THE YALE LAW JOURNAL

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The Perils of Experimentation

ABSTRACT. More than eighty years after Justice Brandeis coined the phrase "laboratories of democracy," the concept of policy experimentation retains its currency as a leading justification for decentralized governance. This Article examines the downsides of experimentation, and in particular the potential for decentralization to lead to the production of information that exacerbates public choice failures. Standard accounts of experimentation and policy learning focus on information concerning the social welfare effects of alternative policies. But learning can also occur along a political dimension as information about ideological preferences, campaign techniques, and electoral incentives is revealed. Both types of information can be put to use in the policy arena by a host of individual and institutional actors that have a wide range of motives, from a public-spirited concern for the general welfare to a desire to maximize personal financial returns. In this complex environment, there is no guarantee that the information that is generated by experimentation will lead to social benefits. This Article applies this insight to prior models of federalism developed in the legal and political science literatures to show that decentralization can lead to the overproduction of socially harmful information. As a consequence, policymakers undertaking a decentralization calculation should seek a level of decentralization that best balances the costs and benefits of information production. To illustrate the legal and policy implications of the arguments developed here, this Article examines two contemporary environmental rulemakings of substantial political, legal, and economic significance: a rule to define the jurisdictional reach of the Clean Water Act, and a rule to limit greenhouse gas emissions from the electricity-generating sector.

AUTHOR. Associate Professor, University of Virginia School of Law. My thanks for helpful feedback from participants at faculty workshops at the University of Chicago Law School, Cornell Law School, the Elisabeth Haub School of Law at Pace University, and the University of Virginia School of Law as well as the University of Virginia Law School Faculty Scholarship series, the *Yale Law Journal* reading group, and the Yale/Stanford/Harvard Junior Faculty Forum. Special thanks to Ann Carlson, Barry Friedman, Michael Gilbert, Deborah Hellman, Bert Huang, William Hubbard, Aziz Huq, Leslie Kendrick, Douglas Kysar, Margot Pollans, Jeffrey Rachlinski, Richard L. Revesz, Richard Schragger, Gerald Torres, and Craig Volden for their insights. I also thank the editors at the *Yale Law Journal* for their excellent editorial assistance as well as their substantive comments.

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INTRODUCTION

American political culture values decentralized governance. The preference toward decentralization shows up in the federalist constitutional structure as well as in numerous national regulatory programs that preserve a significant role for the states. From a policy perspective, this preference is typically grounded in considerations of interjurisdictional diversity, political accountability, and policy experimentation.[1] In recent years, the experimentation angle in particular has enjoyed enthusiastic supporters, who argue that decentralization engenders innovation and learning that has wide-ranging benefits for democratic policymaking.[2]

The nub of the argument in this Article is that, although policy experimentation may tend to generate information, that information can be a mixed blessing that brings mischief along with insight.[3] As a consequence, policy experimentation has both costs and benefits; policy learning is not an unalloyed advantage of decentralization; and, in the decentralization calculus, the potential for policy experimentation may just as often count against decentralization as for it. Accordingly, well-designed governance regimes will decentralize in ways that promote useful experimentation, while cutting off, or at least declining to facilitate, experimentation that is more likely to cause harm.

Classically, policy experimentation has been described as a technocratic, even scientific process. In Justice Brandeis's famous terminology, states are akin to "laboratories" in which impartial researchers search for effective means to

1. *See* Barry Friedman, *Valuing Federalism*, 82 MINN. L. REV. 317, 318-19 (1997) (arguing that the policy justifications given for state autonomy are often expressed but infrequently examined).

2. The experimentalist turn in federalism scholarship was particularly influenced by Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267 (1998).

3. This Article focuses on information produced through decentralized policy regimes. Following convention, this Article uses the word "experimentation" to describe this process, although it may be better characterized as innovation or simply variation rather than experimentation. It is also worth noting that policy-relevant information can be produced in many other ways, including through centrally planned experimentation (as when the government funds scientific research or pilot programs), through the imposition of analytic requirements (such as the environmental impact assessments carried out under the National Environmental Policy Act), through decentralized research activities carried out by academics, or through the innovating behavior of private actors operating in the marketplace. Some of the arguments developed here may be applicable to these other contexts, but that possibility is not explored in this Article.

promote social ends.[4] More recently, federalism scholars have focused on "the discursive benefits of structure."[5] They describe a federalism in which decentralization makes room for a diversity of views within the national conversation and provides "democratic churn" that enlivens national politics.[6] Under the discursive conception, federalist structures facilitate democratic deliberation between a range of interests and perspectives. This process ultimately helps constitute a national polity that is more dynamic, inclusive, and resilient.

But there is also a downside of experimentation that demands its due.[7] In an imperfect democracy, there are many kinds of lessons to be learned, and not all of them will promote social well-being. Politicians are interested in learning how to exploit the benefits of incumbency. Well-organized interest groups want to learn how to translate their collective action advantages into economic rents. Ideologically extreme activists are interested in learning how to take advantage of voter inattention to drive policy away from median preferences. All of these actors are hungry for information that confirms the validity of their policy positions or undermines their opponents. In the messy world of policymaking, information might not always be put to its highest and best use.

This Article takes as its starting place the Jekyll-and-Hyde nature of policy experimentation. Given the dual social potential of information, *ceteris paribus*, the goal of policy designers should be to maximize the net benefits of experimentation through efficient forms and levels of decentralization. To facilitate this inquiry, I develop a general framework that disaggregates policy information according to type of information and the ways in which that information is likely to be put to use. This framework can be applied to different contexts to anticipate the social effects of policy learning and to evaluate whether more, less, or differently structured decentralization is appropriate. Of course, this analysis does not end the calculation—there are legal and constitu-

4. New State Ice Co. v. Liebmann, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting).

5. Heather K. Gerken, *Federalism as the New Nationalism: An Overview*, 123 YALE L.J. 1889, 1894 (2014).

6. Heather K. Gerken, *The Supreme Court 2009 Term—Foreword: Federalism All the Way Down*, 124 HARV. L. REV. 4, 7-10 (2010).

7. *See* David A. Super, *Laboratories of Destitution: Democratic Experimentalism and the Failure of Antipoverty Law*, 157 U. PA. L. REV. 541, 546-48 (2008) (discussing the failure of local experimentation to generate sound policies to address poverty); *see also* Jessica Bulman-Pozen & Heather K. Gerken, *Uncooperative Federalism*, 118 YALE L.J. 1256, 1258-60 (2009) (exploring downsides of cooperative federalism for national power); Edward L. Glaeser & Andrei Shleifer, *The Curley Effect: The Economics of Shaping the Electorate*, 21 J.L. ECON. & ORG. 1, 2 (2005) (discussing political incentives in decentralized regimes to drive out unfavorable constituencies).

tional constraints to consider, as well as other policy factors to accommodate. But departing from the optimal level and form of experimentation, for whatever reason, should be acknowledged as a cost to be balanced against other factors.

With this general framework in hand, I discuss two contemporary environmental rulemakings of high political, legal, and social significance. One establishes the jurisdictional reach of the Clean Water Act; the other sets greenhouse gas emissions limits for the power sector for the first time. These two rules sit at the heart of the Obama Administration's environmental legacy and have generated aggressive legal challenges. Like many environmental policies, they also have strong implications for the balance of national, state, and local power and will influence whether, and how, policy experimentation will take place on these issues in the coming years. Applying the analytic framework developed here, I examine the consequences for policy learning of each rule and evaluate how well they capitalize on the promise—and avoid the pitfalls—of experimentation.

Any given policy experiment can be thought to generate two types of information.[8] I will call the first kind *deliberative* information. This type of information concerns either the means or ends of policymaking from the perspective of social welfare.[9] If an experiment generates data on the efficacy of a particular policy intervention at achieving its goals, it is deliberative information. If an experiment produces information that can serve as an input into broader democratic conversation about the value of some policy goal, that is deliberative information.

The second category is *political* information, which concerns ideological preferences or political incentives. A policy experiment may show, for example, whether elected officials who carry out the experiment tend to persist in office

8. The introduction of a distinction between two types of information is not meant to conjure any deep epistemic or ontological claims about the nature of information. *See generally* IT FROM BIT OR BIT FROM IT? ON PHYSICS AND INFORMATION (Anthony Aguirre et al. eds., 2015) (exploring some ontological implications of quantum mechanics). The distinction is meant to be functional: the "types" of information categorize data based on their subject matter. Information concerning plants and information concerning animals are of different *types* under this formulation, because the data are *about* different things.

9. Throughout this Article, I take an agnostic view on the nature of social welfare and simply make the limited assumption that, whatever social welfare might be, there is information that bears on what it is and how it can be promoted through policy. This assumption would hold even if there is no ground truth to social welfare—in that case, the information would relate to individuals' views of social well-being. *Cf.* MATTHEW D. ADLER, WELL-BEING AND FAIR DISTRIBUTION: BEYOND COST-BENEFIT ANALYSIS 79-88 (2011) (explaining and defending a particular form of the social welfare function).

or to be voted out. That data is political information. In addition, an unfamiliar policy intervention may not have a well-established location in ideological space. It may be possible to observe early adopters of the policy to determine where in ideological space the policy is located. This communication of ideological preferences is also political information.

An example may help illustrate. Several municipalities have adopted laws in recent years banning local businesses from dispensing single-use plastic bags.[10] One of the goals of these ordinances is to reduce waste in local landfills. The early adopters of the bans essentially engaged in an experiment that generated both deliberative and political information. From the perspective of social welfare (i.e., deliberative information), it may be possible for other jurisdictions to observe ban-adopting municipalities and determine whether they are successful at reducing waste at local landfills. Perhaps the bans achieve that goal. Or perhaps commercial enterprises replace thin plastic bags with thicker plastic bags that are ostensibly reusable, but are just as likely to be thrown out.[11] If so, then bans may not be an effective waste-reduction strategy. More broadly, a plastic bag ban fiasco may prompt the local citizenry to rethink their environmental priorities, and they may end up focusing on preserving local forests, reducing storm water runoff, or installing cleaner electricity generation. Or plastic bag successes may prompt a broader rethinking about the appropriate role of local government in enhancing collective welfare. The policy experiment on bags, then, could create deliberative information about the appropriate priorities and goals of environmental policy or local governments.

The experiment can also generate political information concerning the place of bag bans within ideological space and the political incentives surrounding the measure. Assume that it is unclear to many people, at first impression, whether a bag ban is a liberal or conservative type of policy. Once a handful of municipalities have adopted the policy, it is possible to observe the political affiliations of the interest groups that favored or opposed the ban and the politicians who voted for or against the ban. If environmentalists, labor unions, single women, young people, minorities, and college professors favored

10. *See State & Local Laws*, PLASTICBAGLAWS.ORG, http://plasticbaglaws.org/legislation/state-laws [http://perma.cc/6E3Y-PCQF].

11. *See* Carla Herreria, *Loophole Undermines Hawaii's Historic Plastic Bag Ban*, HUFFINGTON POST (July 10, 2015, 8:07 AM), http://www.huffingtonpost.com/2015/07/10/loophole-hawaii-plastic-bags_n_7750112.html [http://perma.cc/B8WH-HP3J]. Even where canvas bags are used as a replacement, it is not clear that there are net environmental benefits. *See* Noah Dillon, *Are Tote Bags Really Good for the Environment?*, ATLANTIC (Sept. 2, 2016), http://www.theatlantic.com/technology/archive/2016/09/to-to-or-note-to-tote/498557 [http://perma.cc/RWY7-DDMX].

the ban, and Democratic officials voted for it, an observer would have good reason to believe that bag bans were a liberal type of policy. In addition, politicians can determine whether city council members who opposed a ban faced a backlash by voters and lost their seats, and plastic bag manufacturers might observe the type of counter-messaging that was or was not successful in earlier campaigns and adjust their strategic branding accordingly. All of this information would fall into the political category.

Whether policy experimentation can be expected to lead to socially beneficial outcomes depends on the balance between deliberative information and political information and how that information is put to use.[12] This Article illustrates the costs and benefits of state policy experimentation through an analysis of two recent environmental regulations. The first case study is the Waters of the United States Rule, a determination by the Environmental Protection Agency (EPA) and Army Corps of Engineers concerning their authority under the Clean Water Act. The Waters Rule was developed in response to the Supreme Court's decision in *Rapanos v. United States*.[13] The rule has prompted considerable pushback from farmer and landowner groups that argue that the agencies assert authority over too many of the nation's wetlands and water bodies. The second case study is the Clean Power Plan, an EPA rule to limit greenhouse gas emissions from existing power plants.[14] The Clean Power Plan sets state-by-state standards for the carbon dioxide intensity of the electricity-generating sector that reduces overall emissions by thirty-two percent below 2005 levels by 2030.[15]

As is often the case in environmental policy, the allocation of power between the states and the federal government is central to these two rules.[16]

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12. *Cf. The Daily Show with Jon Stewart*: *The States: Meth Labs of Democracy* (Comedy Central television broadcast Feb. 20, 2014), http://www.cc.com/video-clips/f90kh1/the-daily-show-with-jon-stewart-the-states--meth-labs-of-democracy [http://perma.cc/V725-P8MW] (discussing proposed state legislation that would allow parents to spank their children harder in the course of disciplining them).

13. 547 U.S. 715 (2006).

14. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60).

15. *See id*. at 64,679.

16. The division of responsibility between the federal government and the states is, in addition to considerations of stringency and instrument choice, one of the major questions faced by environmental policymakers and a central preoccupation of environmental law scholars and courts. *See* Michael A. Livermore & Richard L. Revesz, *Environmental Law and Economics*, *in* OXFORD HANDBOOK OF LAW AND ECONOMICS (Francesco Parisi ed., forthcoming Feb. 2017); *see, e.g.*, David E. Adelman & Kirsten H. Engel, *Adaptive Federalism: The Case Against Reallo-*

They therefore provide a timely testing ground to examine the implications of the theory developed here. These rules also have profound policy and legal consequences and are worth exploring in their own right. Affected parties, including many states, have brought challenges to both rules and have been granted stays in both cases.[17] The legality of these rules will almost certainly be resolved before the Supreme Court.[18] In this litigation, and the surrounding political discourse, federal-state relations play a prominent role.

The plan for the Article is as follows. After a short review in Part I of the literature on state experimentation, Part II develops a theoretical framework to highlight two separate types of information and their dual potential with respect to social welfare. Deliberative and political information are defined relative to two different policymaking models. Under the deliberative model, agents are engaged in decision making with the goal of maximizing social welfare. Deliberative information is all of the information that is relevant to the beneficent actors in this model. The political model, on the other hand, is populated by politicians with their own utility functions, interest groups pursuing rents, and a disorganized and inattentive public. Political information is all of the information that is relevant to the self-interested political actors in this model. Once the two types of information are described, Part II turns to a discussion of their potential to be put to both socially beneficial and socially harmful uses. Part II then extends existing models on incentives for information production in decentralized policy regimes. This argument shows how, in addition to well-known problems leading to underproduction of beneficial information, the same arguments demonstrate the potential for overproduction of deleterious information. The final section in this Part discusses how to apply these abstract insights to real world policy questions concerning decentralization and experimentation.

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cating Environmental Regulatory Authority, 92 MINN. L. REV. 1796 (2008); Ann E. Carlson, *Iterative Federalism and Climate Change*, 103 NW. U. L. REV. 1097 (2009); Daniel C. Esty, *Toward Optimal Environmental Governance,* 74 N.Y.U. L. REV. 1495 (1999); Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992); Benjamin K. Sovacool, *The Best of Both Worlds: Environmental Federalism and the Need for Federal Action on Renewable Energy and Climate Change*, 27 STAN. ENVTL. L.J. 397 (2008).

17. The Waters Rule was stayed in *In re EPA & DOD Final Rule*, 803 F.3d 804 (6th Cir. 2015). The Clean Power Plan was stayed in *Chamber of Commerce v. EPA*, 136 S. Ct. 999 (2016) (mem.).

18. However, the Supreme Court may not have the opportunity to provide such resolution if a replacement for Justice Antonin Scalia is not soon confirmed; any four-four decisions would merely reaffirm the relevant circuit court decisions.

Parts III and IV then examine the implications of the theoretical model for two contemporary case studies: the Waters Rule and the Clean Power Plan, respectively. Critics of the Waters Rule argue that it represents an intrusion of federal authority into matters better left to the states. At least from the perspective of experimentation, these criticisms do not have great merit. Any individual state would receive only a small part of the benefit of any economic or scientific insights from implementing (or not) water pollution controls, thereby reducing its incentives for beneficial experimentation. At the same time, given the interest group dynamic in the water quality context, negative effects from the export of political information to other jurisdictions are highly plausible. Managed experimentation in which the federal government provides incentives for policy innovation while setting national baseline standards that mitigate public choice failures at the local level is a better alternative to unfettered decentralization. This type of management is impossible without a long jurisdictional reach for the Clean Water Act, and so proposals to scale back on that jurisdiction would hamper, rather than facilitate, beneficial experimentation.

Given the degree of polarization over the issue of climate change and the economic and social stakes of greenhouse gas regulation, it is perhaps unsurprising that the Clean Power Plan has unleashed critics from many corners. Among the arguments that have been leveled is the claim, made by Harvard Professor Laurence Tribe, that the rule "invades state regulatory control" in ways that are not only unwise, but also unconstitutional.[19] Certainly the Clean Power Plan takes some decisions out of states' hands, most significantly by setting statewide mandatory emissions limits. But there remains ample room for states to adopt diverse approaches in reaching those limits, and decentralization in the rule aligns well with the areas where experimentation is most likely to produce useful information. For instance, state experimentation with emissions levels will produce very little information of scientific or economic value. Yet experimentation with policy approaches could produce not only technical insights into instrument choice, but also (and more significantly) information about how to craft climate policies that are politically viable. Especially given the partisan dynamic surrounding climate change, this political information may be among the Clean Power Plan's most important consequences; indeed, an even greater level of decentralization that places more authority with municipal decision makers may be justified.

19. *EPA's Proposed 111(d) Rule for Existing Power Plants: Legal and Cost Issues: Hearing Before the H. Comm. on Energy & Commerce*, 114th Cong. (2015) (statement of Laurence Tribe, Professor, Harvard Law School) [hereinafter Tribe Testimony].

Part V contrasts the two case studies in light of the theoretical framework developed in Part II. There are several instructive similarities and differences between the two rules that help shed light on how the more abstract concepts discussed in this Article take shape in the real world of environmental policymaking. Most important, differences in the political settings surrounding the two rules provide reason to believe that greater decentralization may have value in the context of climate policy that would be unlikely to materialize in the water pollution context.

There is a well-developed literature in law and political science on experimentation, policy diffusion, and related topics.[20] Much of that literature accepts the normative desirability of experimentation and the information it produces. The contribution of this Article is to draw out the Mr. Hyde lurking within this common justification for decentralization. Despite its popularity, experimentation and the information it produces cannot be taken as an unmitigated good. Instead, experimentation will often have ambiguous, subtle effects on social well-being that must be approached with ample attention to political and policy context. The application of this framework to the two rules provides an illustration of the theory and also directly joins debates about the legality and policy suitability of these two major environmental policies. The Waters Rule and Clean Power Plan, if upheld, will have environmental and economic consequences that will last a generation. But their experimental consequences—in the information they will generate and fail to generate—constitute another important class of effects that should be appropriately weighted by courts, Congress, and commentators.

I. EXPERIMENTATION AND DECENTRALIZATION

There are many reasons to favor decentralization of governmental authority.[21] Fear of a tyrannical state could justify splitting sovereignty between pe-

20. For a sample of some recent pieces concerning one sub-question about whether interjurisdictional competition causes an increase or decline in regulatory standards, see Frank H. Easterbrook, *The Race for the Bottom in Corporate Governance*, 95 VA. L. REV. 685 (2009); Eri Saikawa, *Policy Diffusion of Emission Standards: Is There a Race to the Top?*, 65 WORLD POL. 1 (2013); and Charles R. Shipan & Craig Volden, *Bottom-Up Federalism: The Diffusion of Antismoking Policies from U.S. Cities to States*, 50 AM. J. POL. SCI. 825 (2006). For an earlier discussion of this issue in the context of U.S. environmental law, compare Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570 (1996), with Revesz, *supra* note 16.

21. *See* Friedman, *supra* note 1.

ripheral and central authorities.[22] Subsidiarity—the principle that governmental functions should be carried out at the most local level possible—is justified in Catholic doctrine based on the autonomy and dignity of individual persons.[23] Law and economics takes a more utilitarian approach, focusing on geographic preference diversity and the potential for sorting by discerning consumers of government services.[24] Political theorists have asserted a similar justification for federalist structures in arguing that interjurisdictional competition serves as a source of fiscal discipline and accountability for government officials.[25] Positive political theorists have described the problem of decentralization as one of the structural decisions that are determined by interest group bargaining,[26] and normative work has built on these observations to argue that diffuse interests will be better served when some level of decentralized authority is preserved.[27]

One of the classic justifications for decentralization is the potential for policy experimentation to generate useful information. This idea was introduced

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22. *See* Gregory v. Ashcroft, 501 U.S. 452, 458 (1991) ("Perhaps the principal benefit of the federalist system is a check on abuses of government power."); Deborah Jones Merritt, *Three Faces of Federalism: Finding a Formula for the Future*, 47 VAND. L. REV. 1563, 1573 (1994) ("[I]ndependent state governments check the power of the federal government.").

