

WHEN IS TWO A CROWD? THE IMPACT OF FEDERAL ACTION ON STATE ENVIRONMENTAL REGULATION

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INTRODUCTION

Up until the 1970s, environmental protection largely consisted of a patchwork of state laws, local ordinances and common law nuisance protections.¹ By the late 1960s, state and local governments had adopted various environmental measures. Nonetheless, there was a general perception that they were unable or unwilling to address most environmental concerns.² Congress responded with an array of environmental statutes that reoriented the federal-state relationship in environmental law.³ The federal government assumed the dominant role in national policy-making. States continue their environmental protection efforts, but they are largely overshadowed by the federal government.⁴

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¹ See Robert V. Percival, *Environmental Federalism: Historical Roots and Contemporary Models*, 54 MD. L. REV. 1141, 1147 (1995).

² See generally Jonathan H. Adler, *The Fable of Federal Environmental Regulation: Reconsidering the Federal Role in Environmental Protection*, 55 CASE W. RES. L. REV. 93 (2004).

³ These statutes include the Clean Air Act, Pub. L. No. 91-604, 84 Stat. 1676 (1970), the Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 898 (later amended as the Clean Water Act and codified at 33 U.S.C. §§ 1251-1387 (2000)), the Federal Insecticide, Fungicide, and Rodenticide Act, Pub. L. No. 92-512, 86 Stat. 973 (1972), the Endangered Species Act, Pub. L. No. 93-205, 87 Stat. 884 (1973), the Safe Drinking Water Act, Pub. L. No. 93-523, 88 Stat. 1660 (1974), the Resource Conservation and Recovery Act, Pub. L. No. 94-580, 90 Stat. 2795 (1976), and the Toxic Substances Control Act, Pub. L. No. 94-469, 90 Stat. 2003 (1976). The National Environmental Policy Act, Pub. L. No. 91-190, 83 Stat. 852 (1969), was also an important environmental statute, but it did not have as much of an impact on the federal-state balance in environmental law. See Percival, *supra* note 1, at 1159.

⁴ See John P. Dwyer, *The Role of State Law in an Era of Federal Preemption: Lessons from Environmental Regulation*, 60 LAW & CONTEMP. PROBS. 203, 205 (1997) (“[The role of states] is increasingly restricted to those areas not yet subject to extensive federal regulation . . . and to the implementation and enforcement of permits issued pursuant to federal standards and procedures.”).

In recent years scholars have begun to reexamine the federal-state balance in environmental law.⁵ New scholarship has challenged the necessity and effectiveness of much federal environmental regulation, while others have defended the preeminent role of federal environmental law. There remains substantial disagreement on the extent to which states can be trusted to adopt welfare-enhancing environmental safeguards.⁶ Some scholars fear that states would adopt suboptimal levels of environmental protections absent a sufficient federal regulatory "floor."⁷ This concern exists even where environmental problems lack the sort of extraterritorial impacts that are likely to produce insufficient environmental protection at the state and local level.⁸

Despite the extensive scholarly literature assessing the proper role of federalism in environmental law, there has been relatively little analysis

⁵ See, e.g., HENRY BUTLER & JONATHAN R. MACEY, USING FEDERALISM TO IMPROVE ENVIRONMENTAL POLICY (1996); DANIEL A. FARBER, ECO-PRAGMATISM: MAKING SENSIBLE ENVIRONMENTAL DECISIONS IN AN UNCERTAIN WORLD 179-83 (1999); PIETRO S. NIVOLA & JON A. SHIELDS, AEI-BROOKINGS JOINT CTR. FOR REGULATORY STUDIES, MANAGING GREEN MANDATES: LOCAL RIGORS OF U.S. ENVIRONMENTAL REGULATION (2001); DAVID SCHOENBROD, SAVING OUR ENVIRONMENT FROM WASHINGTON (2005); Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570 (1996); James L. Huffman, *Making Environmental Regulation More Adaptive Through Decentralization: The Case for Subsidiarity*, 52 U. KAN. L. REV. 1377 (2004); Wallace E. Oates, *A Reconsideration of Environmental Federalism*, in RECENT ADVANCES IN ENVIRONMENTAL ECONOMICS 1, 22 (John A. List & Aart de Zeeuw eds., 2002); Percival, *supra* note 1; Richard L. Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, 82 MINN. L. REV. 535, 536-37 (1997); 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) [hereinafter Revesz, *Rehabilitating*]. Even analysts that are highly skeptical of the benefits of granting states greater control over environmental policy decisions acknowledge that some measure of decentralization is warranted. See, e.g., Esty at 653 (endorsing a "middle road" between centralization and decentralization); Rena I. Steinzor, *EPA and Its Sisters at 30: Devolution, Revolution, or Reform?*, 31 ENVTL. L. REP. 11086, 11094 (2001) (calling for "accountable devolution").

