our central finding: whether national policymaking or state policymaking maximizes aggregate welfare depends on two quantities. First, the preferred regime depends on the degree of incongruity between median voter and interest group preferences across the states—the extent to which median voters disagree with the interest group. Second, the preferred regime depends on the

prevalence of strong interest groups that are able to capture a state's legislature and its representatives in the national legislature.

National-level policymaking occurs by majority rule, where each state's representatives in the national legislature support the policy the state would have adopted under a state-level policymaking regime (regardless of whether distortion exists in that state). Thus, this version of "democratic federalism" (Inman and Rubinfeld 1997) assumes that strong groups are equally prevalent at the national level as at the state level: if a group captures a state's legislature, it likewise captures the state's votes in the national legislature. Strong groups capture the same fraction of states at both levels. Accordingly, we argue that the debate about which level of government is more susceptible to capture misses the key point we demonstrate—even with no difference in capture, a distortion gap exists.

A state or individual could be satisfied in various ways. On the individual level, under state policymaking, a voter's preference may coincide with that of the powerful interest group capable of capturing the legislature. A voter will also be satisfied if there is no strong local interest group and her preference coincides with the state's median voter. Under national policymaking, a voter will be satisfied if her preference coincides with that of the median state's policy dictator. Satisfaction only weakly depends on the preference of her state's policy dictator, since the state will enforce the national policy regardless of local preferences.¹⁵ This crucial fact allows national policymaking to satisfy some voters and states that state policymaking cannot.

We supply a formal derivation of our model in the Appendix. Our primary quantities of interest are the proportions of states satisfied under two regimes—national and state policymaking. We express the proportion of satisfied states as a function of two quantities:

- \bar{P} = the degree of preference conflict, the proportion of states that prefer policy A instead of the interest group's preferred policy B ; $\bar{P} \in [0, 1]$, and
- \bar{S} = the prevalence of strong interest groups, the proportion of all states in which a group is powerful enough to force adoption of policy B ; $\bar{S} \in [0, 1]$.

Under state policymaking, the satisfied states are those where the majority prefers A and A is adopted, or the majority prefers B and B is adopted. Note that if B is adopted, either the majority prefers B (and a strong group may or may not be present) or a strong lobby distorts the state's policy from A to B . We calculate the proportion of satisfied states for every possible ordered pair (\bar{P}, \bar{S}) under state policymaking. For example, no states are satisfied only where all states prefer A , but all states have a group powerful enough to force adoption of B ($\bar{P} = \bar{S} = 1$).

For national policymaking, we assume each state has equal power in selecting the policy. In a majoritarian policymaking institution, the national policy is determined by the median state's outcome, whether that outcome is supported by

the state's median voter, the powerful lobby, or both. Then, if more than half of the states would adopt policy A under state-level policymaking, A will be the national choice, and the proportion of satisfied states will be exactly \bar{P} . Conversely, if fewer than half of the states would adopt policy A under state-level policymaking, then B will be the national choice, and the proportion of satisfied states will be $1 - \bar{P}$.

We calculate the proportion of satisfied states for every possible ordered pair (\bar{P}, \bar{S}) , and then calculate the distortion gap at every point. The distortion gap is the welfare difference between regimes: the proportion of those satisfied under national policymaking, minus the proportion of those satisfied under state-level policymaking. Where the difference is positive, national policymaking is preferred; where the difference is negative, state policymaking is preferred. A difference equal to zero signifies that the same proportion of states will be satisfied under national as under state policymaking. We now consider two implications of the model, proofs of which are provided in the Appendix.

Implication 1 (No Strong Groups \Rightarrow State Policymaking Preferred.) *If there are no states with strong groups, then there is no distortion and state-level policymaking is preferred.*

Implication 1 offers one condition under which Oates's near-axiom holds: local policymaking is, in fact, preferred when distortion is absent. Implication 2 sketches the conditions under which national policymaking is preferred, even when strong groups are equally prevalent in the states as among state representatives to the national legislature.