23. The concept of subsidiarity is more familiar in Europe than in the United States. The idea was promoted by theologian Oswald von Nell-Breuning and adopted by the Catholic Church to define the appropriate allocation of secular power. POPE PIUS XI, SOCIAL ENCYCLICAL QUADRAGESIMO ANNO ¶ 80 (May 15, 1931), http://w2.vatican.va/content/pius-xi/en/encyclicals/documents/hf_p-xi_enc_19310515_quadragesimo-anno.pdf [http://perma.cc/VK8L-JNLR]. *See generally* George A. Bermann, *Taking Subsidiarity Seriously: Federalism in the European Community and the United States*, 94 COLUM. L. REV. 331, 332-43 (1994) (providing background on the concept of subsidiarity).

24. *See* Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416 (1956).

25. *See, e.g.*, Barry R. Weingast, *Second Generation Fiscal Federalism: Political Aspects of Decentralization and Economic Development*, 53 WORLD DEV. 14 (2014).

26. *See, e.g.*, E. Donald Elliott et al., *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J.L. ECON. & ORG. 313 (1985) (arguing that well-organized interest groups use preemption as a tool to forum shop). To date, descriptive explanations for federalist arrangements tend to provide plausible sounding, but largely post-hoc, explanations for the development of the law. For example, perhaps nationally uniform air quality standards were a concession by industrial special interest groups or pro-industry legislators to protect population centers from rural competition. *See* B. Peter Pashigian, *Environmental Regulation: Whose Self-Interests Are Being Protected?* 23 ECON. INQUIRY 551 (1985). But it is not clear why the same public choice dynamics allowed for water quality standards set at the local level.

27. Roderick M. Hills, Jr., *Against Preemption: How Federalism Can Improve the National Legislative Process*, 82 N.Y.U. L. REV. 1 (2007).

prior to the turn of the twentieth century and was picked up in Supreme Court dissents nearly a century ago.[28] It is now deeply engrained in American political culture. In recent decades, revived interest in federalism as a check on government power has been accompanied by growing enthusiasm for state experimentation,[29] and the concept has become a staple of electoral politics[30] and even pop culture.[31] The staying power and appeal of the experimentation concept is reflected in recent bipartisan efforts to promote "evidence-based policy-

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28. *See* 1 JAMES BRYCE, THE AMERICAN COMMONWEALTH 468 (London, MacMillan & Co. 1888) (explaining that federalism allows "[s]tates [to] profit by the experience of a law or a method which has worked well or ill in the State that has tried it") (cited in Doni Gewirtzman, *Complex Experimental Federalism*, 63 BUFF. L. REV. 241, 241 n.1 (2015)); *see also* New State Ice Co. v. Liebmann, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting) (stating that it "is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country"); Truax v. Corrigan, 257 U.S. 312, 344 (1921) (Holmes, J., dissenting) (referring to states as "insulated chambers" that engage in "social experiments"). Interestingly, the phrase "laboratories of democracy" predated Brandeis's dissent in *New State Ice*. Education reformers used it to describe high schools as early as 1920. *See* William D. Lewis, *The President's Address*, *in* THIRD YEARBOOK OF THE NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS 1, 4, 9 (H.V. Church ed., 1920). It was also used by sociologist Walter Greenwood Beach in that sense in a monograph published in the same year as the Brandeis dissent. WALTER GREENWOOD BEACH, SOCIAL AIMS IN A CHANGING WORLD 41 (1932) ("The school and the library, as the people's workshops . . . are or may be the laboratories of democracy, out of which must come the new discoveries and new understanding essential to a progressive socialized organization in the interests of community life.").

29. The Google Ngram technology provides some insight into this recent surge in enthusiasm. The technology allows search for time trends in word usage within the set of digitally scanned books collected by Google. Using the phrase "laboratories of democracy" as a proxy for interest in and positive regard toward state experimentation, there is a very substantial growth phase in the 1980s and 1990s, following a period of relatively flat usage. *See* GOOGLE BOOKS NGRAM VIEWER, http://books.google.com/ngrams/graph?content=laboratories+of+democracy&year_start=1900&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2Claboratories%20of%20democracy%3B%2Cc0t1;,laboratories%20of%20democracy;,c0 [http://perma.cc/G8V9-6HWM]. *See generally* Yuri Lin et al., *Syntactic Annotations for the Google Books Ngram Corpus*, PROC. 50TH ANN. MEETING ASS'N COMPUTATIONAL LINGUISTICS 169 (2012) (presenting a new edition of Google Books Ngram Corpus to facilitate the study of linguistic trends and the evolution of syntax).

30. In 2012, presidential candidate Mitt Romney prominently referenced the concept of state experimentation in defending his implementation of health care reform as governor of Massachusetts. *See* Mitt Romney, *If I Were President: Obamacare, One Year In*, NAT'L REV. (Mar. 22, 2011, 8:20 PM), http://www.nationalreview.com/corner/262800/if-i-were-president-obamacare-one-year-mitt-romney [http://perma.cc/TCP9-GKP7] ("Under our federalist system, the states are 'laboratories of democracy.' They should be free to experiment.").

31. *See The Daily Show with Jon Stewart*: *The States: Meth Labs of Democracy*, *supra* note 12.

making," a move that is largely premised on the ability of diverse policy responses at the state and local levels to generate valuable information.[32]

The nexus between decentralization and experimentation has spawned substantial academic literatures in law and the social sciences. Within legal scholarship, experimentation is often understood through the lens of federalism.[33] Conventional accounts of federalism focus on state sovereignty and autonomy and raise concerns about the encroachment of national power into the traditional prerogatives of the states.[34] Proponents of a stronger federalism, under the traditional account, typically favor constitutional limits on national power (through narrower interpretations of the Commerce Clause, more expansive interpretations of the Tenth Amendment, and developments such as the anti-commandeering doctrine) and disfavor preemption of state law in the face of national action.[35] Experimentation, under a traditional federalism framework, is a justification for limitations on national power: when the federal government steps out of the way, the states are free to attempt diverse approaches to addressing social problems. This was the rationale in Justice Brandeis's famous dissent in *New State Ice Co. v. Liebmann*,[36] issued a few months before the 1932 presidential election swept the New Dealers into power. Brandeis was cautioning his colleagues against the evils of exerting national

32. *See generally Mission/Activities*, COALITION FOR EVIDENCE-BASED POL'Y, http://coalition4evidence.org/mission-activities/ [http://perma.cc/S3Y6-ZPWX] (collecting examples of "highly-effective social interventions" based on local experimentation).

33. Federalism is, of course, an enduring concern of legal scholars. A search of the Westlaw database of "Law Reviews and Journals" for the years 1980-2010 reveals 1,763 articles with the word "federalism" in the title. It bears noting that federalism and decentralization are far from the same thing—some commentators have argued, for example, that federalist structures inhibit genuine decentralization of power to truly local decision makers. *See* Frank B. Cross, *The Folly of Federalism*, 24 CARDOZO L. REV. 1 (2002).

34. *See, e.g.*, Ernest A. Young, *The Rehnquist Court's Two Federalisms*, 83 TEX. L. REV. 1 (2004).

35. *See* Chamber of Commerce v. Whiting, 563 U.S. 582, 587 (2011) (declining a preemption challenge to an Arizona immigration statute); Printz v. United States, 521 U.S. 898, 935 (1997) (striking down certain interim provisions of the Brady Handgun Violence Prevention Act and introducing anti-commandeering doctrine); United States v. Lopez, 514 U.S. 549, 551 (1995) (striking down the Gun-Free School Zones Act of 1990 as beyond the scope of the Commerce Clause); Nat'l League of Cities v. Usery, 426 U.S. 833, 850 (1976) (striking down federal wage and work hour controls for state employees), *overruled by* Garcia v. San Antonio Metro. Transit Auth., 469 U.S. 528 (1985); *see also* Young, *supra* note 34 (noting distinction between sovereignty- and autonomy-based conceptions of federalism, and associating the two with different Justices during the Rehnquist Court).

36. 285 U.S. 262 (1932).

power, via invocation of substantive due process, to "stay experimentation" in "social and economic" remedies for the ills of the Great Depression.[37]

Scholars have also explored decentralization within national policy regimes as part of "cooperative federalism" structures.[38] Decentralization in these cases is not a matter of constitutional necessity, but a policy choice meant to promote policy goals through "redundancy, administrative overlap, joint regulation, and mutual dependence."[39] Experimentation is one of the policy benefits associated with decentralization under these regimes. The interplay between the national government and states, it has been argued, better serves experimentalist goals than exclusive state jurisdiction does because the national government can better incentivize innovation while maintaining open channels to communicate what has been learned.[40] In this vein, legal scholars have examined, criticized, and defended policy innovation as a justification for decentralization in a wide range of legal contexts.[41]

Political scientists, for their part, have examined experimentation under the name "policy diffusion," studying the mechanisms through which policies spread across jurisdictions over time.[42] According to a recent literature review, nearly eight hundred articles were published on the subject in political science journals between 1958 and 2008.[43] Scholars in American politics, comparative politics, and international relations have developed an extensive literature on the relationship between experimentation, learning, and policy diffusion.[44] A

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37. *Id.* at 311 (Brandeis, J., dissenting).

38. *See, e.g.*, Heather K. Gerken, *Of Sovereigns and Servants*, 115 YALE L.J. 2633 (2006); Susan Rose-Ackerman, *Cooperative Federalism and Co-optation*, 92 YALE L.J. 1344 (1983); Philip J. Weiser, *Federal Common Law, Cooperative Federalism, and the Enforcement of the Telecom Act*, 76 N.Y.U. L. REV. 1692 (2001).

39. Gerken, *supra* note 5, at 1902 (collecting articles that make this argument).

40. *See* Charles F. Sabel & William H. Simon, *Minimalism and Experimentalism in the Administrative State*, 100 GEO. L.J. 53 (2011); Hannah J. Wiseman, *Regulatory Islands*, 89 N.Y.U. L. REV. 1661 (2014).

41. *See, e.g.*, Wendy N. Epstein, *Bottoms Up: A Toast to the Success of Health Care Collaboratives . . . What Can We Learn?* 56 ADMIN. L. REV. 739 (2004) (discussing the implications of experimentation within health care policy); Amanda C. Leiter, *Fracking, Federalism, and Private Governance*, 39 HARV. ENVTL. L. REV. 107 (2015) (describing how private organizations perform "laboratory federalism" functions in the context of environmental law).

42. For a helpful review of the diffusion literature, see Erin R. Graham et al., *The Diffusion of Policy Diffusion Research in Political Science*, 43 BRIT. J. POL. SCI. 673 (2012).

43. *Id.* at 673.

44. *See id.* at 690. The paper that is typically credited with establishing this research agenda is Jack L. Walker, *The Diffusion of Innovations Among the American States*, 63 AM. POL. SCI. REV. 880 (1969). *See* Lawrence J. Grossback, Sean Nicholson-Crotty & David A.M. Peterson, *Ide-*

substantial subset of this literature involves either formal modeling or empirical analysis that attempts to study the conditions and contexts under which policies spread from one institution or jurisdiction to the next.[45]

The political science literature has helped clarify the ways in which policy diffusion is distinct from and more general than experimentation or learning.[46] There are a number of mechanisms through which policy diffusion takes place. Competitive pressures, such as "races to the bottom" or "races to the top," can prompt states to adopt policies that are similar to each other, and policy adoption in one jurisdiction may lead to copycat behavior in other jurisdictions seeking to minimize any competitive disadvantage.[47] Asymmetries in size or influence may allow "strong" jurisdictions to foist their policy preferences on "weak" jurisdictions, for example by setting a product standard in a large market that all manufacturers must meet.[48] Socialization has also been hypothesized to lead to policy diffusion, as norms and patterns of interpreting information cross jurisdictional boundaries.[49] Policy learning—wherein one jurisdiction observes policy success or failure in another and updates its views about that policy based on experience elsewhere—represents another means for policies to spread.

Policy diffusion, experimentation, and federal-state-local relations are relevant in a host of policy areas, from antiterrorism to education.[50] This Article

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ology and Learning in Policy Diffusion, 32 AM. POL. RES. 521, 522 (2004) (crediting Walker for initiating research). For another early study, see Virginia Gray, *Innovation in the States: A Diffusion Study*, 67 AM. POL. SCI. REV. 1174 (1973).

45. *See, e.g.*, Eric Abrahamson & Lori Rosenkopf, *Institutional and Competitive Bandwagons: Using Mathematical Modeling as a Tool To Explore Innovation Diffusion*, 18 ACAD. MGMT. REV. 487 (1993); Frederick J. Boehmke & Richard Witmer, *Disentangling Diffusion: The Effects of Social Learning and Economic Competition on State Policy Innovation and Expansion*, 57 POL. RES. Q. 39 (2004).

46. *See* Graham et al., *supra* note 42, at 690.

47. With the rise of political polarization, there may even be a "race to the left" or a "race to the right" as state officials model extreme versions of their party's policy program in a bid to garner support for higher office. *Cf.* Jessica Bulman-Pozen, *Partisan Federalism*, 127 HARV. L. REV. 1077 (2014) (discussing the interaction of polarized and nationally oriented political parties with the federal constitutional structure).

48. The ability of states with large markets to dominate standard setting has been dubbed the "California effect." DAVID VOGEL, TRADING UP: CONSUMER AND ENVIRONMENTAL REGULATION IN A GLOBAL ECONOMY 5-8 (1995).

49. *See* Graham et al., *supra* note 42, at 692-93.

50. *See* Judith Resnik, *Categorical Federalism: Jurisdiction, Gender, and the Globe*, 111 YALE L.J. 619, 622 (2001) (arguing that drawing lines between policy domains for purposes of excluding any from federalism contests is problematic).

draws its case studies from the field of environmental law. Environmental law scholars have been "key movers" in exploring the territory of federalism beyond traditional constitutional questions, particularly in examining the policy benefits of decentralized government in cooperative federalist regimes.[51] The prominent role of the "environmental federalists"[52] is perhaps due in part to the diverse examples of federal-state arrangements provided by environmental law. Within the Clean Water Act alone we find: a national program requiring pollution control technology;[53] a decentralized program dealing with runoff from agricultural and other sources;[54] and a program of intense federal-state cooperation and interaction on water quality standards.[55] This blending of national and state authority is common.[56] Another interesting feature of federalist

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51. Gerken, *supra* note 5, at 1902.

52. *Id.*

53. 33 U.S.C. § 1342 (2012). The centerpiece of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES). NPDES permits are required for all point sources that emit regulated pollutants into water bodies. The effluent limitations in NPDES permits are technology-based and are developed at the national level by EPA. The agency can, and often does, delegate permitting authority to the states, reserving the right to retract that permitting authority if states fail to live up to their obligations under the Act. *Id.* § 1342(c).

54. *Id.* §§ 1288, 1329. Regulation of non-point sources (such as agricultural runoff) is left almost entirely to the states, although the Act requires states to develop management plans for non-point sources for impaired water bodies, which are approved by EPA. *Id.* § 1329.

55. *Id.* § 1313. The NPDES and non-point best management plans are augmented by water quality standards, which are developed by states (subject to EPA guidance) on a waterbody-by-waterbody level. *Id.* § 1313(c). The water quality standards are then enforced through Total Maximum Daily Load (TMDL) standards, which specify the total discharge that is permitted into a given water body. *Id.* § 1313(d)(1)(C). States are required to develop TMDLs for all water bodies that do not meet a water quality standard, with EPA as a backstop if a state fails to do so. *Id.* § 1313(d)(2). The TMDLs are enforced through the NPDES permits, and, to some extent, through measures that are directly applied to non-point sources. The complicated interaction of TMDLs and non-point controls is generally reconciled at the state and regional office levels.

56. For example, the Clean Air Act's signature requirements—the National Ambient Air Quality Standards—are set by EPA, but states are responsible for developing plans to achieve compliance. 42 U.S.C. §§ 7409, 7410 (2012). Air pollution is also regulated by national technology-based standards for new sources, with permitting authority often delegated to states. *Id.* § 7411. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, known as the Superfund) is a national program, directly administered by EPA, to clean up the most contaminated toxic sites in the country. JAMES SALZMAN & BARTON H. THOMPSON, JR., ENVIRONMENTAL LAW AND POLICY 247-66 (4th ed. 2014) (describing the Superfund program). But states often have supplemental programs to addresses lesser sites as well as "brownfield" programs to encourage voluntary development of lightly contaminated former industrial lands. *Id.* at 261-62 (explaining the "brownfields problem").

structures in U.S. environmental law is the complex interaction between normative theory and application. New regulatory structures come into being, evolve, and are contested in a variety of judicial and administrative forums,[57] providing many useful opportunities to develop legal insights with both abstract and practical implications.[58]

Given the extensive body of related literature, a clarifying remark on the contribution of this Article may be helpful. Most generally, it calls attention to certain underappreciated political dynamics of decentralization, notes the potential for the production of political information, and provides a healthy dose of public choice skepticism concerning how information will be put to use.[59] Experimentation may sometimes have democratic benefits, but the public

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57. These conflicts provide opportunities to compare normative theory with real world practices. *See, e.g.*, Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 130 (2005) (arguing that normative theory cannot justify the current division between national and state jurisdiction in the environmental area); Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority*, 14 YALE L. & POL'Y REV. 23 (1996) (arguing that "the American public's desire for aggressive environmental enforcement can be satisfied better by radical restructuring of environmental regulatory authority" away from federal overreach and toward increased state and local control). For example, purely local endangered species do not obviously implicate national concerns, but as a matter of fact, this has been an area of strong national control for decades. *See* Jonathan H. Adler, *Judicial Federalism and the Future of Federal Environmental Regulation*, 90 IOWA L. REV. 377, 406-17 (2005) (reviewing arguments that the Endangered Species Act, as applied to purely intrastate species, exceeds federal power under the Commerce Clause). A district court in Utah recently accepted this argument, as applied to the Utah prairie dog. People for the Ethical Treatment of Prop. Owners v. U.S. Fish & Wildlife Serv., 57 F. Supp. 3d 1337, 1346 (D. Utah 2014). It is worth noting that the normative case for local control of endangered species is far from a "slam dunk." For example, national control over endangered species could be justified based on the existence of value externalities, race-to-the-bottom problems, or greater federal expertise. By way of comparison, uniform air quality standards are set at the national level, despite considerable diversity in population density, levels of industrialization, and preferences. Yet for many years, EPA's air-quality efforts largely ignored interstate air pollution, an area where federal authority is more plainly justified. *See* EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584, 1593 (2014) (citing Richard L. Revesz, *Federalism and Interstate Environmental Externalities*, 144 U. PA. L. REV. 2341, 2343 (1996)).

58. *See, e.g.*, William W. Buzbee, *Brownfields, Environmental Federalism, and Institutional Determinism*, 21 WM. & MARY ENVTL. L. & POL'Y REV. 1 (1997); Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159 (2006); Bradley C. Karkkainen, *Collaborative Ecosystem Governance: Scale, Complexity, and Dynamism*, 21 VA. ENVTL. L.J. 189 (2002).

59. For a more skeptical view of decentralization, especially in the global context, see DANIEL TREISMAN, THE ARCHITECTURE OF GOVERNMENT: RETHINKING POLITICAL DECENTRALIZATION (2007).

choice perspective provides reasons to be suspicious that enhancing the information available to strategically interacting agents within actual political systems will always have beneficial consequences for welfare.[60] Relatedly, this Article extends models that have been developed in prior scholarship in law and political science concerning the underproduction of socially beneficial information to show that they apply with similar force to the overproduction of socially harmful information. Based on these two higher-level contributions, this Article then takes a first cut at a framework for maximizing the benefits and minimizing the harms of experimentation as an input into a broader calculus concerning decentralization. Finally, it applies that framework to two major environmental rulemakings of high social, political, economic, and legal significance, both of which are the subject of considerable legal scholarship in their own right.[61]

Both within and outside the environmental arena, policy experimentation exerts a strong normative pull. Naturally, most would admit that experimentation is only one of several considerations that are relevant to assessing multilevel governance structures. Nevertheless, even given the existence of countervailing considerations and complications, Brandeis's laboratories retain their allure, promising policy innovations that can help policymakers slip the bonds of constrained choice sets filled with unattractive tradeoffs and unfortunate compromises. As we will explore in the following Part, experimentation may hold that potential, but there are also dangers built into the political machinery humming away in the background.

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60. *Cf.* Thomas W. Merrill, *Capture Theory and the Courts: 1967-1983*, 72 CHI.-KENT L. REV. 1039, 1043-44 (1997) (discussing the judiciary's loss of faith in the power of administrative procedure to address public choice concerns about regulatory capture).