⁶ For critiques of decentralization, see, for example, Kirsten H. Engel, *State Environmental Standard-Setting: Is There a "Race" and Is It "To the Bottom"?*, 48 HASTINGS L.J. 271 (1996-97); Kirsten Engel & Susan Rose-Ackerman, *Environmental Federalism in the United States: The Risks of Devolution*, in REGULATORY COMPETITION AND ECONOMIC INTEGRATION: COMPARATIVE PERSPECTIVES 135 (Daniel C. Esty & Damien Geradin eds., 2001); Rena I. Steinzor, *Devolution and the Public Health*, 24 HARV. ENVTL. L. REV. 351 (2000); Peter P. Swire, *The Race to Laxity and the Race to Undesirability: Explaining Failures in Competition Among Jurisdictions in Environmental Law*, 14 YALE L. & POL'Y REV. 67 (1996).

⁷ It is important to note that a suboptimal regulatory regime could either over-regulate or under-regulate. In some environmental literature, however, there is a greater concern that states will under-regulate absent active federal participation in environmental protection.

⁸ For example, some commentators fear that interjurisdictional competition for economic investment will produce a "race to the bottom" that leads to systematic underprotection of environmental values. See, e.g., CLIFFORD RECHTSCHAFFEN & DAVID L. MARKELL, REINVENTING ENVIRONMENTAL ENFORCEMENT & THE STATE/FEDERAL RELATIONSHIP 22-25 (2003) (the race-to-the-bottom theory is "one of the central underpinnings of federal environmental regulation" (quoting Esty, *supra* note 5, at 628)); WILLIAM A. FISCHEL, THE HOME VOTER HYPOTHESIS 162 (2001) (noting "a widespread belief that competition among jurisdictions poses a danger of a mutually-destructive 'race to the bottom'"); Swire, *supra* note 6; Engel, *supra* note 6.

of why states adopt given environmental policies.⁹ There is even less consideration of how federal regulatory choices influence state environmental policy, and how a change in federal policy could influence states' willingness to adopt more environmental protections of their own. This Article seeks to address this gap by describing some of the factors that are likely to influence state environmental policy decisions and delineating how federal environmental policies can affect state policy choices. Specifically, this Article seeks to further the understanding of how federal regulation influences the scope and effectiveness of state regulations.

Some of the factors that influence state regulatory decisions are readily apparent, such as wealth, knowledge and interest-group pressure. The influences of federal regulation on state regulatory choices, particularly insofar as such influences are felt indirectly, may be less obvious. Nonetheless, it should be evident that federal policy decisions should have *some* effect on state policy choices concerning the existence, scope and contours of state regulatory programs. These effects can occur whether intended or not. In some instances, federal action may even preclude or discourage welfare-enhancing initiatives at the state and local level.

This Article suggests a framework for categorizing and analyzing how federal policy decisions can influence state regulatory choices. The federal influence can be either "positive"—resulting in greater levels of state regulation—or "negative." Federal influence can also be direct or indirect. Direct influences include federal preemption and the creation of various incentives and penalties for state action or inaction, including conditional preemption and conditional funding. Indirect influences may be less obvious, but are no less important. Federal action—or perhaps even federal inaction—can encourage greater state regulation by reducing the costs of initiating regulatory action or by altering state policy agendas. At the same time, federal regulation may discourage states from adopting or maintaining more protective environmental rules or even "crowd out" state-level regulatory action by reducing the net benefits of state-level initiatives.