Implication 2 (High Preference Conflict + Moderate Interest Group Strength \Rightarrow National Policy Preferred.) *When a high proportion of median voters disagree with moderately prevalent strong interest groups, national policymaking is preferred.*

Figure 1 contextualizes these two implications, and displays every combination of group prevalence and polity preference heterogeneity. Only in the gray region of figure 1 is national policymaking preferred to state policymaking. Everywhere else, state-level policymaking is preferred. The two motivating example calculations from our second section are displayed as dots in figure 1. The figure demonstrates that national policymaking should be preferred when both (i) strong groups influence some, but not a majority of states, $\bar{S} \in (0, .5)$, and (ii) most median voters disagree with the interest group and prefer A , $\bar{P} \in (0.75, 1)$.

The existence and shape of the "national policymaking preferred" gray region has been overlooked in the literature on welfare in federal systems. Previous research assumes that interest group distortion can only impact the preferred locus of policymaking if lobbies capture legislators differentially at the state and national levels. Future work should avoid this false assumption, and seek to

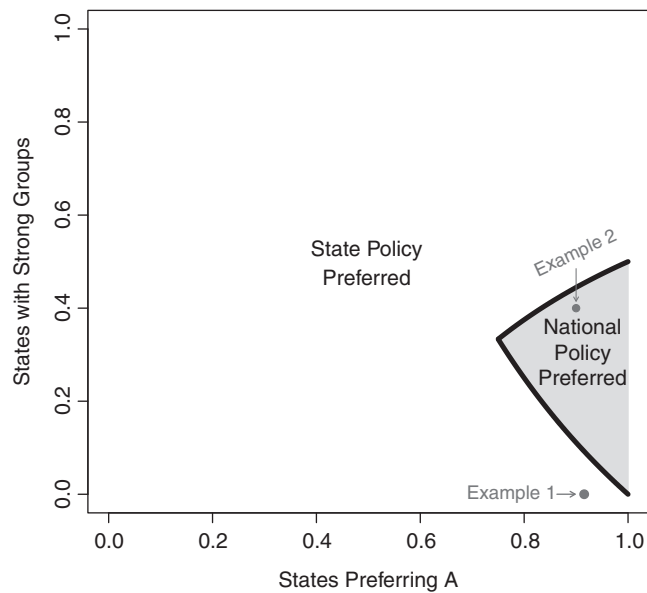


Figure 1 Aggregate welfare under national vs. state regimes.

Notes: National policymaking is preferred under high preference conflict and moderately prevalent strong interest groups (gray region); elsewhere, state policymaking is preferred; black curves show indifference. See Supplementary Appendix figure 2 for surface plot and Supplementary Appendix figure 3 for contour plot. Example calculations from second section are labeled.

understand the implications of the joint distribution of strong groups and preferences for particular policy areas.

In arguing for national policymaking in *Federalist 10*, Madison ([1787] 1888) posited that “The influence of factious leaders may kindle a flame within their particular States, but will be unable to spread a general conflagration through the other States.” (59). When Madison is correct and strong groups are only moderately prevalent, our findings concur with Madison’s prescription: national policymaking is preferred. However, we find that this is only true as long as most state median voters disagree with the interest groups. When Madison’s assertion is wrong and groups are able to exert power in many states, or if less than a large majority of states prefer *A*, his conclusion fails too. As groups influence a majority of states (as in the upper right corner of figure 1), national policymaking fails to produce more satisfaction than state policymaking. Thus, we explicate here the special conditions under which the Madisonian prescription holds.

Figure 1 makes clear the nonlinear relationship between the prevalence of strong groups and the preferred regime. In particular, note that for certain

levels of preference conflict (such as $\bar{P} = 0.9$), increasing the prevalence of strong groups from 0 to 0.4 (as from example 1 to 2) changes the preferred regime from state to national policymaking. However, increasing the prevalence by the same amount again, from 0.4 to 0.8, does the opposite—national policymaking becomes *less* attractive than state policymaking, rather than increasingly attractive.