61. For a rule of recent vintage, the Clean Power Plan has already spurred a surprisingly substantial body of legal commentary. *See, e.g.*, Jody Freeman, *Why I Worry About* UARG, 39 HARV. ENVTL. L. REV. 9 (2015) (discussing the implications of a recent Supreme Court case on the Clean Power Plan); Alice Kaswan, *Controlling Power Plants: The Co-Pollutant Implications of EPA's Clean Air Act §111(d) Options for Greenhouse Gases*, 32 VA. ENVTL. L.J. 173 (2014); Jason Scott Johnston, *The False Federalism of EPA's Clean Power Plan* (Va. Law & Econ., Research Paper No. 16, 2015), http://ssrn.com/abstract=2604308 [http://perma.cc/2KKY-LSZM]. There has been considerably more written about the "waters of the United States" question, which is unsurprising given that it has led to three Supreme Court decisions and is likely to lead to (at least) a fourth. A search of the Westlaw database in September 2016 for "Rapanos v. United States" under "Law Reviews and Journals" returned 846 separate articles that reference the case. *See, e.g.*, Gillian E. Metzger, *Ordinary Administrative Law as Constitutional Common Law*, 110 COLUM. L. REV. 479, 533-34 (2010) (discussing *Rapanos* as an example where administrative expertise and political accountability justifies judicial deference).

II. THE EFFECTS OF POLICY LEARNING

This Part describes a general framework for examining the welfare consequences of policy experimentation. This approach calls attention to two relevant dimensions: the type of information that can be produced by experimentation, discussed in Section II.A, and the likely uses of this information, canvassed in Section II.B. The interplay of these two dimensions determines whether facilitating experimentation, through greater decentralization or otherwise, is likely to lead to beneficial outcomes. Section II.C then examines the incentives for the production of information and concludes that simple decentralization can result both in the underproduction of useful information and the overproduction of harmful information. Section II.D draws out the real world consequences of these theoretical observations to help structure inquiry into the appropriate level and form of decentralization in specific policy contexts.

A. Deliberative and Political Information

Imagine an apolitical and beneficent environment in which policymakers are exclusively focused on maximizing their vision of social well-being. I will refer to this environment as the *deliberative model*. Although life in the deliberative model is probably pretty good, things are not perfect. Policymakers are well-intentioned, but they are neither omnipotent nor omniscient. They cannot simply wish states of affairs into being, but must engage in specific interventions that can have both positive and negative consequences, and they face constraints in their ability to act. These constraints involve resources, including budgets and staffing, as well as limited legal authority or enforcement tools. In addition, policymakers in the deliberative model often possess incomplete information. As a result, even with the best of intentions, they might adopt unwise policies.

Policy mistakes have two potential causes: mistaken views about policy *ends* and mistaken views about policy *means*. With respect to policy ends, although decision makers may internalize an intention of promoting social well-being, that concept is fuzzy and imperfectly understood. As a consequence, even assuming a "right" answer exists, there may be disagreement and incorrect views about its content. Policymakers in some societies may, for example, believe that well-being is promoted by strict gender roles. If this is a mistake, then policies that achieve their goal of gender conformity may still harm well-being. With respect to means, the question is one of effectiveness. If there is a social goal of reducing teen pregnancy, for example, policymakers may adopt abstinence-only education as the preferred intervention. If, as a matter of fact, abstinence-

only education is less effective than comprehensive sex education at reducing teen pregnancy, then they have made a mistake about policy means.[62]

Deliberative information is defined as all of the information about policy ends and means that would reduce the likelihood of mistaken choices in the deliberative model. Using the examples above, this information would bear on the relationship between gender conformity and well-being, or on the relationship between abstinence-only education and teen pregnancy. With a relevant datum of deliberative information, policymakers would be less likely to make a mistake about the question at hand than they would be without that datum. With experience and the ability to observe and draw valid inferences, policymakers in the deliberative model would gather and use this information in their process of joint reasoning over the ends and means of policy.

There are many ways that deliberative information might be generated, either actively or passively. Simple experience comes with the passage of time and may provide new perspectives on policy ends alongside information about effectiveness.[63] Policymakers could also engage in intentional experimentation, running controlled pilot programs to test for efficacy or commissioning deliberative juries to puzzle over policy goals. Over time, one would expect fewer mistakes from policymakers as deliberative information accumulates and greater clarity is reached about the social desirability of the policy options before them.

The deliberative model is pleasant to contemplate but incomplete. By contrast, an alternative *political model* of decision making can be imagined that involves a different set of motivations and constraints. In place of a desire to maximize social well-being, we can imagine actors in the political model as seeking to minimize the distance between social policy choices and a set of preferences, either ideological or personal. With no necessary relationship to social well-being, these preferences can be understood as exogenously given and not amenable to change through persuasion or reason.

In place of the resource constraints of the deliberative model, policymakers are confronted by the need to secure votes and funds in support of their career

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62. This distinction between ends and means is adopted for the sake of expository convenience and is not central to the argument presented in this paper. For example, promoting gender conformity could be understood as an intermediary means of enhancing social well-being, rather than a policy end unto itself. The point is to note that there are multiple steps in the causal chain of policymaking, and an intervention (say, rules concerning dress) may have its intended effect on one level (e.g., enforcing gender conformity), while still having unintended consequences at another level (reducing social well-being).

63. *See, e.g.*, Yair Listokin, *Learning Through Policy Variation*, 118 YALE L.J. 480 (2008) (applying the concept of optimal search from economics to policymaking questions).

advancement. Improving social well-being could lead to greater electoral or appointment success, but does not necessarily do so—that relationship will depend on the particular institutional structures of the jurisdiction. Constraints on budgetary or regulatory resources also only enter into our policymakers' decision functions to the extent that they affect career prospects or preference satisfaction. If overspending is the way to achieve their ideological goals while protecting their job, policymakers in the political model will spend away, subject only to the reality that, at some point, voters may cry foul.

Akin to their counterparts in the deliberative model, policymakers in the political model are not omnipotent. They cannot wish themselves life tenure and an infinite horizon of policy discretion. Instead, they face a host of choices when attempting to satisfy their preferences in the face of political constraints. Nor are they omniscient, and when deciding between alternatives they may sometimes make mistakes. Reducing those mistakes requires access to *political information*, which comes in two flavors: information concerning ideological preferences and information concerning political incentives. These two kinds of political information roughly correspond to information on ends and means from the deliberative model.

Information on political incentives is straightforward to understand. As noted by Graham, Shipan, and Volden, "policy makers may be concerned with learning about the policy's political viability and public attractiveness, about implications for re-election and reappointment, or about whether a glitzy modification of the policy could serve as a vehicle in the pursuit of higher office."[64] Past experience can reveal whether voters tend to punish or reward incumbent politicians for particular policy choices. Interest groups can observe how a policy affected the ability of a similarly situated group to secure rents in the experimenting jurisdiction. Political actors use this information to better understand the external rewards or risks associated with their choices.

Political information bears on preferences if we assume that actors in the political model may be uncertain concerning where a policy is located within ideological space. Most of the time, policies can be relatively easily identified along a liberal-to-conservative axis. New or unfamiliar policies, however, may be difficult to locate at first, and policies might shift on that spectrum over time. By observing the policy preferences of other decision makers, agents may gain information on where an unfamiliar policy fits on the ideological spectrum.[65]

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64. Graham et al., *supra* note 42, at 691 (footnotes omitted).

65. Grossback, Nicholson-Crotty, and Peterson develop this understanding of policy learning, test whether it predicts politician behavior in the context of state adoption of lotteries, edu-

Political information is defined as all of the information that is relevant in a purely political model. It is possible that the efficacy of a policy in achieving its goals (i.e., deliberative information) matters for policymakers in such a model, but effectiveness is only relevant if it affects external incentives (e.g., if achieving the goals affects voting behavior) or preferences (e.g., if some ideological preferences concern outcomes rather than policies themselves). For example, an experiment with a workplace safety policy may reveal information about how the policy affects employment in the regulated sector. This information about the effects of the policy bears on social welfare, and would therefore be relevant in the deliberative model. At the same time, that information would be relevant in the political model, inasmuch as it affects political incentives. The same data (the effect of the policy on jobs) would carry both deliberative and political information. But although the deliberative model and the political model may overlap in this way, any concern from policymakers about social well-being in the political model would be mediated through their political objectives.

The deliberative and political models are not meant to accurately picture the real world. Neither is likely to correctly predict how actual people will behave. Instead, the models described above are meant to clarify two distinct types of information that can be generated when jurisdictions engage in experimentation. This information is defined relative to the deliberative and political models—each category covers all of, and only, the information that would be relevant to actors in their respective models. Policy experiments may generate

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cational reforms, and sentencing reforms, and find that ideological learning appears to have occurred in each of these policy areas. Grossback, Nicholson-Crotty & Peterson, *supra* note 44. The crux of their hypothesis is that other factors (such as geographic proximity) being equal, the adoption of a policy by a state will increase the likelihood of adoption by ideologically similar states, and decrease adoption by ideologically dissimilar states, a prediction that is largely supported in their analysis. *Id.* Fabrizio Gilardi examines these dynamics in the context of the spread of unemployment benefit "retrenchment" in OECD countries in response to recent fiscal and economic pressure. Fabrizio Gilardi, *Who Learns from What in Policy Diffusion Processes?*, 54 AM. J. POL. SCI. 650, 650 (2010). That analysis finds that the interpretation of data created by prior information is heavily contingent on the political perspectives of the interpreter: Gilardi concludes that "differential responses" between right-wing and left-wing governments to the "trade-offs" between "good outcomes on one dimension (e.g., policy)" and "bad consequences on the other (e.g., politics)" ultimately "depend[] on the alignment between the evidence and the preferences and prior beliefs of policy makers." *Id.* at 661. It is worth noting that it is difficult to determine whether learning is taking place, or whether jurisdictions are independently adopting these policies. Craig Volden, Michael M. Ting & Daniel P. Carpenter, *A Formal Model of Learning and Policy Diffusion*, 102 AM. POL. SCI. REV. 319 (2008).

other types of information as well, but typically, they will generate both deliberative and political information.

B. Beneficial and Mischievous Uses

In many contexts, information is a good thing: invention and innovation drive economic progress; insight into the welfare of our fellow beings increases compassion; scientific knowledge enhances our understanding of the world around us. But information is not always beneficial. The world would likely be a better place if humans were less well-informed about how to steal, lie, and kill. The social value of information often turns on the motivations and desires of the people who put it to use.

Both deliberative and political information have this double potential. Because deliberative information is technocratically oriented and bears on social well-being, it will often be beneficial. If leaders in one jurisdiction observe a neighbor's successful education campaign to cut down on adolescent drunk driving and they use that information to design their own effective policy, social well-being is likely to be enhanced. If a municipality observes an economic development initiative elsewhere that links academic researchers with venture capitalists, and that municipality develops its own successful public/private innovation collaborations, then people are likely better off. If land-use controls are able to cut down on storm water runoff inexpensively in one jurisdiction, and others copy the low-cost intervention, all parties benefit. When the motivations of government officials putting deliberative information to use align with social well-being, an increased bank of technocratic knowledge is likely to have positive social consequences.

But decision makers may also have misguided conceptions of the social good.[66] For example, imagine a caste-based society consisting of a powerful propertied group, a large group of workers, and a subordinate group of itinerant low-skill laborers. Experience in this society may show that excessively coercive and intrusive policing is very effective at reducing property crime. If the benefits of those policing practices accrue to the dominant group, and the costs

66. Again, it is not necessary to adopt any particular view of social welfare to accept this argument. So long as one adopts *some* view about social welfare, there is the potential for others to adopt a conflicting account, that (from the first perspective) is misguided. One possible exception might be a maximally relativistic position in which the best account of social welfare is just whatever decision makers believe to be social welfare at the time of their decisions. Under such an account, one cannot criticize any social policy for promoting bad ends. Even in such a case, it is (perhaps) possible to criticize a policy for being ineffective at promoting those ends.

are borne by the subordinate group, then unjustifiably brutal tactics may spread as leaders of different jurisdictions within this society copy what they view as a policy success.[67] In this context, deliberative information is at work—technocratically effective policy design would be informed by those early experiences, if only because of their failure. But when put to use in an unbalanced polity, the wrong lessons are learned, and negative consequences may arise.[68]

Even if decision makers have correct views of the social good, deliberative information could still sometimes lead policy astray. If policymakers simply copy a policy success elsewhere, without sufficiently attending to differences between jurisdictions, there is a risk that deliberative information that could have been put to beneficial use ends up resulting in harmful outcomes.[69] Alternatively, disparities between interest groups may result in deliberative information that is used in a biased fashion. Imagine a well-meaning legislature in a rural county contemplating whether to locate a garbage incinerator in the jurisdiction. Some local community members would welcome the incinerator as a source of jobs and inexpensive electricity, while others would be concerned about air pollution and the potential risks to the county's financial health. Let us assume that, on the city council's account of well-being, the incinerator is a bad idea.[70] But while opponents are small "kitchen table"-style local volunteer organizations with few resources, proponents include the company that wants to build the incinerator. As part of its lobbying campaign, the company hires consultants to prepare environmental and fiscal forecasts concerning the incinerator's effects and, while conducted within the bounds of professional norms, the forecasts are on the optimistic side of those norms. With the opponents unable to provide the same level of sophistication in their arguments against the plan, the incinerator is adopted. The optimistic forecasts are deliberative in-

67. Let us assume that, on a correct account of social welfare, these policing tactics are not overall welfare enhancing. Let us further assume that the perception of policy success is due to leaders who, because of their caste-society conditioning, are simply insensitive to costs imposed on the subordinate group. If the leaders in this society are correct about the relative value of the dominant and subordinate groups, then it would be leaders in non-caste societies that have misconstrued social well-being, and the inverse argument would hold.

68. *Cf*. Super, *supra* note 7, at 554-55 (discussing how democratic experimentalists "assume[] that all relevant players are inclined to act in a public-spirited way to correct [a] problem" and that "recalcitrant perpetrators . . . and opportunists . . . will lack any significant traction in a democratic experimentalist regime").

69. *Cf*. Bert I. Huang, *Shallow Signals*, 126 HARV. L. REV. 2227 (2013) (discussing potential for regulated actors to misperceive signals from others' treatment by legal authorities).

70. Stated another way, with full information about the costs and benefits of the incinerator, the city council would reject the proposal.

formation, because they in fact bear on the wisdom of the proposal. Yet because they are not balanced by equivalent pessimistic forecasts, this information ends up misdirecting decision makers.[71]

Political information likewise can lead to both good and bad outcomes. Optimistically, groups with interests that are aligned with the social welfare can use political information to improve the effectiveness of their advocacy efforts. Politicians may respond to political information by better conforming their behavior to the desires of their constituents. On the pessimistic side of the ledger, special interest groups may make use of political information to extract rents from governments at the expense of the general public. Likewise, politicians may use political information to insulate themselves from political accountability.[72] Even well-meaning policymakers may learn that socially beneficial policies are political suicide, leading them to abandon a proposal that would have been desirable from the perspective of social welfare.

Collective action problems impair the ability of broad, diffuse interests to organize relative to small, highly affected groups. Typically, these collective action problems are understood in relation to a group's ability to raise funds to

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71. Some readers may be tempted to classify the forecasts as political information. Certainly, if prior experience showed such forecasts to be successful lobbying tools, *that* would be political information. But the forecasts themselves, because they genuinely bear on the effects of the proposal on welfare, are deliberative information, even if they are, at some level, distorted by the fact that they are incomplete.

Now might be a good time to reiterate that I am not attempting to make any ontological claim about the nature of information. *See supra* note 8. The distinction between political and deliberative information is functional and meant to serve the practical purpose of aiding reasoning about the costs and benefits of decentralization. What is important is that policymakers attend to the various kinds of information that might be produced by decentralization, and the ways that this information can be put to use, in a given context. As long as that happens, whether one categorizes the information as political or deliberative is of little consequence. In that way, deliberative and political information might be best thought of as categories on a checklist that is meant to call attention to the diverse informational effects of decentralization. As long as the policymaker has anticipated effects in both categories, it does not matter how the effect was brought to mind.

72. In this way, political information can be used to *entrench* incumbents and policy successes. *See, e.g.*, Samuel Issacharoff & Richard H. Pildes, *Politics as Markets: Partisan Lockups of the Democratic Process*, 50 STAN. L. REV. 643, 644 (1998) (examining various methods by which "dominant parties manage to lock up political institutions to forestall competition"); Daryl Levinson & Benjamin I. Sachs, *Political Entrenchment and Public Law*, 125 YALE L.J. 400, 408-09 (2015) (noting how political actors entrench themselves and their policies not only through formal methods, but also through an array of functional alternatives); John O. McGinnis & Michael B. Rappaport, *Symmetric Entrenchment: A Constitutional and Normative Theory*, 89 VA. L. REV. 385, 388-89 (2003) (discussing "symmetric" and "asymmetric" entrenchment).

influence politicians. But money is not the only currency in the halls of power, and information—both about how to influence politicians and about the social consequences of policy choices—will affect the efficacy of lobbying efforts. Experimentation will systematically favor groups that are better able to incur the costs needed to take advantage of information generated in other jurisdictions.[73]

The relative advantages of well-organized interest groups and politicians compared to the broader public may lead one to a fairly dim view: if information simply exacerbates existing public choice failures, perhaps society is better off in the dark. But there are reasons for optimism, even with a clear-eyed assessment of the state of democratic institutions. Although the link between policymaking and the electorate may be attenuated, existing accountability mechanisms likely ensure that democratic processes play some role in policymaking.[74] Public choice failures do not imply a complete breakdown of representative government.

In addition, Jessica Bulman-Pozen provides an account in which contemporary political parties play a role in generating and processing information that leads to socially beneficial outcomes.[75] For Bulman-Pozen, parties interact with federalist structures that "enable a greater number of partisan positions to be advanced," allowing states to serve as "testing grounds" for party programs.[76] At least under some accounts of contemporary politics, this contestation and partisan experimentation creates the potential for adaptions in parties that are ultimately responsive to voter demand.[77] Information generated by this innovation informs how parties put together their issue agendas and interest group alignments to maximize the likelihood of electoral success; the result is party behavior that better conforms to the desires of the electorate.

Of course, this optimistic vision is more convincing under some accounts of contemporary parties than others. Specifically, if parties are dominated by poli-

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73. *See* Wiseman, *supra* note 40, at 1688.

74. Research on policy diffusion finds that voters play an important role in determining whether policies spread across jurisdictions. KATERINA LINOS, THE DEMOCRATIC FOUNDATIONS OF POLICY DIFFUSION: HOW HEALTH, FAMILY, AND EMPLOYMENT LAWS SPREAD ACROSS COUNTRIES (2013).

75. Bulman-Pozen, *supra* note 47, at 1080-81, 1128-29. For earlier work examining the political consequences of federalism and the interaction of political parties and federalist structures, see Vicki C. Jackson, *Federalism and the Uses and Limits of Law:* Printz *and Principle?*, 111 HARV. L. REV. 2180, 2213-22 (1998); and Larry D. Kramer, *Putting the Politics Back into the Political Safeguards of Federalism*, 100 COLUM. L. REV. 215 (2000).

76. Bulman-Pozen, *supra* note 47, at 1125, 1128-29.

77. JOHN H. ALDRICH, WHY PARTIES? A SECOND LOOK 186 (2011).

ticians seeking the benefits of office, they will tend to seek to maximize their vote shares, and therefore be responsive to voter demand.[78] This account of parties accords well with Bulman-Pozen's vision. The main competing account, sometimes called the "group-centered" view, argues that powerful interest groups tend to dominate parties, in which case politicians may use their positions to take advantage of voter inattention to please their activist bases and donors instead of maximizing vote shares.[79] If the group-centered account is more accurate, then the overlay of political parties onto democratic decision making does little to alleviate public choice failures.

The general debate on the nature of contemporary parties may elide ways in which the specifics of the policymaking domain in question may affect external versus internal pressures on parties. For example, on issues of general voter inattention, organized constituencies within parties may be able to exert greater influence, while on issues closely attended to by voters, external constraints on politicians may be more important. As with the more general interest group inquiry, close attention to how the specific dynamics within a policy area affect the nature of party competition is required.

78. *See* Michael A. Livermore, *Political Parties and Presidential Oversight*, 67 ALA. L. REV. 45, 87 (2015).

79. *See* MARTY COHEN ET AL., THE PARTY DECIDES: PRESIDENTIAL NOMINATIONS BEFORE AND AFTER REFORM 40 (2008).

FIGURE 1.
THE AMBIGUOUS SOCIAL VALUE OF EXPERIMENTATION

Information Type	Social Effects: Positive	Social Effects: Negative
Deliberative	Smoking bans have no ill effect on local businesses, leading to replication in other jurisdictions.	Ambiguity in data on local business effects is exploited to create impression of economic uncertainty.
Political	Local officials who support anti-tobacco measures are typically able to avoid significant backlash.	"Smokers' rights" groups are found to evoke sympathy for individuals subject to restrictions.