Building on prior research and analysis of federalism in environmental law and policy,¹⁰ this Article further seeks to reexamine some of

⁹ See PAUL TESKE, *REGULATION IN THE STATES* 8 (2004) ("[S]tate regulation is far less well understood than federal regulation, though it is no less important."). In this regard, the Teske volume is an important addition to the literature.

¹⁰ See Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVTL. L.J. 130 (2005) [hereinafter Adler, *Jurisdictional Mismatch*]; Jonathan H. Adler, *Judicial Federalism and the Future of Federal Environmental Regulation*, 90 IOWA L. REV. 377 (2005) [hereinafter Adler, *Judicial Federalism*]; Adler, *supra* note 2; Jonathan H. Adler, *Letting Fifty Flowers Bloom: Using Federalism to Spur Environmental Innovation*, in *THE JURISDYNAMICS OF ENVIRONMENTAL PROTECTION: CHANGE AND THE PRAGMATIC VOICE IN ENVIRONMENTAL LAW* (Jim Chen ed., 2004); Jonathan H. Adler, *The Ducks Stop Here? The Environmental Challenge to Federalism*, 9 SUP. CT. ECON. REV. 205, 226 (2001); Jonathan H. Adler, *Wetlands, Waterfowl, and the Menace of Mr. Wilson: Commerce Clause Jurisprudence and the Limits of Federal Wetland Regulation*, 29 ENVTL. L. 1 (1999) [hereinafter Adler, *Wetlands*]; Jonathan H. Adler, Comment, *The Green Aspects of*

the conventional assumptions that underpin many discussions of the proper federal-state balance in environmental policy. Among other things, this Article suggests that insufficient attention to the effects of federal action on state policy choices can reduce the scope and effectiveness of environmental protection efforts. For example, if federal regulatory action has the potential to discourage or crowd out state regulatory efforts, the adoption of a federal regulatory floor may actually *lower* instead of raise the aggregate level of environmental protection in a given jurisdiction.¹¹

Part I provides a brief overview of the development of environmental regulation at the state and local levels and identifies some of the factors that influence state-level environmental regulatory decisions. These factors, which may vary over time, help explain why governments at any level choose to adopt environmental regulations and why different states, left to their own devices, will adopt different environmental policies. A given state that is unlikely to adopt specific environmental measures at one point may be more likely to adopt the same, or even more extensive, measures at a later date due to socio-economic changes. This "environmental transition" provides the context for understanding how federal regulatory decisions can impact state regulatory decisions over time. Identifying those economic and political factors which are likely to influence state policy choices is also necessary in order to isolate and evaluate the extent to which federal policies affect state decisions.

Part II provides an introductory matrix and brief overview of how federal regulatory decisions can *directly* influence state regulatory decisions. This Part explains that federal directives commanding state regulatory action are constitutionally prohibited, but federal prohibitions on state regulatory action are not. Further, the federal government retains substantial power to induce state regulatory action through the provision of various penalties and incentives, including the conditional use of preemption and the use of conditional funding.

Part III turns to the indirect effects of federal regulation on state regulatory choices. This Part explains how federal regulatory action may increase the amount of state-level environmental regulation, even in the absence of direct federal incentives. Federal action may alter the policy agenda at the state level by highlighting or otherwise increasing public awareness of environmental concerns at the state level. It can also alter the interest group demand for state-level regulation or facilitate the adoption of state-level regulation by reducing the costs of enacting or implementing

Printz: *The Revival of Federalism and Its Implications for Environmental Law*, 6 GEO. MASON L. REV. 573 (1998).

¹¹ For articulations of the contrary position, see, for example, Paul S. Weiland, *Federal and State Preemption of Environmental Law: A Critical Analysis*, 24 HARV. ENVTL. L. REV. 237, 242 (2000), arguing that federal "minimum standards may raise the bar by establishing a baseline of protection" and "foreclose the possibility of a race to the bottom or race to laxity," and Steinzor, *supra* note 6.

state regulatory initiatives. In this sense, federal action can serve as a complement to state regulation.