Discussion

Responses to Arizona's recent controversial immigration law indicate that Americans prefer national policymaking in some arenas, even when they support certain state policies. Despite aggregate support for the Arizona law (though views on its appropriateness vary widely across partisan identifications), majorities of Republican, Democratic, and independent survey respondents agreed that "laws regarding illegal immigration should be determined" by the national, rather than the state governments (Montopoli 2010). Indeed, this is consistent with recent work demonstrating that citizen beliefs about which level of government should act in a policy area correspond to which level currently takes action, and also correspond to beliefs about the relative economic capacities of the levels (Schneider, Jacoby, and Lewis 2011).

We hope our new theoretical finding inspires innovative empirical work, with research design suggested by figure 1. Specifically, if policymaking authority is rationally assigned, we should expect the distortion gap to provide information about the actual locus of decision making. Policy areas with high consensus across states, but strongly opposed interests in a minority of states, should be set at the national level. Other pairings of conflict and interest concentration should imply state-level policymaking authority. At the border of this political space, authority should be less clear, or mixed on aggregate. We now highlight a few predicted national policymaking policy areas—those which are reported to have very high public support and can be expected to attract moderately prevalent strong interest groups. Describing policies that are popular at the aggregate national level, we attempt simply to offer future research guidance in study design. We recognize limitations of these survey data, including that high aggregate support differs from high support among median voters located in states, and that particular survey responses depend in part on survey context, question wording, and the myriad other decisions survey researchers must make.

Historically, in citizen pensions we might expect national policymaking to outperform state policymaking. In the first half of the twentieth century, public pensions from Social Security and its precursors were actively debated in American politics. Public support for insurance-modeled old age pensions garnered 96

and 97 percent support in two 1943–44 National Opinion Research Center polls, for example (Schiltz 1970, 36). At the same time, a prominent interest group with over two million members widely distributed across the country (but most concentrated and powerful in western states), the Townsend Plan, fought against the insurance model and for flat-rate redistributive pensions (Amenta 2006).

More recently, nearly 90 percent of survey respondents support higher food safety standards (Pew Charitable Trusts 2009), 93 percent support laws requiring labeling of genetically modified foods (Langer 2009), 90 percent favor laws banning text messaging by drivers (CBS 2009), 92 percent believe solar energy development and usage to be important (Reuters 2009), 90 percent favor small business tax breaks for employee health coverage (Brohinsky and Schulmann 2009), and 92 percent favor requiring auto makers to make more energy efficient cars (Roberts 2007).

These poll results suggest deep consensus on a wide array of issues, each of which could be expected to generate strong, but only moderately prevalent opposition from organized interests. For example, taking these cases in order, agricultural interests are strong in some, but not all, regions of the country. Similarly for phone makers, utilities, large manufacturers, and automakers. In each case, the policy area may fall in our national-policymaking region, and a compelling potential test of our model exists. Excepting text message bans, each of these policies is already subject to national authority. Moreover, recent national laws have touched on all of these, except labeling genetically modified food (where there has been recent pressure for the FDA to act). We note that, in the absence of focusing events, these tend to be low-salience policymaking areas—exactly those in which we might expect interest groups to be able to contravene majority interests with little public outcry (Kingdon 2003).

While this article speaks in terms of “states” within a “nation,” the same model could describe other systems, such as school boards within a state, regions within a nation, or nations within an international federation. In any confederation where policy authority must occasionally be granted to one or another level of government, we show how certain levels of capture can imply that local preferences are better met by centralized policymaking. Ultimately, this finding informs the key question of Watts (1998, 133): “whether the particular form of federal system . . . and the processes it incorporates, give adequate expression to the demands of . . . society.”

Supplementary Data

Supplementary Data can be found at www.publius.oxfordjournals.org.