With these complexities in mind, Figure 1 provides a schematic representation of the potential effects of information generated through policy experimentation, using local tobacco restrictions as an example.[80] Innovating districts can produce either or both deliberative and political information, and each of these types of information can have socially positive or socially negative effects. Whether the information generated from decentralization has overall useful consequences depends on how the positive and negative effects for both information types net out.

Evaluating the information production potential in a policy regime requires two inquiries: first, whether there is socially important deliberative or political information at stake; and second, whether the policy regime will affect the production and use of that information. Answering these questions requires attention to both technocratic issues, such as the extent of the existing economic knowledge base within a policy domain, and political issues, such as the interest group makeup and the degree of voter attention. The design goal should be to facilitate the production of valuable information that is likely to be put to socially beneficial uses; there is no reason to facilitate generation of information that is not valuable or that will be put to socially harmful uses.

80. Thanks to Michael Gilbert for suggesting this figure.

Municipal bans on smoking in bars and restaurants provide a brief example of how this inquiry can be carried out. When this policy idea first arose, there were many open questions about the social welfare and political consequences of these bans. For example, it was not clear what their effects would be on local businesses. Some bar owners feared that if smoking was banned, their customers would stop drinking in bars. This presented an open technocratic policy question and room for deliberative information. Similarly, there was also the potential for political information to be generated, including on the political consequences of bans for politicians, as well as about effective campaigning, organizing, and lobbying on the issue that would be useful to interest groups—such as whether pro-tobacco forces were better off characterizing the issue as one of restrictions on local businesses or interference in "smokers' rights."

Surveying the interest group environment on the issue, there might be some concerns about how both political and deliberative information might be put to use.[81] "Big Tobacco" maintained a well-organized, well-funded, and highly effective lobbying presence at the national and local levels, and so was well poised to take advantage of cross-jurisdictional learning.[82] At the same time, there was an active public health community that had some level of organization that at least partially addressed the collective action problem faced by unorganized consumers and other affected individuals.

As it turned out, political and deliberative information generated by policy experimentation on this issue tended to work in favor of anti-tobacco efforts. As bans took effect, a number of analyses studied the local economic effect, typically finding few if any negative consequences for small businesses.[83] Although pro-tobacco interests have attempted to exploit ambiguity in the data, in gen-

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81. It is perhaps worth restating the distinction between the types of information that could be created by decentralization and the ways that this information could be put to use. Political information is *not* information that is put to political uses; it is information that bears on political incentives and preferences. Deliberative information is *not* information that is put to deliberative use; it is information that bears on social well-being. These two types of information are defined relative to their uses within two different *models* of decision making, not how they are *actually* used in the real world.

82. *See generally* ALLAN M. BRANDT, THE CIGARETTE CENTURY: THE RISE, FALL, AND DEADLY PERSISTENCE OF THE PRODUCT THAT DEFINED AMERICA (2007) (providing a history of successful lobbying efforts on behalf of the tobacco industry). For an interesting account comparing the uses of science in advocacy by the tobacco and fossil fuel industries, see NAOMI ORESKES & ERIK M. CONWAY, MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING (2010).

83. *See, e.g.*, Brett R. Loomis et al., *The Economic Impact of Smoke-Free Laws on Restaurants and Bars in 9 States*, 10 PREVENTING CHRONIC DISEASE 120327 (2013) (finding few negative economic effects).

eral the information has been used by public health organizations to promote smoking bans.[84] Similarly, although pro-tobacco groups may have learned valuable lessons on how to frame their message, early adopting politicians did not face substantial backlash, giving anti-tobacco efforts a considerable push.[85]

This smoking ban example helps illustrate that ex-ante predictions about the ultimate effects of policy experimentation are necessarily tentative. To take a stylized hypothetical, imagine a decision maker attempting to decide in the mid-1990s whether to adopt a federal anti-smoking statute that preempted local smoking bans. That actor might survey the policy scene and determine that the imbalance between Big Tobacco and the public health community is so great that any information generated by experimentation would inevitably be used to greater advantage by the stronger party, leading to socially inefficient decisions. Better, it may seem, to make the decision at the federal level and avoid facilitating production of information that would be likely to bias future policymaking. As it turns out, policy experimentation likely led to a much worse state of affairs for tobacco than would have resulted from a decision at that time at the federal level. The information generated by policy experimentation in the subsequent years so overwhelmingly disfavored tobacco that it was able to counteract lobbying advantages enjoyed by the industry.

Less optimistic illustrations are also possible. For example, diversity across states in the implementation of the death penalty generates data on the policy's efficacy as a deterrent. But normative views about the death penalty strongly influence interpretation of the data and it is not clear that much learning actually occurs, no matter how much data is produced.[86] Similarly, although criminal justice reform has picked up steam in recent years, for decades crime policy was driven by prior political lessons learned in a variety of otherwise different jurisdictions that a "soft on crime" label was to be avoided at all costs, leading to policies that almost certainly do not maximize well-being.[87] Educational reform at the local level may be hampered by public choice dynamics that tend to

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84. *Compare id.*, *with* Michael L. Marlow, *The Economic Losers from Smoking Bans*, 33 REG. 14, 14 (2010) (authored by a recipient of grants from cigarette manufacturers who deploys a questionable empirical strategy to identify economic costs of smoking bans).

85. Gilardi, *supra* note 65, at 651 (noting that political information is "likely to be as important, if not more so" than information on policy consequences).

86. *See, e.g.*, Phoebe C. Ellsworth & Samuel R. Gross, *Hardening of the Attitudes: Americans' Views on the Death Penalty*, 50 J. SOC. ISSUES 19 (1994).

87. *See generally* LAW ENFORCEMENT LEADERS TO REDUCE CRIME & INCARCERATION, http://lawenforcementleaders.org [http://perma.cc/PDK8-CQA8] (calling for reforms to reduce the incarceration rate by a group of current and former police chiefs, prosecutors, and attorneys general).

favor organized labor at the expense of the diffuse interests of children and taxpayers; there may be too little policy experimentation as a result, and any information that does arise may have scant effect on policy or be put to biased uses. The wildfire-like spread of laws to strengthen voter identification requirements may be based on deliberative information about how the laws affect the racial composition of actual voters, put to use by politicians more interested in maximizing their electoral prospects than avoiding discrimination.[88]

It should be clear by now that experimentation and the information that it produces can have complex and ambiguous effects on social welfare. Predicting these effects ex ante is no doubt very difficult. But if decentralization is to be justified on the basis of experimentation, it is worth inquiring into whether the relevant policy context is one in which the creation of information is likely to have salutary effects on the policymaking process. Where valuable information is to be had, experimentation and innovation should be encouraged; where there is little potential benefit and greater downside risk, enthusiasm for experimentation should wane.

C. Incentives and Timing

Within the literature on experimentation, scholars recognize that simply decentralizing policymaking authority is not enough to promote optimal levels of information generation. As observed by Susan Rose-Ackerman three decades ago, states lack incentives to produce useful knowledge for general consumption.[89] If experimentation comes at a cost, and the benefits are largely enjoyed by other states, then states will be disinclined to produce information.[90] This

88. It is very unlikely that deliberative information about the severity of the threat of voter fraud led to these efforts. *See* RICHARD L. HASEN, THE VOTING WARS: FROM FLORIDA 2000 TO THE NEXT ELECTION MELTDOWN 41-74 (2012).

89. *See* Susan Rose-Ackerman, *Risk Taking and Reelection: Does Federalism Promote Innovation?*, 9 J. LEGAL STUD. 593 (1980) (providing a formal model that describes state incentives to experiment); *see also* Brian Galle & Joseph Leahy, *Laboratories of Democracy? Policy Innovation in Decentralized Governments*, 58 EMORY L.J. 1333 (2009) (summarizing three decades of responses to Rose-Ackerman's model).

90. An additional problem with decentralized experimentation is that, in effect, the researcher "authorize[s] her subjects to follow whatever course of treatment they desire." Edward L. Rubin & Malcolm Feeley, *Federalism: Some Notes on a National Neurosis*, 41 UCLA L. REV. 903, 926 (1994). As a consequence, their selection bias will constantly haunt any attempt to draw policy lessons.

is, in essence, a positive externality problem.[91] The other side of the story, however, has received less attention. As discussed in the previous section, experimentation can generate information with socially undesirable effects. This creates the potential of a negative externality from policy experimentation: innovating jurisdictions export information that has negative welfare consequences that are not acknowledged as costs.[92] Taken together, these two externalities imply that jurisdictions engaged in rational utility-maximizing behavior in a fully decentralized regime will tend to underproduce useful information, overproduce harmful information, or both.[93]

This dynamic carries over even when useful information is not costly to generate, such as when simple variation in responses to a policy question allows observers to test for policy consequences.[94] Craig Volden, Michael Ting, and Daniel Carpenter have explored how the value of information could create a strategic problem for decentralized policy regimes even in this context.[95] A simplified illustration of their model would consist of two states considering a policy that has a positive expected net present value. There is some uncertainty, however, about the costs and benefits of the policy, and there is some chance that it will result in a net loss. Once the policy is adopted in either state, the

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91. Individual policymakers may be able to capture some of these externalized positive effects by taking credit for policy innovation and building political reputations that can propel them to higher office. This dynamic would reduce the incentive problem and result in experimentation closer to optimal levels. *Cf.* Michael Mintrom, *Policy Entrepreneurs and the Diffusion of Innovation*, 41 AM. J. POL. SCI. 738 (1997) (describing how individual incentives can lead to the cross-jurisdictional adoption of successful policies).

92. From the perspective of politicians and interest groups, political information is a good, and collective action problems and the lack of an intellectual property regime will result in suboptimal production. The end result is more political information than is good for the public interest, but less than the consumers of this information would like.

93. It is possible for there to be simultaneously too much and too little experimentation: jurisdictions may engage in forms of experimentation that produce a great deal of harmful political information, for example, while failing to take advantage of other opportunities to engage in policy innovation that would produce beneficial deliberative information. The existence of both a positive and a negative externality might also sometimes result in a rough canceling out of their mutual effects, leading to an approximately optimal amount of experimentation. This would occur when the decision to decentralize was bundled in such a way that it was impossible to produce beneficial information without producing harmful information, and vice versa, and where the magnitudes of the effects were similar.

94. The best source of diversity would be a simple error term in the policymaking process that adds random variation. Such an error term would create differences between otherwise identical states, which would amount to a perfect natural experiment.

95. The following discussion presents a simplified recapitulation of the central insight from the more fleshed out game theory exercise presented in Volden, Ting & Carpenter, *supra* note 65.

true costs and benefits will be revealed, but after it is enacted, it is difficult to reverse. This situation implies that there is some option value associated with waiting.[96] But the option value only pays if the other state moves forward with the policy first. This creates an anti-coordination problem in which individual strategic actors will, at least sometimes, land on decisions that result in inefficient delay and suboptimal levels of information.[97]

The same basic dynamic comes into play when there is negative value of information, such that players would be better off coordinating to avoid the production of that information. A hypothetical can help motivate this intuition: imagine public health advocates in two jurisdictions that are seeking tobacco control policies. Within each jurisdiction, political will is shifting in an anti-tobacco direction. If the advocates push for a policy decision now, they receive Policy 1. If the advocates wait until the height of their political momentum, they receive Policy 2, which is better. However, there is a problem. Once either group moves its policy goal, Big Tobacco will learn valuable political lessons that it will apply in subsequent policy struggles. Thus, if one group moves first and achieves Policy 1 while the other group delays, the waiting group will lose its policy fight in the second round. The same anti-coordination problem arises, resulting in policy losses as well as second-best victories.[98] Even if both players share the same goal, absent the ability to coordinate, they will not maximize their joint outcomes.

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96. This is a form of "real option" or "quasi-option" value. *See generally* Michael A. Livermore, *Patience Is an Economic Virtue: Real Options, Natural Resources, and Offshore Oil*, 84 U. COLO. L. REV. 581, 585-87 (2013) (citing relevant literature).

97. As a simplified two-person strategic game, assume states have a choice to enact the policy in one of two time periods, Now or Later. If they both choose Now, they both receive the expected net present value. If they both choose Later, they both get a different expected net present value that we assume is somewhat less because they forgo a time period's worth of net benefits. But if one chooses Now and the other chooses Later, then the waiting state gets a higher payoff associated with the option value, because it can observe the policy effects in the first mover, and if they are bad, decide to forego enactment. In this game, there is no dominant strategy and players will take a mixed approach, which is solved by equating the expected payoffs between the two strategies in light of the behavior of the other player. *See* Kenneth Garrett & Evan Moore, *Teaching Mixed Strategy Nash Equilibrium to Undergraduates*, 7 INT'L REV. ECON. EDUC., no. 2, 2008, at 79 (providing gentle overview and examples of mixed strategies). When the option value is comparatively large, both players will tend to wait; when the option value is comparatively small, both players will move early. Either way, in some cases they both choose the same move, and so the lack of coordination results in lost option value as well as uncompensated delay. At best, when payoffs are such that they each select Now fifty percent of the time, they will only capture the option value half of the time.

98. This arises from the same dynamic discussed in note 97 in which neither player has a dominant strategy.

To summarize the thrust of the preceding discussion, simple decentralization is likely to lead to both too much and too little experimentation. The experimentation literature recognizes that when it is costly to produce useful information, jurisdictions will under-innovate, because they are not compensated for the positive externality. Even when it is costless to produce that information, Volden, Ting, and Carpenter show that jurisdictions can often fail to produce the optimal level of information as they each try to capture that value at the other's expense.[99] The result is too little experimentation of the kind that would produce useful information. These same models can be applied to the production of harmful information to show how jurisdictions can likewise engage in too much innovation. This is true certainly when it would be costly to avoid production of that information—this is simply the case of underinvestment in avoiding a negative externality. But the strategic interaction model can be extended to show that, even when it would be cost-free to avoid producing the harmful information, jurisdictions that cannot coordinate with one another will overproduce.

A number of alternatives to simple decentralization have been proposed that avoid the underproduction of beneficial information, and some of these same ideas can be applied to the overproduction of deleterious information. Cooperative federalist regimes of various stripes acknowledge a role for both the national and state governments, and allocate authority in ways that take advantage of the relative merits of both. In such regimes, incentives from the top for states to engage in experimentation can overcome the problem of positive information externalities. Charles Sabel and William Simon recently celebrated such approaches, including the Race to the Top initiative of the Obama Administration's Department of Education, a competition between states that is explicitly designed to overcome state-level policy inertia.[100] Selective exertion of national authority could play the opposite role as well, intervening in policy spaces in which interest group dynamics could lead to learning of the negative variety. As will be discussed in more detail in the following section, the framework above can help illuminate whether national intervention is warranted, and whether that intervention should push in a pro- or anti-experimentation direction.

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99. *See* Volden, Ting & Carpenter, *supra* note 65, at 323-25.

100. *See* Sabel & Simon, *supra* note 40, at 81; *see also* Susan Welch & Kay Thompson, *The Impact of Federal Incentives on State Policy Innovation*, 24 AM. J. POL. SCI. 715 (1980) (finding that federal incentives increase the speed of policy diffusion across states).

D. Applying the Model

Under an executive order issued by President Clinton, agencies are required to undertake an analysis of the federalism implications of their actions and weigh the benefits and costs of centralization and national uniformity.[101] In that order, experimentation is expressly mentioned as one of the benefits of decentralized governance.[102] But given the emphasis on experimentation in this Article, it is worth accentuating that policymakers who are evaluating the merits of decentralization should assess several other factors. The potential for interjurisdictional externalities to skew the incentives of local decision makers is one.[103] The market benefits of national uniformity must be weighed against the ability of state-by-state tailoring to better reflect preference diversity.[104] Other factors to consider include the relative level of expertise of federal versus state officials, concerns about a "race to the bottom" between jurisdictions, the difficulty of effectuating redistributive policy at the local level, and the communica-

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101. *See* Exec. Order No. 13,132, 64 Fed. Reg. 43,255 (Aug. 4, 1999). In practice, agencies largely ignore this requirement, and have been criticized for doing so. *See* Catherine M. Sharkey, *Federalism Accountability: "Agency-Forcing" Measures*, 58 DUKE L.J. 2125 (2009). It is useful to compare the experience with the federalism analysis requirement with a similar requirement in executive orders to conduct cost-benefit analysis, which was accompanied by an institutional enforcement mechanism. *See* Exec. Order No. 12,866, 3 C.F.R. § 638 (1994); Michael A. Livermore, *A Brief Comment on "Humanizing Cost-Benefit Analysis,"* 2 EUROPEAN J. RISK REG. 13 (2011); Michael A. Livermore & Richard L. Revesz, Retaking Rationality *Two Years Later*, 48 HOUS. L. REV. 1 (2011); Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1 (1995). The differential in the levels of compliance likely arises because there is an institutional mechanism to enforce the cost-benefit analysis requirement, but none to enforce the federalism analysis. *See generally* THE GLOBALIZATION OF COST-BENEFIT ANALYSIS IN ENVIRONMENTAL POLICY (Michael A. Livermore & Richard L. Revesz eds., 2013) (providing case studies from a variety of domestic contexts where cost-benefit analysis is used to varying degrees).

102. *See* Exec. Order No. 13,132, 64 Fed. Reg. at 43,256 ("The nature of our constitutional system encourages a healthy diversity in the public policies adopted by the people of the several States according to their own conditions, needs, and desires. In the search for enlightened public policy, individual States and communities are free to experiment with a variety of approaches to public issues. One-size-fits-all approaches to public policy problems can inhibit the creation of effective solutions to those problems."). The executive order also mentions "laboratories of democracy." *Id.* at 43,255.

103. *See* Richard L. Revesz, *Federalism and Interstate Environmental Externalities*, 144 U. PA. L. REV. 2341 (1996).

104. *See* David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA. L. REV. 431 (2013) (applying the standard justifications for national intervention to the question of whether national regulations of hydraulic fracturing are justified).

tive value of consistent national policy.[105] For legislators, there are also constitutional limits to be accommodated, and for agency policy designers, there are statutory commands that must be obeyed.[106]

Even where aggregate policy outcomes could be improved by accounting for experimentation, there may be ethical limitations that ought to be respected. The citizens of states may consent to be governed, but they do not necessarily consent to be experimented on.[107] In some policy domains, this may be a serious limitation: allowing variation in regional air quality, for example, to better study the effects of particulate matter exposure on human mortality could raise substantial moral objections. On the other hand, federalism has been analogized to free speech protection in its ability to shield minority voices and dissenters from overweening control by national majorities.[108] Just as it is unlawful for the government to set content-oriented limitations on expression,[109] it may be problematic for national authority to step in to stop experimentation that may produce disfavored types of information.

But in giving due weight to potential ethical limitations, there is likely a policymaking domain that appropriately accommodates concern for the benefits and costs of experimentation. Natural variation based on regional differences or idiosyncratic policymaking processes poses no obvious threat to norms concerning informed consent. Accounting for variation, anticipating variation's

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105. *See* Friedman, *supra* note 1. Decentralization also may simply produce wasteful redundancy, including in the information generation context—for example, if multiple jurisdictions expend resources to generate the same information. Other things being equal, efficiency would counsel against unnecessary replication of effort.

106. The Federalism Executive Order discusses statutory and constitutional limits extensively. *See* Exec. Order No. 13,132, 64 Fed. Reg. 43,255.

107. *See* Michael Abramowicz et al., *Randomizing Law*, 159 U. PA. L. REV. 929, 963-67 (2011) (discussing ethical challenges to intentional policy experimentation). One might compare the general "consent of the governed" to the requirements of informed consent for human research in academic environments, which are quite rigorous. *See generally* C. K. Gunsalus et al., *Improving the System for Protecting Human Subjects: Counteracting IRB "Mission Creep,"* (Univ. Ill. Law & Econ. Research Paper No. LE06-016, 2006) http://ssrn.com/abstract=902995 [http://perma.cc/FP4H-KGH5] (criticizing overly stringent academic controls on human research).

108. *See* Heather K. Gerken, *Dissenting by Deciding*, 57 STAN. L. REV. 1745 (2005); *see also* James F. Blumstein, *Federalism and Civil Rights: Complementary and Competing Paradigms*, 47 VAND. L. REV. 1251 (1994) (analogizing and contrasting structure- and rights-based approaches to vindicating personal autonomy); Richard C. Schragger, *The Role of the Local in the Doctrine and Discourse of Religious Liberty*, 117 HARV. L. REV. 1810 (2004) (discussing the importance of local decentralization in protecting religious liberty).

109. *See, e.g.*, Police Dep't of Chi. v. Mosley, 408 U.S. 92, 95 (1972).

potential to teach valuable policy lessons, and even providing incentives for risk-taking and innovation (within reason) should not raise serious objections. Similarly, if variation will exacerbate public choice pathologies that undermine the democratic process and harm well-being, decision makers would be remiss not to take that fact into consideration. Although centralization should not be used to shut down discourse, it would be odd, to say the least, if concern for democratic values led to willful ignorance concerning decentralization's potential to exacerbate democratic failures.

Within ethical limits and recognizing the importance of other factors, experimentation may still prove to be an important input into policy design, providing substantial reason to grant or retract state autonomy. Even if experimentation is of only fairly limited importance compared to other factors, it could tip the balance one way or the other for policymakers in equipoise between a national or decentralized regime. In addition, there is often a spectrum of options rather than a simple binary policy choice, and experimentation could influence a host of individually minor questions of policy design that collectively have a major policy effect.

With these caveats stated, the challenge is to establish an incentive structure for policy innovation—including the level of decentralization—in light of the social value of information that would be produced by different design options within the decision maker's choice set. In many fields, there will be both extensive and intensive margins, which is to say that policymakers can decide both whether to decentralize and the degree of decentralization. For example, states could be given the opportunity to take over enforcement of a federal program, but subject to varying levels of oversight and supervision by a federal agency.[110] Corner solutions of complete centralization or complete decentralization may sometimes be appropriate, but between these extremes exists a vast landscape of hybrid forms. Decisions concerning decentralization can be augmented by policies to incentivize (or deter) innovation, share information, and otherwise affect the production and distribution of information.

Comparing options within this landscape requires careful attention to a wide range of practical, on-the-ground factors. Political behavior is influenced by financial incentives, contested norms, and affinities that include geography, gender, religion, class, and race. Media messages, framing, group membership, and cultural styles influence perceptions. Good faith democratic deliberation is intermingled with realpolitik. Questions of morality and ideology affect political decision makers alongside personal material concerns and electoral pro-

110. The Clean Water Act NPDES program allows for devolution of enforcement discretion, subject to federal oversight. *See supra* note 53.

spects. Federal and state governments are not unitary actors, and federal-state relations often involve interactions between and across legislative, judicial, and executive branches.[111] Abstract models can help clarify the question, but for policymakers, the answers are necessarily found in a complex world that is perceived through a glass, darkly.[112]

Despite the importance of these specific and contextual factors, the framework developed here can provide some general insights and guideposts. The following discussion sets out a general normative inquiry for weighing the positive and negative consequences of marginal changes in the level of experimentation within a policy regime. Many of the relevant variables in this analysis are likely to be unquantifiable and will require a level of experience-based judgment to assess. This type of impressionistic analysis may lead to disagreement on empirical questions that are difficult to resolve. Nevertheless, this structure helps to at least call attention to the relevant questions, even if these questions cannot be conclusively answered.

In this framework, there are three categories of consideration: the value of potential information, the marginal effect of alternative arrangements on information production, and how information will be put to use under the existing regime or available alternatives. For each of these inquiries, separate analyses for deliberative and political information can be undertaken. With respect to the first category, opportunities to produce high-value deliberative information will exist when there are open and important scientific, economic, or other technocratic questions amenable to study through state-by-state variation or experimentation. The ideal scenario for developing information of this sort would involve uncertainty about policy effects that can be observed, measured, and isolated so that clear causal inferences can be drawn from variation in implementation across jurisdictions.[113] For example, states may attempt a variety of different approaches to job retraining for unemployed persons. By carrying out well-designed studies in multiple jurisdictions, it may be possible to estimate the contribution of different retraining interventions to the likelihood of

111. *Cf.* Jessica Bulman-Pozen, *Executive Federalism Comes to America*, 102 VA. L. REV. 953 (2016) (discussing the conduct of state-federal relations between executive branch organs).

112. Quinn Curtis et al., *Tacking in Shifting Winds: A Short Response to Bubb and Pildes*, 127 HARV. L. REV. F. 204, 207 (2014) ("It is not always possible to anticipate the impact of variables that [an abstract] model does not accommodate, and it is reasonable to act with caution in rolling out a new policy.").

113. *Cf.* Michael Greenstone, *Toward a Culture of Persistent Regulatory Experimentation and Evaluation*, *in* NEW PERSPECTIVES ON REGULATION 111, 112 (David Moss & John Cisternino eds., 2009) (advocating for greater intentional information gathering through regulatory design).

securing employment.[114] In more well-developed policy areas, the level of technocratic uncertainty may be lower, reducing the chance that experimentation will produce valuable information. In addition, state-by-state variation and experimentation will be less likely to produce valuable information where the policy endpoints are unclear or difficult to observe, where there are many confounding factors that make inference difficult, or where study in controlled settings would be superior.

Deliberative information may also have high value when there are unresolved normative questions that can be illuminated by implementing alternative visions. Immigration policy may fall into this category.[115] Regional attitudes toward immigration vary considerably, and the "discretionary spaces of federalism" allow local officials to implement their preferred policies to some degree.[116] The consequences of those policy choices may shed light on the underlying value disagreements that drive policy divergence. The need to defend policy choices also provides an opportunity for values discourse to develop in a concrete context where those choices matter. Areas of social upheaval or shifting values may be particularly ripe for this kind of experimentation—gay marriage may be a contemporary example. Where values or beliefs are stable, as may be the case in the context of the death penalty, abortion, or gun control, the national conversation may be less likely to be usefully informed by local experimentation.[117]

Political information likely provides its greatest value in policy domains in a state of flux. Especially in the current period of polarized politics, the ideological space over many policy options is well defined. It is no secret, for example, that on health care policy, a national single-payer approach is a liberal kind of policy, while eliminating Medicaid is a conservative kind of policy. But for new policy domains—for example, when stem cell research first arose as a policy question—experimentation may help clarify the ideological space.[118] In addi-

114. *What Works in Job Training: A Synthesis of the Evidence*, U.S. DEP'TS LAB., COM. EDUC. & HEALTH & HUM. SERVS. (July 22, 2014), http://www.dol.gov/asp/evaluation/jdt/jdt.pdf [http://perma.cc/GT7S-W5BX].

115. Cristina M. Rodríguez, *The Significance of the Local in Immigration Regulation*, 106 MICH. L. REV. 567 (2008).

116. Cristina M. Rodríguez, Federalism and National Consensus (unpublished manuscript) (on file with author).

117. It is obviously difficult to predict, ex ante, when value shifts are likely to occur.

118. Clarifying ideological space may be of value to society, depending on how that information is put to use. Even if the clarification is not socially valuable, it might still be valuable to political actors.

tion, where attitudes are rapidly changing, as recently seen in the case of marijuana policy, experimentation may reveal shifts in ideological space.

Information about political incentives is also more likely to be valuable during times of change. Where new partisan alignments are possible, or where there are untried framing, messaging, or campaigning techniques, it is more likely that valuable information will be revealed in innovating jurisdictions. Again, gay marriage serves as a recent example. In that debate, both sides tried different messages and campaign tactics in multiple jurisdictions in rapid succession, presenting substantial opportunities for political learning.[119] On the other hand, in stale policy areas, where every rhetorical twist and turn has been taken and where the political consequences of various actions are well established, learning is less likely. For example, well-worn debates over tort reform or school vouchers, at least in their current iterations, may be unlikely candidates for transformative political information.

The value of both political and deliberative information will be closely contingent on cross-jurisdictional applicability.[120] If jurisdictions are wildly different from each other, the lessons learned in one will have little relevance for the others. The idiosyncrasies that lead to state-by-state differences may also limit the usefulness of that variation: political messaging that works in New York may be ineffective, or even backfire, in Arkansas. On the other hand, where experimentation reveals information about more universal characteristics—say, the relationship between diet and diabetes—relating experiences across jurisdictions will be straightforward.

Once the potential information value is evaluated, the question becomes how alternative policies will affect information production. Experimentation and policy variation are often associated with decentralization, but a central policy planner could, in theory, engage in an intentional program of experimentation or modify policies on a geographic basis. On the other hand, as described above, simply decentralizing policymaking to the states does not automatically ensure that there will be sufficient incentives for policy innovation. The nature of the federal policy regime, the level of decentralization, and the use of augmenting policies—such as explicit incentives (or disincentives) for innovation, information sharing programs, and the like—will interact with

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119. *See generally* MARC SOLOMON, WINNING MARRIAGE: THE INSIDE STORY OF HOW SAME-SEX COUPLES TOOK ON THE POLITICIANS AND PUNDITS—AND WON (2014) (reviewing a variety of tactics used by both sides of the marriage equality debate).

120. MALCOM M. FEELEY & EDWARD L. RUBIN, FEDERALISM: POLITICAL IDENTITY & TRAGIC COMPROMISE 26 (2008) ("Experimentation . . . [is] useful only when the subunits share a single goal.").

each other to generate some level of information production under the status quo. Changes can be made along any of these dimensions with the ultimate goal of achieving a level of information production that maximizes the net production of beneficial information.

Finally, with respect to how information will be used under the existing regime or potential alternatives, decision makers will look to contextual factors concerning the makeup of interest groups, voter attention to the issue, and the degree of partisan polarization. In general, situations of relative voter inattention, where both diffuse publics and small well-organized groups are affected and where parties do not actively compete, present the greatest risks that information will be used in a biased fashion to exacerbate existing public choice imbalances. In particular, imbalances in the ability of affected interests to collect and use information from other jurisdictions will skew how experimentation influences the policymaking process. In a context where voters are paying attention, parties are competing, and groups or networks that operate in multiple jurisdictions engage in robust and representative pluralistic bargaining, there is greater opportunity for information to enhance, rather than impede, democratic responsiveness.

This, in rough outline, is the experimentation inquiry. The goal is not to quantitatively estimate each of these variables and attempt to identify, with mathematical precision, an exact and unique solution. Rather, the purpose of the inquiry is to call attention to the relevant factors with the hope that careful qualitative analysis can provide some useful insights. At the very least, this inquiry can help policymakers learn what they do not know and allow them to explicitly relate their assumptions and estimates to policy choices.

The following two Parts discuss case studies based on high-profile environmental rules that are the subject of considerable contemporary controversy. Although grounded in the details of these two rules, the analysis that follows is meant to illustrate a general approach that can be applied in a variety of different policy regimes where questions of federalism, decentralization, and experimentation are relevant.

III. TURBULENT WATERS

The issue at the heart of the debate about the Waters Rule is, in essence, when a water body is "too small" for the federal government to regulate. A relatively expansive definition of "waters of the United States" places a larger number of wetlands and water bodies under federal jurisdiction; a narrow interpretation would place more wetlands and water bodies under the exclusive jurisdiction of the states. Opponents of the rule raise standard arguments in favor of decentralization, arguing that it inappropriately intrudes into a policy

domain best left to states. The framework developed above, then, can helpfully illuminate whether experimentation provides a justification for the agencies to scale back their jurisdiction.

Disputes over the appropriate role of the federal government in water pollution have endured for some time.[121] Section 301 of the Clean Water Act makes "the discharge of any pollutant by any person . . . unlawful" unless it is undertaken in compliance with the Act's permitting and pollution control requirements.[122] The discharge of a pollutant is defined as "any addition of any pollutant to navigable waters from any point source,"[123] with pollutants defined broadly and navigable waters defined as "the waters of the United States."[124] The statute does not provide further clarification on this important jurisdictional language, although the legislative history includes a Conference Report that states that "[t]he conferees fully intend that the term 'navigable waters' be given the broadest possible constitutional interpretation."[125] Given the demanding requirements of the Act, many interest groups advocate for "waters" to be given a narrow interpretation. However, EPA and the Army Corps of Engineers have tended toward relatively expansive definitions that include not only waterways that can accommodate vessels, but also smaller tributaries and wetlands.[126] Challenges to these agency interpretations have landed in the Supreme Court three times,[127] most recently in 2006 with the split decision in *Rapanos v. United States*.[128]

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121. For example, in 1960, when the second wave of the environmental movement was in its infancy, President Eisenhower defended his veto of modest legislation to provide federal funds for sewage treatment facilities on federalism grounds, arguing that "[b]ecause water pollution is a uniquely local blight, primary responsibility for solving the problem lies not with the Federal Government but rather . . . [with] State and local governments." Veto of Bill To Amend the Federal Water Pollution Control Act, 1960-1961 PUB. PAPERS 208 (Feb. 22, 1960). Although Congress decisively rejected this general sentiment with the Clean Water Act of 1972, which asserted sweeping national authority over water pollution, the question of exactly how sweeping federal powers will be in this area remains unsettled.

122. 33 U.S.C. § 1311(a) (2012).

123. *Id.* § 1362(12).

124. *Id.* § 1362(7).

125. S. REP. NO. 92-1236, at 144 (1972) (Conf. Rep.).

126. *See, e.g.*, Interim Final Rule for Regulatory Programs of the Corps of Engineers, 47 Fed. Reg. 31,794, 31,801 (July 22, 1982) (Department of Defense adopting definition of "waters" that tracked EPA's); Consolidated Permit Regulations, 45 Fed. Reg. 33,290, 33,298 (May 19, 1980) (EPA adopting modern definition of "waters").

127. In the first case, *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 126 (1985), the Court unanimously upheld the Corps' jurisdiction over wetlands that are adjacent to navigable waters, even if those wetlands are not frequently flooded. The second case, *Solid Waste*

The Waters Rule is the agencies' response to *Rapanos*. The rule gives relatively broad interpretations to important terms, including traditionally navigable waters,[129] interstate waters,[130] adjacent waters,[131] and tributaries.[132] The general effect of the rulemaking is to replace the case-by-case analysis that was undertaken after *Rapanos* with more detail on characteristics of geological features that will always qualify as waters,[133] some characteristics that will never be considered waters (such as "puddles"),[134] and continued case-by-case analysis for a smaller set of cases. The Waters Rule does not mark any substantial departure by the agencies from the assertion of considerable federal jurisdiction over water pollution.[135]

Agency of Northern Cook County v. United States Army Corps of Engineers, 531 U.S. 159 (2001), was a challenge to the Corps' Migratory Bird Rule, which extended Clean Water Act jurisdiction to wetlands used as habitat by migratory birds, without reference to proximity or relationship to any navigable waterway. The Court (in a five-to-four decision) struck down the rule as applied to "isolated" sand and gravel pits that had become migratory bird habitats.

128. 547 U.S. 715 (2006). That case was decided four-to-one-to-four, with Justice Kennedy siding with the conservative wing of the Court on the outcome but not with its reasoning. Justice Scalia's opinion, joined by Chief Justice Roberts and Justices Thomas and Alito, would have held that "'waters of the United States' include[] only those relatively permanent, standing or continuously flowing bodies of water 'forming geographic features.'" *Id*. at 739 (plurality opinion). Justice Kennedy's swing opinion held that wetlands that are not adjacent to navigable waters must have a "significant nexus" with one to qualify as "waters" under the Act. *Id*. at 779-83 (Kennedy, J., concurring in the judgment).

129. The definition of traditionally navigable includes waters which are currently used, were used in the past, or may be susceptible to use for "commercial waterborne recreation (for example, boat rentals, guided fishing trips, or water ski tournaments)." 80 Fed. Reg. 37,054, 37,074 (Apr. 21, 2014) (codified at 33 C.F.R. pt. 328 and scattered parts of 40 C.F.R.).

130. The definition of interstate waters includes ephemeral tributaries. *Id.* at 37,079.

131. *Id.* at 37,081.

132. *Id.* at 37,075.

133. An example of a fairly specific definition: "Waters located in whole or in part in the 100-year floodplain and that are within 1,500 feet of the ordinary high water mark of a traditional navigable water, interstate water, the territorial seas, an impoundment, or a tributary, as defined in the rule ('floodplain waters')." *Id*. at 37,081.

134. Defined as "a very small, shallow, and highly transitory pool of water that forms on pavement or uplands during or immediately after a rainstorm or similar precipitation event." *Id.* at 37,099.

135. *See supra* note 121.

Although environmental groups are not entirely satisfied with the rule,[136] their discomfort pales in comparison to the vociferous opposition raised by certain groups arguing that the rule allows too much federal authority. The Farm Bureau has launched a substantial public relations and lobbying effort to fight the rule,[137] arguing that the definition "expand[s] immensely" the federal government's jurisdiction and "amounts to nothing short of federal zoning authority."[138] Responding to these criticisms, the House and Senate adopted joint resolutions of disapproval under the Congressional Review Act in an attempt to overrule the regulation, but the President vetoed the joint resolution on January 19, 2016.[139]

Much of the criticism appears motivated by opposition to regulation generally,[140] but some of the rule's legislative opponents have more clearly raised federalism concerns.[141] Reconstructing opponents' arguments in their most favorable light, the Waters Rule implicates many standard normative arguments concerning federal-state authority. Even assuming that the current substantive requirements of the federal program do not represent an undesirable extreme point in policy space, decentralization of authority from the federal to state level could lead to policy differences between states that better accommodate pref-

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136. *See* Annie Snider, *Obama Admin's Revised Rule Makes Green Group Squirm*, GREENWIRE (June 15, 2015), http://www.eenews.net/stories/1060020253 [http://perma.cc/XNX5-YJL8] (explaining that, "[a]t best, greens were nonplussed by some key changes in the final Waters of the U.S. Rule").

137. *See* Annie Snider, *Final Rule 'Even Worse' than Original Proposal—Farm Bureau*, GREENWIRE (June 11, 2015), http://www.eenews.net/greenwire/stories/1060020089/ [http://perma.cc/QTR4-ELBP] (referring to the Farm Bureau as "the most influential [group] . . . opposing the Waters of the U.S. rule").

138. *Not What Congress Had in Mind*, AM. FARM BUREAU FED'N, http://ditchtherule.fb.org/custom_page/369/ [http://perma.cc/GW8R-Q83C].

139. CLAUDIA COPELAND, CONG. RESEARCH SERV., R43943, EPA AND THE ARMY CORPS' "WATERS OF THE UNITED STATES" RULE: CONGRESSIONAL RESPONSE AND OPTIONS 4 (2016). A great deal of the rhetoric used in opposition to the rule might fall into what Cass Sunstein refers to as "unhelpful abstractions" concerning the regulatory state. Cass R. Sunstein, *Unhelpful Abstractions and the Standard View*, 12 ECON. J. WATCH 68 (2015).

140. *See, e.g.*, Kevin Bogardus, *Republicans Take Aim at EPA's Push for Water Rule*, ENV'T & ENERGY DAILY (June 11, 2015), http://www.eenews.net/eedaily/stories/1060020049 [http://perma.cc/V2EX-XN3Z] (quoting Senator Orrin Hatch as stating that his opposition to the rule is based on his view that "bureaucracy tends to engulf everything in our lives").

141. *See* Annie Snider, *Senate Panel OKs Bill To Kill Obama Rule After Fierce Partisan Clashes*, GREENWIRE (June 10, 2015), http://www.eenews.net/stories/1060020001 [http://perma.cc/J475-8AVK] (quoting Senator John Barrasso, co-sponsor of a bill to scrap the rule, as stating that EPA has failed to "respect[] the difference between state waters and federal waters").

erence diversity and could facilitate political accountability and experimentation—the classic federalism factors.

The following discussion focuses on the experimentation justification for decentralization, applying the framework developed in Part II. The question is whether pulling back federal authority in the area is likely to induce beneficial experimentation.

A. Limited Deliberative Information

The type of water pollution affected by the Waters Rule no longer sits at the frontier of environmental science or economics. As a consequence, from the perspective of deliberative information, increased experimentation offers relatively few opportunities for valuable learning. The federal government and states have been implementing water pollution control for several decades, and a great deal of knowledge has already accumulated. The relatively well-developed scientific and economic knowledge in the area of traditional water pollution can be contrasted with more cutting-edge issues, such as the use of hydraulic fracturing (known as "fracking") in natural gas extraction. Fracking is a relatively new technology, and the evidence base concerning its effects on groundwater, methane emissions, and seismic stability—and the economic consequences of those effects—remains relatively thin.[142] The opportunities for learning in the context of standard water pollution are significantly lower.

In addition, even where there are open areas of inquiry in water pollution regulation,[143] revising the Waters Rule to further limit federal authority is unlikely to lead to experimentation that will actually address them. The structure of the Act already incorporates a substantial amount of decentralization. States are free to adopt and enforce more stringent pollution control requirements; the federal standards act as a floor, but not a ceiling.[144] Most states exercise sig-

142. *See, e.g.*, Mark Schrope, *Fracking Outpaces Science on Its Impact*, ENV'T YALE, http://environment.yale.edu/envy/stories/fracking-outpaces-science-on-its-impact [http://perma.cc/4RMS-XT9D].

143. Questions in the field that could benefit from continued research include the relationships between pollution and public health or ecological systems; how water pollution endpoints affect social well-being (i.e., willingness to pay to avoid pollution); and the effect of pollution restrictions on firm behavior (including investment in technology, pollution aversion, layoffs, and plant closures). Other open questions concern the means of pollution control and involve, for example, the relative efficacy of technology-based point source controls versus best practice-based non-point source controls; the best design of water quality trading markets; and the ability of various enforcement mechanisms to ensure compliance.