Appendix: Mathematical Details

Derivation of the Model

We define a voter i in state $j \in \{1, \dots, J\}$ as having utility, u_{ij} , equal to 1 if her preferred policy is enforced in her state, and 0 otherwise.¹⁶ That is,

$$u_{ij} = \begin{cases} 1 & \text{if voter's preferred policy enforced} \\ 0 & \text{otherwise} \end{cases}$$

There are n_j voters in state j , and we denote the proportion of satisfied voters in state j as \bar{U}_j , where $\bar{U}_j = \sum_{i=1}^{n_j} u_{ij}/n_j$. If $\bar{U}_j > 0.5$, then more than half of the state's voters prefer the policy enforced in the state. We denote the fraction of satisfied voters nationwide \bar{U} . We can express this quantity as a directly counted proportion, or as the weighted average of the state-level proportions of satisfied voters: $\bar{U} = \left(\sum_{j=1}^J \sum_{i=1}^{n_j} u_{ij} \right) / \left(\sum_{j=1}^J n_j \right) = \left(\sum_{j=1}^J n_j \bar{U}_j \right) / \left(\sum_{j=1}^J n_j \right)$.

Believing the case of equal-sized, equally represented states to be the most difficult in which to demonstrate our primary finding, we focus on this case here: $\forall j, n_j = n$.¹⁷ Our assumption accords with others', including Volden (2005) and Besley and Coate (2003), and allows us to substitute $\sum_{j=1}^J n_j = Jn$ and write $\bar{U} = \left(\sum_{j=1}^J \bar{U}_j \right) / J$. We denote the total proportion of satisfied voters under a particular regime as \bar{U}_{regime} , and the proportion in j as $\bar{U}_{j, \text{regime}}$. Considering two regimes, national policymaking and state policymaking, we write the total proportions of voters satisfied as \bar{U}_{nat} and \bar{U}_{st} , respectively.

We next consider the fraction of states satisfied under a particular policymaking regime, which we denote Z_{regime} . We compare the proportion of states satisfied under each of the two regimes, Z_{nat} and Z_{st} . Formally,

$$Z_{\text{regime}} = \frac{\sum_{j=1}^J \mathbb{I}(\bar{U}_{j, \text{regime}} > .5)}{J}$$

where \mathbb{I} is an indicator function taking the value of 1 if $\bar{U}_j > 0.5$ and 0 otherwise. The example calculations of our second section demonstrate the existence of both $Z_{\text{nat}} > Z_{st}$ and $Z_{st} > Z_{\text{nat}}$ cases.

We express Z_{regime} as a function of two quantities, defining P and S such that

$$P_j = \begin{cases} 1 & \text{if the } j^{\text{th}} \text{ state's median voter prefers policy } A \\ 0 & \text{otherwise} \end{cases}$$

and

$$S_j = \begin{cases} 1 & \text{if a strong interest group exists, powerful enough to force adoption of } B \\ 0 & \text{otherwise} \end{cases}$$

Then,

$\bar{P} = E(P)$ = the degree of preference conflict, the proportion of states that prefer policy A instead of the interest group's preferred policy B ; $\bar{P} \in [0, 1]$, and
 $\bar{S} = E(S)$ = the prevalence of strong interest groups, the proportion of all states in which a group is powerful enough to force adoption of policy B ; $\bar{S} \in [0, 1]$.

Under state policymaking, the satisfied states are those where the majority prefers A and A is adopted, or the majority prefers B and B is adopted. Note that if the majority prefers B , policy B will be adopted either because the strong lobby prefers it, or because the majority prefers it and the countervailing lobbies are weak. Assuming statistical independence between P and S , the quantity $\bar{P}(1 - \bar{S})$ represents the proportion of states where the median voter prefers A , and there is no powerful lobby forcing the adoption of B .¹⁸ We can then express the proportion of satisfied states under state-level policymaking as

$$Z_{st} = \bar{P}(1 - \bar{S}) + (1 - \bar{P}) = (\bar{P} - \bar{P}\bar{S}) + (1 - \bar{P}) = 1 - \bar{P}\bar{S}.$$

We calculate the proportion of satisfied states for every possible ordered pair (\bar{P}, \bar{S}) under state policymaking. For example, no states are satisfied only where all states prefer A , but all states have a group powerful enough to force adoption of B ($\bar{P} = \bar{S} = 1$).

For national policymaking, we assume each state has equal power in selecting the policy. In a majoritarian policymaking institution, the national policy is determined by the median state's outcome, whether that outcome is supported by the state's median voter, the powerful lobby, or both. Then, if more than half of the states would adopt policy A under state-level policymaking, A will be the national choice, and the proportion of satisfied states will be exactly \bar{P} . Conversely, if fewer than half of the states would adopt policy A under state-level policymaking, then B will be the national choice, and the proportion of satisfied states will be $1 - \bar{P}$. That is,

$$Z_{nat} = \begin{cases} \bar{P} & \text{if } \bar{P}(1 - \bar{S}) > .5 \\ 1 - \bar{P} & \text{if } \bar{P}(1 - \bar{S}) < .5 \end{cases}$$

We calculate the proportion of satisfied states for every possible ordered pair (\bar{P}, \bar{S}) , and then calculate the distortion gap at every point. The distortion gap is the welfare difference between regimes: the proportion of those satisfied under national policymaking, minus the proportion of those satisfied under state-level policymaking:

$$Z_{nat} - Z_{st} = \begin{cases} \bar{P} - (1 - \bar{P}\bar{S}) & \text{if } \bar{P}(1 - \bar{S}) > .5 \\ (1 - \bar{P}) - (1 - \bar{P}\bar{S}) & \text{if } \bar{P}(1 - \bar{S}) < .5 \end{cases}$$

which we can simplify to

$$Z_{\text{nat}} - Z_{st} = \begin{cases} \bar{P} + \bar{P}\bar{S} - 1 & \text{if } \bar{P}(1 - \bar{S}) > .5 \\ -\bar{P} + \bar{P}\bar{S} & \text{if } \bar{P}(1 - \bar{S}) < .5 \end{cases} \quad (1)$$

Note that $Z_{\text{nat}} - Z_{st} > 0$ implies that national policymaking is preferred, and $Z_{\text{nat}} - Z_{st} < 0$ that state policymaking is preferred. A difference equal to zero signifies that the same proportion of states will be satisfied under national as under state policymaking. We now consider implications of this model.

Proof of Implications

Implication 1 (No Strong Groups \Rightarrow State Policymaking Preferred.) *If there are no states with strong groups, then there is no distortion and state-level policymaking is preferred.*

Proof: “No strong groups” is $\bar{S} = 0$. Suppose $\bar{P} > .5$. Then, $Z_{st} = 1 - \bar{P}\bar{S} = 1$ and every state is satisfied. Comparing this outcome to national policymaking,

$$Z_{\text{nat}} - Z_{st} = \bar{P} + \bar{P}\bar{S} - 1 = \bar{P} - 1$$

which is always nonpositive. That is, national policymaking always produces less aggregate satisfaction than state-level policymaking.

Now suppose that $\bar{P} < 0.5$. Then, Z_{st} will still equal one, and every state is satisfied. Comparing to national policymaking,

$$Z_{\text{nat}} - Z_{st} = -\bar{P} + \bar{P}\bar{S} = -\bar{P}$$

which is always nonpositive. So, national policymaking always produces less aggregate satisfaction than state-level policymaking.

Implication 2 (High Preference Conflict + Moderate Interest Group Strength \Rightarrow National Policy Preferred.) *When a high proportion of median voters disagree with moderately prevalent strong interest groups, national policymaking is preferred.*

Proof: Consider the two lines of Equation (1) in turn. From the bottom part of Equation (1), let $\bar{P}(1 - \bar{S}) < .5$. Then $Z_{\text{nat}} - Z_{st} = -\bar{P} + \bar{P}\bar{S}$. However, this can never be greater than zero. If it were to be greater than zero,

$$\begin{aligned} 0 &< -\bar{P} + \bar{P}\bar{S} \\ \bar{P} &< \bar{P}\bar{S} \\ 1 &< \bar{S} \end{aligned}$$

and we know $\bar{S} \not> 1$, so national policymaking is never preferred if $\bar{P}(1 - \bar{S}) < 0.5$.