144. Clean Water Act § 510, 33 U.S.C. § 1370 (2012).

nificant enforcement discretion,[145] which in turn affects the incentives of regulated actors to actually comply with the regime. The Clean Water Act also essentially leaves non-point source pollution (for example, agricultural runoff) to state control, and states have broad latitude to experiment with different policy designs, including water quality trading. In part as a consequence of that decentralization, and in part because of other factors, water quality varies within and between states, allowing for research exploring the effects of water quality on ecosystems and health.

The main way that the Act limits experimentation is by prohibiting states from adopting less stringent standards, including no standards at all.[146] As a consequence, the high levels of pollution experienced in past decades have almost universally been eliminated. There are also provisions within the Act, such as anti-degradation requirements, that limit the ability of states to adopt more flexible approaches to pollution control. An alternative version of the Waters Rule that reduces the jurisdictional reach of EPA and the Corps could promote experimentation with either less stringent or more flexible standards.

As a practical matter, limiting the jurisdictional reach of the Act appears most likely to lead to a lack of standards in many states, at least for the short term. A majority of states have official policies in place that limit the ability of state regulators to subject waters outside federal jurisdiction to state pollution control.[147] It is far from clear that such a regulatory lacuna is likely to lead to particularly valuable information, given that other countries already provide opportunities to study genuine regulatory gaps.[148] It is also worth noting that, as discussed above, beneficial experimentation will be hampered by information externalities and noncooperation problems. More constrained federal

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145. *See* CLAUDIA COPELAND, CONG. RESEARCH SERV., RL30030, CLEAN WATER ACT: A SUMMARY OF THE LAW 7 (2014). Enforcement flexibility is limited somewhat by federal oversight and citizen suit provisions. *See id.*; Karl S. Coplan, *Citizen Litigants Citizen Regulators: Four Cases Where Citizen Suits Drove Development of Clean Water Law*, 25 COLO. NAT. RESOURCES ENERGY & ENVTL. L. REV. 61 (2014).

146. For example, technology-based pollution effluent limitations are developed at a national level and are uniformly applicable in all states. *See supra* note 53.

147. *See* ENVTL. LAW INST., STATE CONSTRAINTS: STATE-IMPOSED LIMITATIONS ON THE AUTHORITY OF AGENCIES TO REGULATE WATERS BEYOND THE SCOPE OF THE FEDERAL CLEAN WATER ACT (2013) (conducting state-by-state survey).

148. *See, e.g.*, Jonathan Kaiman, *China Says More than Half of Its Groundwater Is Polluted*, GUARDIAN (Apr. 23, 2014), http://www.theguardian.com/environment/2014/apr/23/china-half-groundwater-polluted [http://perma.cc/R8NA-M3HW] (discussing water contamination in China).

jurisdiction would reduce the ability of EPA to develop complementary policies to encourage innovation on the part of the states.

If the long jurisdictional reach of the Waters Rule is maintained, policymakers should be mindful of how deliberative information generated by experimentation under the existing regime is likely to be put to use in light of federal control over local pollution. Generally speaking, scientific and economic information generated by experimentation seems more likely than not to inform government decision making beneficially. Better information on the relationship between pharmaceutical wastes and endocrine disruption in amphibians, for example, seems benign, and the worst-case scenario might be that policymakers would ignore scientific findings. On the other hand, as will be discussed in the next Section, there are potential public choice failures in the water pollution context that may skew the kinds of interests that are able to gain political access and successfully use deliberative information in their advocacy. For example, if pharmaceutical companies fearing costly regulation of their products are better able to fund research and communicate research findings to policymakers than are negatively affected interests, those actions bias the deliberative information that is produced and disseminated.[149]

A comparison can be drawn to a classic case in which environmental law created incentives for deliberative information to be used in ways that arguably reduced well-being. In the 1970s, a combination of relatively stringent air quality standards under the Clean Air Act and the failure of EPA to effectively stem interstate air pollution created incentives for local communities to export their pollution downwind.[150] As states gained experience with implementing the Act, the number of tall smokestacks grew: from two stacks higher than 500 feet in 1970 to more than 180 stacks by 1985.[151] These stacks improved local air quality, but increased interstate air pollution, simply shifting the pollution around rather than addressing the issue. Amendments to the Clean Air Act and subsequent steps by EPA to rein in tall stacks have been partially successful, but as of the start of 2011, there remained 284 tall stacks at 172 power plants, including fourteen that are over 1,000 feet tall.[152]

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149. *See generally* ORESKES & CONWAY, *supra* note 82 (discussing the role of industry funded groups in affecting the conduct and interpretation of research in several policy areas).

150. *See* Revesz, *supra* note 103, at 2349-52.

151. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-11-473, AIR QUALITY: INFORMATION ON TALL SMOKESTACKS AND THEIR CONTRIBUTION TO INTERSTATE TRANSPORT OF AIR POLLUTION 4-5 (2011), http://www.gao.gov/assets/320/318175.pdf [http://perma.cc/DL93-WFRL].

152. *Id.* at 11.

If EPA is not careful, extending Clean Water Act protections to smaller water bodies runs some risk of creating similar effects. Left to their own devices, jurisdictions have incentives to address the local effects of pollution and ignore long-range consequences. The Waters Rule increases the incentives of states to reduce pollution flowing into small water bodies that likely have primarily local effects. States, seeking cost-effective ways to come into compliance, may be tempted to shift that pollution in ways that increase the export of damages, such as into non-point sources that have difficult-to-track but significant consequences downstream. There is no controversy over whether EPA has jurisdiction over water bodies that actually flow between states—those are already very clearly covered by the Clean Water Act.[153] But the agency should be aware of the incentive effects of the Waters Rule to ensure that there are net reductions in pollution, rather than merely a small-scale replication of the tall stacks problem.

B. Risks of Harmful Political Information

Decentralized and diverse approaches to water quality regulation could potentially lead to information on both ideological preferences and political incentives. Certainly, repeat players can gain information concerning how to win local struggles over water quality. Political actors may also gain information on communication and organizing tactics, framing, coalition building, and effective lobbying techniques. Likewise, politicians can observe how different policies were or were not accepted by voters and interest groups. Information on ideological preferences could also emerge from local policy debates. In recent years, environmental protection has become strongly polarized between the political parties. But in prior decades, both parties competed for the mantle of environmental protection, and an additional dimension to the policy space reflected disagreement over market-based versus command-and-control approaches to pollution reduction.[154] Over time, the multidimensional ideological space of environmental policy has collapsed to more closely align with a

153. Even the most restrictive interpretation of the Act canvassed by Justice Scalia in his *Rapanos* plurality opinion covers this class of water bodies. Rapanos v. United States, 547 U.S. 715, 723-24 (2006).

154. Richard J. Lazarus, *Environmental Law at the Crossroads: Looking Back 25, Looking Forward 25*, 2 MICH. J. ENVTL. & ADMIN. L. 267, 268-72 (2013) (discussing bipartisanship over environmental protection in the 1970s and 1980s); Michael A. Livermore & Richard L. Revesz, *Interest Groups and Environmental Policy: Inconsistent Positions and Missed Opportunities*, 45 ENVTL. L. 1, 10-15 (2015) (discussing shifts in interest group alignment over market-based approaches).

single left-right dimension. Although the current alignment may seem stable, local-level experimentation could result in a reemergence of the second instrument choice dimension or some other difficult-to-predict development that alters how environmental policy is perceived in ideological space.

To evaluate how the Waters Rule affects the production and use of this political information, it is helpful to situate the rule against the general interest-group dynamic within the particular political space.[155] Water regulation affects two general categories of parties—those who use water and those who generate effluent. Water users are a broad, diffuse, and diverse group. In addition to familiar residential uses of water, other demands on the nation's surface and groundwater resources include industrial processes (including energy generation), mining, and agriculture.[156] Wetlands, which are a major source of controversy under the Waters Rule, provide many important ecosystem services, including water filtration, storm buffering, flood control, and habitat for a vast array of species.[157] The value of these ecosystem services is spread across an extremely broad, and frequently unaware, public.

The regulated actor side of the equation for the Waters Rule is also made up of a relatively diffuse and broad group of actors. The very large industrial emitters of the most publicly salient point source water pollution remain largely unaffected by the Waters Rule; these actors will typically dispose of whatever effluent they generate into water bodies that are well within the scope of federal jurisdiction. In contrast, the generators most affected by the Waters Rule are nonindustrial actors in fields like agriculture and construction who are responsible for pollution that affects smaller, intermittent water bodies and relatively isolated wetlands.

To some extent, affected parties have been able to overcome collective action problems and invest in efforts to influence the policy in their favored direction. As discussed above, the Farm Bureau has taken the lead in efforts to attack the Waters Rule. This organization describes itself as "the unified national voice of agriculture, working through our grassroots organizations to enhance

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155. For an analysis of the political factors that influence regulation of non-point source pollution, drawn from case studies in Australia, see Robin Kundis Craig & Anna M. Roberts, *When Will Governments Regulate Nonpoint Source Pollution? A Comparative Perspective*, 42 B.C. ENVTL. AFF. L. REV. 1 (2015).

156. *Source and Use of Freshwater in the United States*, U.S. GEOLOGICAL SURVEY (Aug. 7, 2015), http://water.usgs.gov/edu/wateruse-diagrams.html [http://perma.cc/3EWK-C5RU].

157. Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Wetlands and Water: Synthesis*, WORLD RESOURCES INST. 2 (2005), http://www.millenniumassessment.org/documents/document.358.aspx.pdf [http://perma.cc/UCG5-T9F8]; *see also id.* at 34 (estimating the value of wetland services at as much as $15 trillion globally).

and strengthen the lives of rural Americans and to build strong, prosperous agricultural communities."[158] The Farm Bureau has its share of critics,[159] but none of them questions its capability as an effective lobbying force at both the federal and state levels. The diffuse interest in water quality is promoted primarily through environmental organizations, including large, reasonably well-funded, and sophisticated groups such as the Sierra Club, Natural Resources Defense Council, and Environmental Defense Fund, as well as more decentralized and loosely organized informal groups focused on local water quality issues.

In the abstract, it is difficult to gauge whether organizations like the Farm Bureau representing the diffuse regulated community or environmental groups representing the diffuse interest in water quality would be better equipped to overcome collective action problems and use political information to their advantage in state and local policy struggles. The Farm Bureau may be able to assist emitters in resisting state or local pollution control efforts based on their successes and failures in similar circumstances. The Sierra Club may be called on to assist local users, and perhaps to stand in for the broader group of affected interests, while similarly updating its own strategies based on prior experience. To the extent that these two sets of actors are evenly matched, and genuinely cover the entire range of interests that are affected by the rule, changes in the production of political information would not be an important consequence of the Waters Rule. Less expansive federal authority might lead to more learning opportunities at the local level, but since both sets of interests would be equally well positioned to take advantage of this information, there would be no net effect.

However, there are some good reasons to suspect that the general interest in water quality is more prone to collective action problems than even the relatively diffuse regulated community affected by the Waters Rule. Most obviously, the human activities and ecosystem services that rely on water quality affect every person, and therefore affect the largest and most diffuse group possible. The regulated community is large, and at some level of abstraction, may include a very large group if consumers and shareholders are counted. But the smaller and more easily organized group of profit-driven firms and landowners

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158. *We Are Farm Bureau*, AM. FARM BUREAU FED'N, http://www.fb.org/about/home/ [http://perma.cc/ELP9-DE96].

159. *E.g.*, Vicki Monks et al., *Amber Waves of Gain: How the Farm Bureau Is Reaping Profits at the Expense of America's Family Farmers, Taxpayers and the Environment*, DEFENDERS WILDLIFE (2000), http://www.defenders.org/publications/amber_waves_of_gain.pdf [http://perma.cc/EJD6-UN4S].

can stand in for the broader group that bears regulatory costs. Second, the issue of water quality is not terribly salient, and risks to ecosystem services associated with wetlands degradation, though important, are difficult to observe and unlikely to capture the public imagination. Regulatory costs may not rise to a particularly high level of public salience, although concerns about the costs of regulation have been part of the political discourse since Ronald Reagan's presidential candidacy and are currently enjoying a new moment in the sun.[160]

Perhaps most convincing is the fact that, without federal jurisdiction, the most likely result will be a lower aggregate level of regulation of water pollution.[161] Attacks on the Waters Rule have primarily focused on the level of stringency of, or need for, regulation; any desire to tailor stringency to local circumstances has taken a backseat. For example, Senator David Perdue, an opponent of the rule, defended his position on the grounds that "the fourth arm of government" is "killing American businesses and our ability to compete abroad."[162] Senator Orrin Hatch likewise has explained his opposition on the grounds that "bureaucracy tends to engulf everything in our lives."[163] The implication is that without federal involvement, regulators at the state and local levels will be unlikely to engage in the same level of regulatory control—perhaps in part due to the ability of regulated actors to stave off such efforts.

It is possible that, even if public choice dynamics appear to favor one side, contemporary parties and politicians within those parties help balance the equation. If this is so, then political information produced by partisan experimentation may have salutary effects on policymaking.[164] The degree of public interest and level of understanding of the issues are relevant considerations, since voter inattention contributes to a lack of electoral discipline and creates maneuvering room for more well-organized constituencies within parties. In addition, it is worth asking whether the political dynamic is one in which there

160. Michael A. Livermore & Jason A. Schwartz, *Analysis To Inform Public Discourse on Jobs and Regulation*, *in* DOES REGULATION KILL JOBS? 239, 244-45 (Cary Coglianese, Adam M. Finkel & Christopher Carrigan eds., 2013) (documenting the explosion in the use of the phrase "job killing regulation" in political discourse).

161. *See* ENVTL. LAW INST., *supra* note 147, at 1 (finding that over two-thirds of states have laws that could limit the ability of state agencies to regulate waters outside the federal program).

162. Bogardus, *supra* note 140 (quoting Sen. David Perdue).

163. *Id.* (quoting Sen. Orrin Hatch).

164. *See supra* text accompanying notes 75-77.

is relatively greater opportunity to test potential policy programs and issue alignments for maximizing voter appeal.[165]

The Waters Rule has gained some public attention and federal-state partisan contestation. A large number of states are participating in litigation over the rule, both as challengers and as intervenors defending the agencies.[166] Attacks on EPA and the Army Corps of Engineers in Congress have come largely, although not exclusively, from the Republican Party, and the rule's defenders have essentially all been Democrats. Stories in major news outlets have covered the Waters Rule as it has developed, as have the specialized news services devoted to environmental issues or politics.[167] The major environmental organizations have engaged in sustained public relations efforts in support of the rule,[168] and as noted earlier, the Farm Bureau and other groups have devoted considerable resources to opposing it.[169] While far from a topic of dinner conversation in most American households, the Waters Rule counts as a high-profile regulation.

But while the Waters Rule itself is the subject of significant conversation among invested parties, the wetlands and water bodies that are affected by the rule are, by definition, small and relatively isolated. While there is no doubt that federal jurisdiction applies to large, publicly significant water bodies, the importance of the Waters Rule is its assertion of federal authority upriver, to

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165. *Cf*. Bulman-Pozen, *supra* note 47, at 1128-29 (arguing that state-level experimentation can sometimes "force federal politicians' hands" and therefore have a large impact on federal policy and partisan identity).

166. Timothy Cama, *27 States Challenge Obama Water Rule in Court*, HILL (June 30, 2015), http://thehill.com/policy/energy-environment/246539-27-states-challenge-obama-water-rule-in-court [http://perma.cc/YZG5-NEV3]. In response to a challenge initiated by eighteen states, the Sixth Circuit granted a stay of the rule. *In re* EPA & DOD Final Rule, 803 F.3d 804, 809 (6th Cir. 2015). In that action, seven states and the District of Columbia joined as respondent-intervenors on behalf of the rule. *Id*. at 806 n.2. As of September 2016, twenty-eight states in total had challenged the rule. Don Jenkins, *Washington and Oregon Defend EPA's New Water Rule*, CAP. PRESS (Sept. 1, 2015), http://www.capitalpress.com/Nation_World/Nation/20150901/washington-and-oregon-defend-epas-new-water-rule [http://perma.cc/HSL7-7AT7].

167. *See, e.g.*, *supra* notes 136-137, 140-141, and accompanying text (providing examples of coverage in specialized news services).

168. *See, e.g.*, *Clean Water Rule Will Protect Drinking Water for 1 in 3 Americans, If Congress Steps Aside*, EARTHJUSTICE (May 26, 2015), http://earthjustice.org/news/press/2015/clean-water-rule-will-protect-drinking-water-for-1-in-3-americans-if-congress-steps-aside [http://perma.cc/86AB-K7DJ].

169. *See supra* notes 137-138 and accompanying text (describing the Farm Bureau's opposition to the rule).

tributaries, intermittent water bodies, and associated wetlands. Controversy over pollution to any one of these covered waters is highly unlikely to capture significant public attention, perhaps even within the local area that is most affected.

The absence of voter attention creates concerns that, to the extent that national parties play a role in affecting policy choices in local parties, there is a greater risk that partisan influence will come from the well-organized bases of the parties, unconstrained by the need to appeal to median voters. In addition, although there is likely to be some degree of partisan split over how best to address pollution covered by the Waters Rule, there are local issues (such as municipal waste disposal) that continue to resist partisan polarization, hindering any attempt to incorporate a general approach to local water pollution into either party's "brand."[170]

Furthermore, for jurisdictional laboratories to function, information generated in one jurisdiction must be applicable elsewhere, either in other similar jurisdictions, or at the national level. But political information concerning potential partisan realignments over water quality policy is unlikely to have the requisite generalizability. In the climate change context (discussed in more detail in the following Part), states face a fairly generic problem of reducing greenhouse gas emissions from a more or less similar set of sources by deploying a more or less similar set of alternatives. Although there are some geographic differences (with coal playing a larger role in some states than others, for example), the policy and political challenges are largely the same. In contrast, every water body presents a unique set of issues, with different pollution sources, ecological sensitivities, and local political alignments. In addition, there is some chance that Congress will ultimately adopt legislation establishing a unified climate policy, whereas the high diversity of local conditions in the water pollution context means that a more uniform and centralized approach is both undesirable and unlikely. Political experimentation at the state level, then, is unlikely to lead to nationally relevant information. Ultimately, the uniqueness of the policymaking and political factors that bear on water pollution decisions make it more likely that revising the Waters Rule in the direction of decentralization would lead to greater intraparty variation than to the type of learning that spurs large-scale partisan realignments.

170. On party brands, see ALDRICH, *supra* note 77, at 47-50.

C. Conclusion

Overall, water pollution, especially in the context of the small water bodies covered by the Waters Rule, serves as a good candidate for the type of managed experimentation that is contemplated by the Clean Water Act. A general retreat by the federal government is unlikely to induce beneficial experimentation at the local level. In the decades spent addressing water pollution, much has already been learned, reducing the marginal value of technocratic information. States also already have considerable leeway in tailoring pollution control and enforcement to local conditions, especially for non-point sources. On the political side, although there is always the potential for local experimentation to contribute to "democratic churn" that invigorates the national conversation, there is a substantial risk that political lessons learned from previous decentralized policy fights will systematically bias policymaking toward one side of the debate. Finally, the localized nature of the water pollution problem and the variation of political context between states and localities reduce decentralization's potential to make a substantial contribution to the national conversation on water pollution.

IV. CLIMATE LABORATORIES

The culmination of the Obama EPA's efforts to address greenhouse gas emissions is the Clean Power Plan, which implements section 111(d) of the Clean Air Act with respect to greenhouse gas emissions from existing power plants.[171] This complex rule has wide-ranging policy implications, including on the reliability of the electricity transmission grid in Topeka and for the global climate agreement struck in Paris.[172] Unsurprisingly, the Clean Power Plan has proven controversial,[173] and the Supreme Court recently reversed a decision of the D.C. Circuit denying a stay of the regulation pending adjudication of a legal challenge brought by a number of states, as well as the regulated in-

171. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60).

172. Coral Davenport, *Nations Approve Landmark Climate Accord in Paris*, N.Y. TIMES (Dec. 12, 2015), http://www.nytimes.com/2015/12/13/world/europe/climate-change-accord-paris.html [http://perma.cc/B5VC-DMT8].