From the top part of Equation (1), let $\bar{P}(1 - \bar{S}) > 0.5$. In this case, national policymaking is preferred where $Z_{\text{nat}} - Z_{\text{st}} = \bar{P} + \bar{P}\bar{S} - 1 > 0$. Taking the sum of these inequalities yields

$$\begin{aligned}\bar{P} + \bar{P}\bar{S} - 1 + \bar{P} - \bar{P}\bar{S} &> 0.5 \\ \bar{P} &> 0.75\end{aligned}$$

Setting the top part of Equation (1) equal to 0 and evaluating for $\bar{P} = \frac{3}{4}$, we obtain

$$\begin{aligned}\frac{3}{4} + \frac{3}{4}\bar{S} - 1 &= 0 \\ \bar{S} &= \frac{1}{3}\end{aligned}$$

Therefore, we find the intersection of the two constraints to be $(\frac{3}{4}, \frac{1}{3})$.

Next, we calculate the difference between welfare under the two regimes for every possible ordered pair (\bar{P}, \bar{S}) , and display which regime is preferred in figure 1. Figure 2 of our Supplementary Appendix represents in three dimensions all possible combinations of \bar{P} , \bar{S} , and the associated difference in states satisfied. This surface plot conveys the overall multivariate trends in these three-dimensional data, highlighting the region above the horizontal $Z_{\text{nat}} - Z_{\text{st}} = 0$ plane. Figure 3 of our Supplementary Appendix displays a top-down contour plot of the same quantities to facilitate easier extraction of specific values of interest (Zorn 2008). Note especially the blue contour lines in the lower right corner of the plot. These are the combinations of \bar{P} and \bar{S} where $Z_{\text{nat}} - Z_{\text{st}} > 0$. The two motivating example calculations from our second section are displayed in figure 1 and Supplementary Appendix figure 3.

These figures demonstrate that national policymaking should be preferred when both (i) strong groups influence some, but not a majority of states, $\bar{S} \in (0, .5)$, and (ii) most median voters disagree with the interest group and prefer A, $\bar{P} \in (.75, 1)$. Only in the shaded triangular region of figure 1 is $Z_{\text{nat}} - Z_{\text{st}} > 0$. Everywhere else, the difference is negative and state-level policymaking should be preferred.

Notes

1. Our conception of a federal system corresponds to that of Riker (1975, 101): “Federalism is a political organization in which the activities of government are divided between regional governments and a central government in such a way that each kind of government has some activities on which it makes final decisions.” Thus, we omit areas of concurrent jurisdiction.
2. We refer to legislators and their votes, but we note alternative interpretations. First, parliamentary mechanisms may vary: an interest group may obtain favorable outcomes by changing votes, but also by drawing attention to policymaking opportunities, shaping the agenda control exercised by like-minded legislators, etc. Second, our model could