173. Opponents were so eager to challenge the rule that they brought a petition to overturn the *proposed rule*, which the D.C. Circuit duly dismissed as improper, given the absence of final agency action. *In re* Murray Energy Corp., 788 F.3d 330, 333-34 (D.C. Cir. 2015).

dustry.[174] Opponents have focused on the rule's costs and potential effects on employment, electricity reliability, and international competitiveness. Supporters focus on the urgency of the threat from climate change, the conventional air pollution co-benefits of the rule, and the prospect of innovation in the clean energy sector.[175] With an estimated price tag of between $1.0 to $8.4 billion per year, climate and health effects valued up to $92 billion per year, and repercussions for electricity production and consumption across the country, the costs, benefits, and distributional consequences of the rule are undoubtedly substantial.[176]

An important feature of the Clean Power Plan is how emissions reductions will be achieved. Unlike earlier failed attempts at federal climate legislation,[177] the Clean Power Plan does not create a nationwide, comprehensive cap-and-trade program. Instead, the rule relies on the states to implement emissions reductions. The Clean Power Plan sets state emissions budgets based on a state-by-state assessment by EPA of the carbon dioxide efficiency of electricity generation and consumption.[178] States are then free to meet their overall budgets through any "enforceable emissions limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable

174. Chamber of Commerce v. EPA, 136 S. Ct. 999 (2016) (mem.), *rev'g In re* Murray Energy Corp., 788 F.3d 330 (2015).

175. *See, e.g.*, Nicholas Bianco & Tomás Carbonell, *An Early Look at the Clean Power Plan in Six Charts: Flexibility Provides Opportunities To Unleash Innovation, Reduce Pollution, Save Lives, and Grow a Prosperous Low Carbon Economy*, ENVTL. DEF. FUND, http://blogs.edf.org/climate411/files/2015/08/An-Early-Look-at-the-Clean-Power-Plant-in-Six-Charts.pdf [http://perma.cc/LFL6-9ZSM].

176. EPA estimates compliance costs in 2020, 2025, and 2030 under two compliance scenarios. The lowest estimate is $1.0 billion (2025 in the rate-based scenario); the highest estimate is $8.4 billion (2030 in the rate-based scenario). The agency also estimates climate benefits as well as non-climate environmental co-benefits associated with the rule. The highest predicted benefits are under the rate-based scenario in 2030, with climate benefits up to $61 billion and co-benefits up to $31 billion. *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, ENVTL. PROTECTION AGENCY, at ES-22, ES-23 (2015), http://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf [http://perma.cc/NSZ9-Q6MN].

177. *See, e.g.*, American Clean Energy and Security Act of 2009 (Waxman-Markey Bill), H.R. 2454, 111th Cong. (2009).

178. These budgets are initially "rate based," which is an efficiency standard, but states may also opt to convert the rate-based standard into a mass-based standard—essentially an emissions allowance. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,663-82 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60).

permits, and auctions of emissions rights)."[179] States are required to submit plans to EPA by the summer of 2018 for approval in a process that is based on the National Ambient Air Quality Standards approach.[180] And, as under that process, EPA will not have the authority to consider *how* emissions reductions are achieved, only whether the state plans will actually meet their goals.[181]

Criticisms of the Clean Power Plan largely focus on climate science or economic effects such as electricity prices and layoffs.[182] But the rule has also been condemned both for being insufficiently global and for being insufficiently local. For some, anything less than a fully global accord is inadequate. For these critics, national-level action undermines global efforts.[183] The Clean Power Plan has also been criticized for shortchanging the role of states by setting emissions limits at the national level rather than allowing each state to select its own optimal level of reductions.[184] Laurence Tribe, who has been retained by the largest private-sector coal company in the world, has even leveled an anti-commandeering argument against the Clean Power Plan, claiming in congressional testimony that EPA's rule amounts to "burning the Constitution."[185]

Tribe's incendiary comments help illustrate the centrality of federalism issues to the Clean Power Plan. The framework introduced in Part I, then, can help illuminate whether a greater or lesser level of decentralization could be

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179. Clean Air Act § 110(a)(2)(A), 42 U.S.C. § 7410 (2012).

180. *See id.* § 7411 ("The Administrator shall prescribe regulations which shall establish a procedure similar to that provided by section 7410 of this title . . . ."); Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. at 64,663-82.

181. *See* Union Elec. Co. v. EPA, 427 U.S. 246, 265 (1976) ("[W]e have concluded that claims of economic or technological infeasibility may not be considered by the Administrator in evaluating a state requirement that primary ambient air quality standards be met . . . .").

182. *See, e.g.*, Boer Deng, *Once Again, a Climate Policy Hearing Descends into Absurdity*, SLATE (Sept. 17, 2014, 7:03 PM), http://www.slate.com/blogs/weigel/2014/09/17/house_science_committee_hearing_on_clean_power_plan_and_climate_action_plan.html [http://perma.cc/CCM7-J6F6]; Sean Hackbarth, *5 Charts Show the High Job Costs of EPA's Clean Power Plan*, U.S. CHAMBER COM. (Apr. 1, 2016, 8:00 AM), http://www.uschamber.com/above-the-fold/5-charts-show-the-high-job-costs-epa-s-clean-power-plan [http://perma.cc/V55T-LKAL].

183. There are a variety of counterarguments to this position, including that there is a marginal contribution of U.S. emissions and that U.S. action may spur reciprocal international action.

184. *See* Johnston, *supra* note 61, at 13.

185. Tribe Testimony, *supra* note 19, at ii. For some back and forth, see Jody Freeman & Richard J. Lazarus, *Freeman and Lazarus: Is the President's Climate Plan Unconstitutional?*, HARV. L. TODAY (Mar. 18, 2015), http://today.law.harvard.edu/is-the-presidents-climate-plan-unconstitutional [http://perma.cc/XJ56-3D5R] (aggregating replies and rebuttals).

justified on experimentation grounds. In general, the following analysis finds that state-level experimentation is unlikely to lead to beneficial deliberative information concerning climate change policy. However, experimentation could have a substantial upside if it helps provide insights into potential consensus policies that could help break the current partisan gridlock over climate policy. Given the decades-long stalemate on U.S. climate policy, the generation of political information along these lines could be among the most enduring consequences of the rule, potentially justifying even further decentralization.

A. Limited Deliberative Information

Climate change is not a context in which state experimentation is likely to produce valuable deliberative information, at least about the primary policy question at issue. To be sure, many uncertainties remain, including the relationship of greenhouse gases to climate disruption; the ability of human societies to adapt to climate change; the value of future harms imposed by climate change to the current generation; the future of low-carbon energy generation; and the ability of geoengineering technologies to reduce the effects of increased greenhouse gas concentrations in the atmosphere. Reducing these uncertainties is, and should be, a major research priority.

State-by-state experimentation, though, is an exceedingly poor fit for generating any information about these uncertainties. It should be fairly obvious that variation in state policy has no bearing on scientific uncertainty about the effect of greenhouse gas emissions or on adaptation to climate change. With respect to the former, because greenhouse gases are a global pollutant, only aggregate emissions have causal importance, and the regional source of the emissions is irrelevant.[186] With respect to the latter, adaptation will take place over many decades, and in any case will not be influenced by variation in mitigation policy between jurisdictions. State experimentation, then, cannot provide useful information on the benefits of greenhouse gas reduction.

State policy experimentation is—perhaps more surprisingly—also unlikely to provide useful information on how to minimize the costs of greenhouse gas reductions. Climate change is a context in which flexible, market-based mech-

186. NICHOLAS STERN, THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW 28 (2007) ("Climate change is an externality that is global in both its causes and consequences. The incremental impact of a tonne of GHG on climate change is independent of where in the world it is emitted (unlike other negative impacts such as air pollution and its cost to public health), because GHGs diffuse in the atmosphere and because local climatic changes depend on the global climate system.").

anisms, such as a cap-and-trade system or carbon tax, are well suited and cost effective.[187] Such regimes provide a much greater degree of decentralization than merely tasking states with implementation. Whereas a regime like the non-point source pollution program under the Clean Water Act decentralizes decision making to fifty state planners, a carbon tax or cap-and-trade system places decisions with the many thousands of regulated entities that have the greatest amount of information about pollution-reduction strategies and their corresponding marginal abatement costs. The pricing mechanism creates incentives for each regulated actor to abate emissions up to the point where the marginal benefits of reduction equal the marginal cost of abatement.

Under these market-based regimes, central planners must determine the level of marginal harm avoided, which is a complex and difficult task. But this task is not one that state variation will make any easier. If states implement the Clean Power Plan through market mechanisms, then (putting aside secondary market failures) regulated actors across the country will implement lowest-cost abatement opportunities. Information on the marginal costs of reductions, which is necessary to set the efficient cap in a cap-and-trade model, will arise from the decentralized activity of market actors, not from any variation that is induced by state-by-state differences in policy choices. Thus, while policy implementation can help generate information about abatement costs, state variation plays no useful role.

It is possible that some forms of deliberative information can be generated by state variation. The market consequences of cap-and-trade or carbon fees are very similar: both operate by placing a price on greenhouse gas emissions. There are, however, some differences in implementation and risk profiles between the two mechanisms.[188] If some states implement a cap-and-trade, and others implement a carbon fee, that variation could provide insights into the relative merits of the two policies. There are also differences in technical features of how these systems are constructed, in terms of monitoring, auction decision, and similar specific questions. State variation in these technical implementation details could provide useful information that can improve policy design in the future.[189] It is also possible, although less likely, that command-

187. *See generally* ORG. FOR ECON. COOPERATION & DEV. (OECD), EFFECTIVE CARBON PRICES (2013) (reviewing climate policies in a number of countries and finding that pricing mechanisms are the most cost-effective means to reduce emissions).

188. For instance, carbon taxes deliver greater certainty on emissions prices; caps deliver greater certainty on emissions quantities. *See* Livermore & Revesz, *supra* note 16, manuscript at 14.

189. The value of this information, however, would likely be at least partially offset by lost opportunities for lowest-cost abatement. In particular, differing carbon prices or incompatibili-

and-control or industrial policy options could be a preferable, lower-cost alternative to market mechanisms. Variation in state policy could test these traditional pollution-control approaches against market-based mechanisms.

Perhaps the most valuable deliberative information would concern second-best approaches for emissions reductions, if market-based mechanisms prove politically infeasible.[190] There is a wide range of policy options available to states to reduce greenhouse gas emissions. These include mandates on clean energy generation, requirements concerning the dispatch of cleaner energy sources (primarily natural gas), energy efficiency requirements, and plant design and retrofit requirements.[191] Under a pricing-based system, economic actors would directly choose how best to reduce emissions; however, if states decide that they must require specific emissions reduction mechanisms, variation between the states will provide information concerning the relative costs of different policy approaches.

Prior experience in the United States and the European Union provides some reason to believe that states will, at the very least, adopt complementary policies that seek to augment market-based tools to reduce emissions. Under EPA's Acid Rain Program to reduce sulfur dioxide pollution, many facilities were forced by regulatory overseers or political considerations to eschew many lower cost emissions reductions (primarily fuel switching) and rely on more expensive technology-based approaches at considerable cost.[192] The State of California, in addition to its cap-and-trade system, has adopted a renewable portfolio standard that requires an increasing share of electricity to be derived from wind and solar power.[193] Many states in the Regional Greenhouse Gas In-

ties that prevent cross-state trading of emissions allowances would increase the cost of achieving emissions reductions. *See generally* Jennifer Macedonia et al., *Insights from Modeling the Proposed Clean Power Plan*, BIPARTISAN POL'Y CTR. (Apr. 2015), http://bipartisanpolicy.org/wp-content/uploads/2015/04/BPC-Clean-Power-Plan-Slides.pdf [http://perma.cc/5D4M-SKFY] (showing efficiency gains from regional cooperation).

190. This is still deliberative information because it concerns social welfare, albeit in a context where politics limit the choice set.

191. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,727-30 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60).

192. *See* H. Ron Chan et al., *The Net Benefits of the Acid Rain Program: What Can We Learn from the Grand Policy Experiment?*, RESOURCES FOR FUTURE 15-25 (2015), http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-15-25.pdf [http://perma.cc/EYN5-64Z8].

193. Order Instituting Rulemaking To Continue Implementation and Administration, and Consider Further Development, of California Renewables Portfolio Standard Program, Cal.

itiative (RGGI) system have adopted similar complementary policies, including renewable portfolio standards as well as subsidies for energy efficiency projects.[194] Two decades of experience in Europe with the Emissions Trading System established under the Kyoto Protocol indicate that these complementary policies have staying power.[195] Despite the uncertain benefits of these policies, their robustness over time is an indication that there are other social or political priorities that they serve.

There is also potential for state variation and experimentation to shed light on broadly related questions associated with transformation of the energy sector.[196] Commentators and practitioners are working intensely through the complex question of how to redesign the power transmission grid to better accommodate intermittent and distributed sources, primarily from solar and wind generation. Allowing for greater levels of low- or zero-carbon generation raises challenges for structuring price mechanisms in both regulated and unregulated markets.[197] Though experimentation over these periphery issues may be quite lively, and there is certainly much to learn, it does not advance the primary policy question concerning policies that limit emissions. Furthermore, given the already decentralized governance structure of the energy sector,[198] a comprehensive national cap-and-trade approach, akin to the 2009 Waxman-Markey bill,[199] would have initiated the same type of experimentation.

In addition to the relatively thin potential for the decentralized approach adopted in the rule to generate useful deliberative information, there may be additional downside risks. For example, state utility regulators could learn les-

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Pub. Util. Commission (Mar. 6, 2015), http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M148/K296/148296751.PDF [http://perma.cc/WM8B-A8TX].

194. *See generally Survey of Existing State Policies and Programs that Reduce Power Sector CO_2 Emissions*, ENVTL. PROTECTION AGENCY (2014), http://www.epa.gov/sites/production/files/2014-06/documents/existing-state-actions-that-reduce-power-sector-co2-emissions-june-2-2014_0.pdf [http://perma.cc/KB2E-FZYV] (discussing range of GHG reduction policies across states, including within the RGGI group of states).

195. *See* OECD, *supra* note 187, at 39-94 (analyzing complementary policies in several European countries subject to the emissions trading system).

196. On the relationship between the Clean Power Plan and energy restructuring, see Hannah J. Wiseman & Hari M. Osofsky, *Regional Energy Governance and U.S. Carbon Emissions*, 43 ECOLOGY L.Q. 143 (2016).

197. *See* William Boyd & Ann E. Carlson, *Accidents of Federalism: Rate Design and Policy Innovation in Public Utility Law*, 63 UCLA L. REV. 810 (2016).

198. *Id.*

199. *See* American Clean Energy and Security Act of 2009 (Waxman-Markey Bill), H.R. 2454, 111th Cong. (2009).

sons about how to effectively export costs to other jurisdictions or how to impose disproportionate burdens on the politically weak. States may learn how to game EPA emissions models,[200] and market actors may take advantage of thin allowance markets to extract rents. One area of current concern is the ability of states to choose between "rate-based" and "mass-based" approaches to reducing emissions.[201] If states adopt different approaches, it may be possible for private parties, and even states, to exploit opportunities for market manipulation.

Overall, production of deliberative information is not likely to be a very beneficial consequence of decentralization in the Clean Power Plan. The next Section turns to a more promising area.

B. Potential for Beneficial Political Information

The potential to produce beneficial political information is among the Clean Power Plan's most useful contributions. But before turning to this upside, it is also important to explore some of the downside risks attendant to political information.

The electricity market has a huge number and diversity of participants on both sides. On the supply side, most of the market is made up of large, industrial-scale generators based on fossil fuels, nuclear power, and hydropower.[202] Distributed generation and renewables—running from residential solar panels to medium-scale commercial wind projects—make up a small but growing segment of the market. On the demand side, the market is roughly evenly divided between residential, commercial, and industrial users.[203] There is substantial diversity in how electricity markets are regulated, with the federal gov-

200. *Cf. Volkswagen Emissions Cheating Allegations: Initial Questions Before the Subcomm. on Oversight & Investigations of the H. Comm. on Energy & Commerce*, 114th Cong. (2015) (testimony of Michael Horn, President and CEO, Volkswagen Group of America, Inc.) (briefly describing Volkswagen's use of a "defeat device" on certain automobile models designed to generate false results in emissions testing situations).

201. "Rate-based" approaches set targets based on emissions rates per unit of electricity output, while "mass-based" approaches set targets based on total emissions. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,822 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60).

202. *How Is the Fuel Mix for U.S. Electricity Generation Changing?*, U.S. ENERGY INFO. ADMIN. (Feb. 19, 2016), http://www.eia.gov/energy_in_brief/article/fuel_mix_for_elect_generation.cfm [http://perma.cc/FG7N-QE2Y].

203. *U.S. Electricity Flow 2015*, U.S. ENERGY INFO. ADMIN. (2016), http://www.eia.gov/totalenergy/data/monthly/pdf/flow/electricity.pdf [http://perma.cc/5VWQ-KMAS].

ernment playing a significant role along with a host of state and regional regulatory, oversight, and coordinating bodies.[204]

Imagine a baseline, social welfare-maximizing policy in which a revenue-generating market-based mechanism, such as an allowance auction or carbon fee, is used to optimize social welfare. For the sake of simplicity, imagine that the optimal policy will be to offset the new carbon revenue by reducing some set of regressive and distortive state and local taxes—presumably there are more than a couple of candidates. State governments could depart from this optimal policy in a number of ways. Markets can be reduced in scope from national or regionally integrated systems to state-specific caps. Loopholes can be created in the carbon tax, necessitating higher fees on covered entities. Market-based approaches can be replaced by command-and-control-style requirements on electricity generators (e.g., requiring improved heat rates at coal facilities) and dispatch between different energy sources (e.g., mandating greater reliance on natural gas, wind, and nuclear power). These command-and-control regulations can be augmented by further requirements or subsidies for energy efficiency or clean energy generation. In addition, there are innumerable ways that states might choose to spend any revenue generated by a carbon tax or allowance market that do not maximize social welfare.

This political environment involves several well-organized interest-seeking rents. Existing generators will lobby for free allowances or command-and-control-style regulation that allows them to pass costs through to consumers. Renewable energy providers will seek subsidies. States with relatively low-cost abatement options may avoid trading to protect low electricity prices for incumbent purchasers. Construction unions may seek home-retrofit mandates. Any number of groups will seek lower taxes or increased government outlays if an alternative revenue source is discovered.

The losers in this political bargaining will almost certainly be disaggregated electricity users, in the form of higher energy prices or inefficient mandates. This diffuse group of consumers is particularly vulnerable because few organizations are even purportedly devoted to protecting their interests (unlike, for example, farming or environmental quality interests). Based on this dynamic, decentralization in the Clean Power Plan could lead to state-level experimentation that generates harmful political information. Interest groups and activist organizations operating in multiple states will push their policies forward on all

204. At the national level, the Federal Energy Regulatory Commission and the North American Electric Reliability Corporation (actually a publicly designated corporation via the Energy Policy Act of 2005) are the primary regulators. *See* N. AM. ELEC. RELIABILITY CORP., http://www.nerc.com/Pages/default.aspx [http://perma.cc/P7K9-JN63].

fronts, tailoring their messaging and strategy as they learn how best to promote their agendas. The diffuse public, unable to coordinate even within a state, and much less across states, will be poorly positioned to respond to these evolving lobbying, campaign spending, and public relations efforts.

These problems have been seen before in similar Clean Air Act programs. The Act's centerpieces, the National Ambient Air Quality Standards (NAAQS) and State Implementation Plans (SIPs),[205] raise exactly the same set of concerns. Indeed, political learning on the part of well-organized repeat players has characterized state implementation of air quality standards for decades.[206] Perhaps the leading example of this phenomenon is the difficulty faced by states in reducing emissions from large sources that predated the Act, resulting in near-perpetual grandfathering for polluters that were preliminarily exempted from technology-based requirements.[207] Under the original logic of the Clean Air Act, new sources were subject to stringent pollution control requirements, while existing sources were expected to fade away based on obsolescence. In reality, owners of existing sources have proven to be extremely savvy actors in preserving their highly valuable grandfathered status, extending the useful life of the plants for decades beyond original predictions.[208] Over time, as the same players have been repeatedly subject to demands in multiple states to reduce emissions, they have accumulated a great deal of political information about how to resist those demands. Playing from an ever more sophisticated playbook, existing sources have only recently seen their prospects fade in the face of major national rulemakings on conventional pollutants. The Clean Power Plan may ultimately be prone to similar risks. Well-organized, multistate interest groups and activist organizations will likely play a prominent role at the state level, attempting to affect policy in their favored direction.

That is the bad news. The good news is that state-level experimentation under the Clean Power Plan shows relatively high potential to generate political information that plays a valuable role for the party system.[209] Climate change is

205. Clean Air Act §§ 109-10, 42 U.S.C. §§ 7409-10 (2012).

206. *See generally* RICHARD L. REVESZ & JACK LIENKE, STRUGGLING FOR AIR: POWER PLANTS AND THE "WAR ON COAL" (2016) (discussing the failure of state implementation plans under the Clean Air Act to address pollution from pre-existing, "grandfathered" sources that were not subject to federal technology-based requirements).

207. *See id.* at 30-32.

208. Richard L. Revesz & Allison L. Westfahl Kong, *Regulatory Change and Optimal Transition Relief*, 105 NW. U. L. REV. 1581, 1582 & n.1 (2011).

209. *Cf.* Carlson, *supra* note 16 (discussing the role that states have played in advancing climate policies); Symposium, *Federalism and Climate Change: The Role of the States in a Future Feder-*

a high-profile national issue. The predicted effects of climate change are pervasive, with profound economic, social, and environmental consequences. Control of greenhouse gas emissions likewise has effects across the entire economy, and will influence investment, consumption, and the distribution of wealth across society. These profound consequences are reflected in the political salience of the problem: although few Americans list climate change as a leading concern compared to issues such as terrorism or education, a substantial majority of Americans are aware of the issue and have formed at least tentative policy preferences.[210] For a scientifically complex, morally challenging issue, the degree of voter attention is remarkably high.[211]

The Clean Power Plan itself is at the center of the national conversation on climate policy. Currently, the discourse on the rule has largely focused on EPA, but after adoption, when states begin in earnest to develop implementation plans, the conversation will decentralize to fifty state capitals. Political contestation over both EPA's adoption of the rule and state implementation is likely to be pitched. It does not seem to be an exaggeration to say that, assuming the rule survives judicial scrutiny, it will be the most politically contentious rule in EPA's history. And political contests over the rule will not be limited to Washington, D.C.: they will occur in statehouses across the country.

The substantial partisan gridlock on the issue creates considerable value in potential realignments. With the 2009 defeat of Waxman-Markey,[212] the prospect of climate legislation in Congress in the near term essentially disappeared. EPA's Clean Power Plan has prompted congressional reactions that have fallen rigidly along party lines, and the rhetorical gap between the parties on the issue is enormous; leaders in the Democratic Party claim that climate change is a preeminent moral issue of the day,[213] while many prominent Republicans do not acknowledge a role for human activities in contributing to

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al Regime, 50 ARIZ. L. REV. 673 (2008) (discussing various perspectives on the effectiveness of state climate policies).

210. *See generally* ANTHONY LEISEROWITZ ET AL., POLITICS & GLOBAL WARMING (2014) (discussing survey data concerning the American public's understanding of and concern with climate change).

211. *Cf.* DALE JAMIESON, REASON IN A DARK TIME: WHY THE STRUGGLE AGAINST CLIMATE CHANGE FAILED—AND WHAT IT MEANS FOR OUR FUTURE 144-77 (2013) (discussing challenges to conventional moral intuition in the context of climate change).

212. Bryan Walsh, *Why the Climate Bill Died*, TIME (July 26, 2010), http://science.time.com/2010/07/26/why-the-climate-bill-died [http://perma.cc/5YRP-S7CW].

213. Ramsey Cox, *Markey, Pope Talk Climate Change*, HILL (May 29, 2014), http://thehill.com/blogs/floor-action/senate/207625-markey-pope-talk-climate-change [http://perma.cc/N54K-49KY] (quoting Sen. Markey).

climate change.[214] Interest groups and ideological activists have staked out strong positions, and substantial spending from the wings of each party makes compromise difficult.

The politics over state-level implementation also transfer to the national political scene. Although there will be state-by-state idiosyncrasies, the major blocs that are affected by climate change policy—power generators, utilities and other intermediaries, and electricity users of various sorts—are relatively consistent across the country. While fossil fuel interests may be more powerful in one state and wind generators and unions may have greater pull in another, the basic interest group tradeoffs will only have minor variations across the country. Policymakers will also be selecting from a limited menu of policy options and potential political coalitions. Some may adopt the "just say no" approach being urged by Senate Majority Leader McConnell in which states refuse to develop their own plans, forcing EPA to develop the implementation plans for recalcitrant states.[215] Others may track the strategy of the Waxman-Markey effort that attempted to build a coalition of moderates from the business and environmental communities.[216] Alternative market approaches could auction allowances or apply a carbon tax and use that revenue for a variety of purposes, including direct refunds to citizens, tax cuts, or funding for other policies—any of which will attract different potential coalitions. Some states may abandon market-based approaches in favor of industrial policy that requires particular forms of energy generation, conservation measures, or infrastructure. These industrial policy approaches have the potential to generate different groups of political supporters. Either market-based or industrial policy-based approaches could be pursued at the state level, or through regional cooperation. That policymakers can generate these combinations by manipulating a limited set of variables increases the potential "slippage" between state and national politics.

The relatively circumspect nature of the policy experimentation that will occur under the Clean Power Plan does not mean that any particular set of po-

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214. *See generally* JAMES INHOFE, THE GREATEST HOAX: HOW THE GLOBAL WARMING CONSPIRACY THREATENS YOUR FUTURE (2012) (arguing that global warming is a vehicle for the government to increase its regulation over many areas of life).

215. *See* Timothy Cama, *What if States Just Say "No" to Climate Rule?*, HILL, (Mar. 8, 2015), http://thehill.com/policy/energy-environment/234940-what-if-states-just-say-no-to-the-epas-climate-rule [http://perma.cc/PY35-HTJD]; Letter from Mitch McConnell, Senate Majority Leader, to Nat'l Governors Ass'n (Mar. 19, 2015), http://www.mcconnell.senate.gov/public/index.cfm?p=newsletters&ContentRecord_id=d57eba06-0718-4a22-8f59-1e610793a2a3 [http://perma.cc/8AP2-EGLJ].

216. *Cf.* JONAS MECKLING, CARBON COALITIONS 133-66 (2011) (discussing the role of interest group coalitions in the development of the Waxman-Markey bill).

litical consequences is a foregone conclusion. Perhaps a sustainable climate coalition will emerge that successfully pushes for greenhouse gas emission reduction over the coming decades. Or perhaps a powerful realignment that merges unions, fossil fuel interests, and low-income voters will emerge that takes emissions limits off the national agenda for a generation. Any number of configurations and reconfigurations of interests and affinities may be experimented with at the state level and bleed back into national politics. Although it may be possible to map some of the possible permutations of climate coalitions that could emerge from a period of experimentation, any predictions made about political structures sitting on the shifting sands of U.S. climate politics should be heavily discounted.

The potential for valuable political information may justify an even greater level of decentralization through additional involvement of local municipalities in setting climate policy. In the United States, decentralization is often associated with federalism and devolution of authority to the states.[217] However, the link between decentralization and federalism is not necessary, and some nonfederal constitutional structures involve considerable decentralization to municipalities.[218] Local level experimentation has been important in a variety of contexts, including many discussed in Part II (such as in tobacco policy).[219] There are a variety of climate measures available to local governments, and a number of jurisdictions have adopted policies to reduce emissions.[220] Organizations such as the World Mayors Council on Climate Change facilitate cross-jurisdictional coordination between major cities, and several U.S. cities have signed onto an informal agreement to reduce carbon emissions.[221] Local experimentation with climate policy can take the form of carbon fees, land use planning to reduce transportation needs, adoption of low-carbon energy sources, or building codes that encourage energy efficiency.

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217. *See* Rubin & Feeley, *supra* note 90.

218. *See* Jonathan Rodden, *Comparative Federalism and Decentralization: On Meaning and Measurement*, 36 COMP. POL. 481, 483 (2004).

219. *See supra* Part II.

220. Allison Chatrchyan, *Addressing Climate Change at the Municipal Level*, CORNELL CLIMATE CHANGE, http://climatechange.cornell.edu/addressing-climate-change-at-the-municipal-level [http://perma.cc/SY7W-L2XE].

221. *See About*, WORLD MAYORS COUNCIL ON CLIMATE CHANGE, http://www.worldmayorscouncil.org/about.html [http://perma.cc/9FWJ-YU45]; *Cities and Their Reports*, GLOBAL CITIES COVENANT ON CLIMATE, http://www.mexicocitypact.org/docs/ciudades-y-sus-reportesEN.php [http://perma.cc/K5Y6-E284] (noting U.S. cities such as Los Angeles, Boulder, and Des Moines as among the signatories of the Global Cities Covenant on Climate).

Decentralization of climate policy to the state level may facilitate climate action at the local level, but states may also inhibit local policymaking. A recent high-profile example where state authority was used to block local climate experimentation occurred when former New York City Mayor Michael Bloomberg was unable to secure state authorization to pursue congestion pricing (a market-based mechanism to discourage driving), despite the promise of over $300 million in financial backing from the federal government.[222] There, the local and national authorities were aligned, and it was the state that interfered with this potentially useful climate experiment.

Given the value of political information concerning climate policy, and the potential for local experimentation to contribute to the generation of that information, it is worth considering whether, and how, the Clean Power Plan could be structured to facilitate even greater levels of decentralization. One possibility would be EPA explicitly authorizing states to delegate some compliance decisions to localities, which would then be charged with filing supplemental plans with the agency that show long-term emissions reductions. Under this scenario, when states file compliance plans with EPA, a portion of the emissions reduction budgets could be allocated to local governmental units alongside a pre-authorization for those localities to engage in some suite of policies. This move would allow states to choose to remove themselves as intermediaries between EPA and localities, thereby permitting a direct channel of communication between the national and local levels.

The level of decentralization contemplated under the Clean Power Plan, which places compliance decisions primarily on states, may under-produce political information. A wide range of political configurations can be found at the state level, so requiring these states to genuinely grapple with formulating climate policy that can appeal to diverse coalitions of constituencies could lead to valuable political information. But allowing further devolution to the municipal level has even greater potential, given the greater variety in political composition and the potential for municipalities to adopt local policies that depart from the political mainstream. In these unusual or unfamiliar policies, where partisan alignments and political incentives are least clear, there is the greatest political information to be had.

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222. *See generally* Bruce Schaller, *New York City's Congestion Pricing Experience and Implications for Road Pricing Acceptance in the United States*, 17 TRANSPORT POL'Y 266 (2010) (tracing the development and defeat of Bloomberg's congestion pricing plan).

C. Conclusion

As should be clear from the preceding discussion, decentralization under the Clean Power Plan does not represent an unmitigated boon from an experimentalist perspective. There is little valuable deliberative information to be had, and any information that is available concerns the relative undesirability of second-best options. Useful information on related issues concerning energy restructuring would have been generated anyway under a national approach, given decentralized governance in that sector. There is even the potential for harmful deliberative information, as politically and economically powerful interests learn lessons on how best to exploit their new operating environment. Serious public choice problems in the electricity sector also make it likely that powerful interest groups will be better poised to use political information to their advantage, learning through repeat play how to structure their political campaigns for maximum effect.

But there is an upside, and the potential returns are large. Crucially, EPA's decision to set emission limits takes the policy question with the greatest potential for public choice failure off the table. Furthermore, by delegating down decisions about how best to meet those limits, the agency has spurred fifty conversations on climate change in states with vastly different partisan inclinations. Even after the Supreme Court stayed the rule pending adjudication of legal challenges, these conversations have continued.[223] As leaders in red, blue, and purple states respond to this policy challenge, there is great potential for novel interest group coalitions and partisan alignments to emerge. It is impossible to know what shape this experimentation will take. But given the large partisan divide on the issue of climate change, which has essentially shut down the possibility of national legislation for the foreseeable future, the potential gains to be had are significant.

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223. Barbara Grady, *States Act on Clean Power Plan Despite Court Hold: Join Them*, GREENBIZ, (Feb. 23, 2016, 2:00 AM), http://www.greenbiz.com/article/states-act-clean-power-plan-despite-court-hold-join-them [http://perma.cc/TR67-FCJP]; *see also* Richard Revesz, *Supreme Court Ruling on Clean Power Plan Doesn't Halt EPA Action or Change Timeline*, HILL (Mar. 16, 2016, 7:30 AM) http://thehill.com/blogs/pundits-blog/energy-environment/273189-supreme-court-ruling-on-clean-power-plan-doesnt-halt [http://perma.cc/9XNP-5BV3] (arguing that the stay did not affect EPA's ability to continue to develop emissions guidelines or states' decisions to preemptively comply with the Clean Power Plan).

V. CONTRASTING POLICY ENVIRONMENTS

This Article describes a general framework to analyze the considerations relevant to the experimental consequences of decentralization, which can be applied in a wide range of policy domains. The three categories of questions to consider concern the value of information, the likely effects on information production from alternative regime designs, and how information will be put to use under the existing regime and alternatives. Although in many policy areas it will be impossible to generate perfectly precise answers to these questions, there is nonetheless substantial value in engaging in a qualitative inquiry that focuses attention on the relevant variables that determine whether more, less, or differently structured decentralization is justified. The previous two Parts applied this general framework to two important contemporary environmental rulemakings. It may be helpful to reflect on how the similarities and differences between the two policy contexts affect the experimentation value of greater decentralization.

The conclusion in Parts III and IV is that greater decentralization in either the Waters Rule or Clean Power Plan would not be likely to lead to the production of deliberative information that would be valuable or put to beneficial use. It is useful to contrast these policy contexts with an issue like fracking, where decentralization could have higher potential to lead to valuable deliberative information.

For both the Waters Rule and the Clean Power Plan, much of the scientific and economic knowledge necessary for sound policymaking is already available. Many uncertainties remain, but water pollution and climate change have been subject to sustained programs of government and academic study for several decades. Fracking, on the other hand, is an emerging policy area where the scientific and economic understanding is much less developed. Because fracking is a relatively new technology, its effects on the natural environment, and the economic costs and benefits of regulating the technique, are just beginning to be understood. There is therefore more potential for a payoff in deliberative information generated by policy experimentation. The more general lesson here is that new policy questions present opportunities for the creation of valuable deliberative information that will be less prevalent in more well-developed policy areas.

Another similarity between the Waters Rule and the Clean Power Plan is that where gaps in deliberative information exist, greater decentralization is unlikely to fill them. In the water pollution context, this result accords with prior scholarship establishing that jurisdictions lack incentives to produce beneficial information for others, especially if doing so is costly. Water pollution markets provide an excellent example. For some time, there has been interest within the

policy community in developing market-based mechanisms for water pollution control,[224] but logistical and technical complexities have inhibited development of these markets.[225] Lessons learned in one jurisdiction about how to address these complexities have the potential to be generally applicable and help facilitate the diffusion of a superior policy approach. This, then, is a situation where experimentation could yield useful information. But since these experiments are risky, and most of the information benefits are enjoyed outside the jurisdiction, simple decentralization is unlikely to produce the desired experimentation. External incentives are needed to properly capture their potential. In the climate context, the greatest areas of uncertainty relate to climate damages, and local experimentation or variation in emissions will provide no relevant data. Further, the best policy options (carbon fees or caps) are fairly well established; experimenting with second-best alternatives may provide valuable information, but only if the best options remain politically elusive.

Again, fracking provides a useful contrast. Jurisdictions are unlikely to engage in policy experimentation for the sake of producing information for other jurisdictions—that is why there is no rush to experiment with water quality markets. But differences in economic circumstances and political ideologies across jurisdictions provide ample room for differential levels of fracking regulation, from relatively lax policies to complete bans. At the same time that heterogeneous preferences produce different policies, information about at least the physical effects of fracking are likely to be relatively generalizable. The interaction of interjurisdictional heterogeneity, which leads to variation, and (some degree of) homogeneity with respect to the area of uncertainty creates opportunities for useful information production. Although experimentation might be suboptimal, absent incentives that internalize the positive information generation externality, fracking is nonetheless a context where decentralization could plausibly result in non-trivial production of deliberative information.

Although the clean water and climate contexts are similar in that greater decentralization is unlikely to produce valuable deliberative information, they differ markedly from each other in the potential value of political information.

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224. *See, e.g.*, OFFICE OF WATER, ENVTL. PROT. AGENCY, WATER QUALITY TRADING POLICY 2 (2003) (establishing a policy "to encourage states, interstate agencies and tribes to develop and implement water quality trading programs for nutrients, sediments and other pollutants where opportunities exist to achieve water quality improvements at reduced costs").

225. *See generally* ENVTL. PROT. AGENCY, EPA 841-B-04-001, WATER QUALITY TRADING ASSESSMENT HANDBOOK: CAN WATER QUALITY TRADING ADVANCE YOUR WATERSHED'S GOALS? (2004) (discussing the financial, environmental, and political determinants of successful trading programs).

The most important reason for this difference is the degree of partisan gridlock that currently dominates climate policy in the United States; this state of affairs creates the potential for substantial upside if information can be generated through local experimentation that helps overcome the existing partisan divide. Water pollution control faces its own political stagnation, particularly with issues such as control of non-point sources,[226] and it is possible that decentralized experimentation could reveal political information that could help reenergize policymaking in these areas. But the degree and social importance of the impasse over climate creates substantial potential value for political information in this area. In addition, because of the local nature of water pollution, political lessons learned in some jurisdictions may be less generalizable, while decision makers face more generic political challenges in crafting climate policy. The lesson here is that political information will likely be most valuable when jurisdictions face similar political contexts and where current political alignments have reached an undesirable equilibrium.

Another difference between the clean water and climate contexts is the ability of greater decentralization to actually produce political information. As is widely acknowledged by many of the contestants in debates over the Waters Rule, the consequence of a federal retreat is likely to be a regulatory lacuna as many states or localities fail to fill the void left by the absence of federal authority. Although some amount of political information may be created about the consequences of an absence of regulation, the lack of incentives to actually engage in policymaking undermines any potential for useful experimentation.

On the other hand, the Clean Power Plan creates general emissions reductions requirements and then decentralizes authority over how to meet those requirements. As discussed above, decentralizing the goal setting would be very unlikely to lead to particularly beneficial experimentation, but further decentralization of compliance authority could lead to even greater production of valuable political information. The difference between the two contexts lies in the distinct incentives to engage in policymaking: in the Waters Rule context, which is jurisdictional, further decentralization may lead to inaction; in the climate context, further decentralization could be structured so as to maintain incentives to act.

A final set of differences between the policy contexts of the Waters Rule and the Clean Power Plan concerns how both deliberative and political information is likely to be put to use. Both water pollution and climate policy may be subject to public choice failures, implying that information of any type may

226. Zdravka Tzankova, *The Difficult Problem of Nonpoint Nutrient Pollution: Could the Endangered Species Act Offer Some Relief?*, 37 WM. & MARY ENVTL. L. & POL'Y REV. 709, 720-31 (2013).

be used by relatively more powerful and well-organized special interests to extract rents at the expense of the broader public. There is less reason to be concerned about public choice failures when voter attention to an issue is high, where representative pluralistic bargaining occurs, or where political parties are actively competing on a policy question. Given the current political salience of climate change, there may be reason to be more optimistic about the level of voter attention, the degree of representative bargaining, and the opportunity for partisan rivalry on that issue. This salience somewhat mitigates public choice concerns in that domain, at least relative to the water pollution context.

More to the point, two issues concerning cross-jurisdictional effects distinguish the Waters Rule and the Clean Power Plan. The first is the heightened risk of interjurisdictional externalities in the clean water context, because greater decentralization would allow localities or states to determine whether and how to set pollution control standards. Experimentation, then, could generate information on how to successfully send pollution downstream, as well as information about the political benefits of doing so. The Clean Power Plan sets emissions limits at the federal level and therefore does not run this risk. Instead, most of the decisions concern allocating costs within the jurisdiction, and so interjurisdictional externalities present much less of a problem.

The second cross-jurisdiction difference concerns asymmetries in how well positioned interest groups are to learn lessons in one jurisdiction and apply them elsewhere. If some interest groups extend across jurisdictions, or are involved in networks that can help coordinate across jurisdictions, they will be better positioned to use political and deliberative information generated in one jurisdiction to their advantage elsewhere. In the Waters Rule context, entities such as the Farm Bureau and environmental organizations can help coordinate action across jurisdictions; the vital question, then, is whether there is a balance between the affected interests in this respect. In the climate context, there is likely a very strong imbalance, as large multistate actors (such as utilities and power generators) are able to extract lessons across jurisdictions much more easily than poorly organized and diffuse electricity consumers. This difference would cut against decentralization for the Clean Power Plan, and indeed prior experience with programs under the Clean Air Act have shown generators and utilities to be quite effective at protecting their interests through deployment of deliberative and political information.

However, certain organizations do extend across jurisdictional lines in the Clean Power Plan context that are well positioned to specifically take advantage of political information: political parties. As states start to generate climate policy, actors within political parties can observe the results of these experiments in terms of interest group alignment and electoral success. To the extent that some state politicians are able to develop advantageous policy positions, there

is good reason to expect attempts to copy those positions at other states or the federal level. Political failures, likewise, will lead to information that will reduce their likelihood of being repeated. Especially in an era when all politics is national, and given the high degree of partisan contestation over the issue of climate change, competition between the parties will facilitate a more or less symmetrical spread of political information between jurisdictions.

Overall, the preceding case studies help demonstrate that policy experimentation is not an unmitigated advantage of decentralized governance. Although some of the information generated through variation and innovation may inform the policymaking process in helpful ways, information produced through experimentation could potentially be used by self-interested actors in ways that undermine, rather than promote, social well-being. Just as decentralized regimes may result in the under-production of beneficial information, they may also result in the over-production of harmful information. Policymakers should seek the level and form of decentralization that maximizes the net benefits of information production, subject to constitutional and statutory constraints, ethical limitations, and other factors that bear on the decentralization calculus. As the Clean Power Plan and Waters Rule nicely illustrate, this inquiry cannot be carried out in the abstract, and sound analysis must be based on careful attention to a wide range of policy and political dynamics.