- describe interest group influence over other branches of government, such as the interest group capture of bureaucratic agencies of Stigler (1971).
3. One could consider policymaking through plebiscites wherein interest groups influence median voters themselves in ballot proposition elections, but defining “distortion” then quickly becomes a difficult task.
 4. This binary choice reflects a usual American parliamentary reality: in the end, a legislator must vote for a proposed policy or against it and for the status quo. Either *A* or *B* could represent the status quo.
 5. Using majority rule represents a coarsening of the underlying preference distributions within states. However, given majoritarian institutions, this coarsening does not discard information about state-level satisfaction; whether 51 percent or 90 percent of the voters prefer *A*, majoritarian institutions imply that the state’s preferred policy would be the same. Thus, introducing this variation would not change our results.
 6. Indeed, there are many reasons a group may be strong—e.g., it may provide money, information, access to strongly-opinionated constituents, or other valuable resources to politicians. For simplicity we consider only the welfare of the polity’s voters and omit welfare gains by groups themselves and by politicians qua politicians.
 7. We note this assumption in our formal derivation in this article’s Appendix, and we show that relaxing this assumption does not change our findings in this article’s Supplementary Appendix.
 8. For example, see Gerber and Teske (2000) for a review, or Gray et al. (2009) for a single policy case.
 9. While debate persists on whether interest groups are more successful at capturing agency decisions or legislative decisions (Merrill 2004), it is clear that legislatures are frequent targets of both national-level groups (Schlozman and Tierney 1986) and state-level ones (Gerber 1999). In fact, state-level lobbyists and groups are more likely to deem legislatures, rather than executive agencies, “very important” targets (Nownes and Freeman 1998).
 10. Contrary to the Olsonian logic, Wittman (1989), e.g., argues that “the concentrated benefit versus diffuse cost explanation for pressure group success is problematic” (1408), and that political markets are efficient, so that “the distortion caused by pressure groups is limited” (1407). Our model encompasses cases ranging from no to complete distortion.
 11. Interestingly, Hills (2007) argues for state-level policymaking as a means to break national gridlock on difficult issues, despite inefficiencies from group power in state legislatures.
 12. We acknowledge that interest groups may not be able to influence the legislature, and in fact that the direction of influence may be the opposite: legislators and parties may influence lobbyists. In particular, national legislative activity may generate interest group activity at the national level (Holyoke 2008) or the state level (Baumgartner, Gray, and Lowery 2009).
 13. Latham’s (1952, 35–36) classic quotation underlies our understanding:

The legislature referees the group struggle, ratifies the victories of the successful coalitions, and records the terms of the surrenders, compromises, and conquests in

the form of statutes... The legislative vote on any issue tends to represent the composition of strength, i.e., the balance of power, among contending groups at the time of voting.

Other scholars have focused on the extent to which Latham's "referees" allow the balance of power to be swayed by those who may provide re-election resources. This tilt may come from interest groups during policymaking (Groseclose and Snyder 1996; Diermeier and Myerson 1999), or from activists during campaigns (Miller and Schofield 2008). In addition to the wealth of research on interest group influence in Congress, scholars document cases and conditions under which lobbyists are influential in state legislatures and behave similarly to their counterparts in Congress (Rosenthal 2001).

14. We note three main differences: First, we consider a federation of any number of states, rather than the more limited three-state case. Second, the three-state model of Volden (2005) restricts heterogeneity to be defined by the demand level of a single state; we allow support for or opposition to the considered policy to be determined independently in each of the states. Third, interest group distortion is theoretically distinct from tax efficiency; we focus on a binary choice, while others focus on a continuous level of goods provision.
15. Similarly for state-level satisfaction. Under state policymaking, the median voter's preferred policy (say, B) may coincide with that of an interest group. In this case, the state legislature will select B , and the state will be satisfied regardless of whether the interest group is powerful enough to capture the median legislator. If the median voter prefers a policy that differs from the interest group preference, the state will be satisfied if the group is too weak to defeat the median voter. Under national policymaking, a state will be satisfied if its median voter prefers the national policy—the policy voted for by the majority of states.
16. We can consider these u_{ij} to be observed realizations of a latent continuous utility if we like (and this can be quadratically related to the Euclidean distance between a voter's ideal point and the policy). Our approach is consistent with how respondents are often asked to express up-or-down satisfaction in survey research (and with how empirical researchers often coarsen more finely-grained response sets): "Do you support more welfare spending?", "Do you approve of your Senator's vote on the current health reform?"
17. When the conditions of equal population or equal power are not met, we show in the Supplementary Appendix that national-level policymaking can yield greater aggregate welfare in several simple cases.
18. Relaxing the independence assumption does not change our substantive finding. We demonstrate this using exhaustive simulation in the first section of our Supplementary Appendix.

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