Part III also contemplates the potential for federal regulations to have the opposite indirect effect. Specifically, this Part explains how federal regulatory action has the potential to discourage more protective state rules as well as to crowd out state regulatory efforts insofar as federal regulations serve as a substitute for state-level environmental protections. This Part describes those conditions under which federal regulation could result in less overall environmental regulation in a given state than had the federal government never regulated at all. In particular, where the federal government creates a regulatory floor before the adoption of state-level regulation, it becomes less likely that a given state will adopt regulations of its own in the future. This can be true *even if* at a later date, due to a state's own environmental transition, the amount of environmental regulation demanded in a state is greater than that provided by the federal government. As a result, the adoption of a federal regulatory floor that increases aggregate levels of environmental protection in the short run may, in the long run, result in less environmental protection in a given state. Insofar as one assumes that increased levels of environmental regulation will, on the margin, increase net welfare, non-preemptive federal environmental regulations could still produce net welfare reductions over time.¹² This could be true even if one assumes that a given federal regulation is, when viewed in isolation, cost-beneficial, as well as if one ignores potential qualitative differences between states and the federal government that may produce more optimal regulation at the state level.

In order to simplify the analysis, the bulk of this Article discusses the effects of federal action on state policy choices in quantitative terms, such as whether federal action produces more or less of a given type of state regulation. Part IV explains how this oversimplifies the analysis in two respects. First, while it is common to suggest that more environmental regulation is better than less regulation, it is not always clear that greater levels of environmental regulation are always welfare enhancing. The optimal level of environmental regulation in a given context may be greater than current levels, but it may also be lower if the costs of a given level of regulation exceed the benefits. Second, environmental regulation can vary in both *quantitative* and *qualitative* ways, and the latter variations among competing environmental policies may be more important to the attainment of optimal levels of environmental protection than any quantitative regulatory target. Accounting for qualitative differences in environ-

¹² It should be noted that increases in the stringency of environmental regulation will not necessarily produce net increases in social welfare. Insofar as the costs of increased environmental regulation, economic and otherwise, are greater than the benefits, increased regulation will reduce social welfare. However, insofar as one assumes that existing environmental regulations are under-protective, the potential for federal regulations to discourage greater protection at the state level should be of some concern. *See also infra* Part IV.

mental policy measures may unduly complicate the analysis, but they should not be ignored.

Demonstrating the theoretical possibility that federal regulation may crowd out state-level environmental protection does not establish that such crowding out has, or will, occur in any specific regulatory context. With this caveat in mind, Part V reconsiders the history of environmental protection at the state and federal level with a particular focus on wetland regulation. The history of state and federal regulation in this area is consistent with the crowding-out hypothesis and other aspects of this analysis. It does not by itself, however, demonstrate that such crowding out has occurred. Rather, it underscores the need for greater attention to the effect federal policy decisions have on state policy choices and also suggests the need for further empirical examination of this issue.¹³

I. THE DEMAND FOR ENVIRONMENTAL REGULATION

The demand for environmental regulation is not static. It changes over time due to a number of factors. Historically, the demand for environmental protection in industrial societies has increased alongside the accumulation of societal wealth and scientific knowledge. Wealthier and more knowledgeable societies demand greater levels of environmental protection. Other factors that may vary over time and place influence the demand for environmental protection as well.

Although governmental regulations are not the only means of protecting environmental values,¹⁴ public demand for greater levels of environmental protection has led to the enactment of environmental laws. As Professor Farber summarized, "the passage of environmental laws is attributable to strong public demand, coupled with exploitation of that demand by ideological and credit-seeking politicians."¹⁵ The relevant question is what determines the level of public demand for environmental protection, as well as the strength and involvement of other policy actors. Understanding the factors that influence the demand for environmental protection is necessary to analyze the effect that federal regulations may have on state regulatory choices.

¹³ Identifying and quantifying the extent of any such crowding out and other indirect effects of non-preemptive federal regulation on state regulatory activities in the environmental and other regulatory contexts is a subject for subsequent empirical investigation, and lies beyond the scope of this Article.

¹⁴ See generally Jonathan H. Adler, *Free & Green: A New Approach to Environmental Protection*, 24 HARV. J.L. & PUB. POL'Y 653 (2001); TERRY ANDERSON & DONALD LEAL, *FREE MARKET ENVIRONMENTALISM* (1991); Fred L. Smith, Jr., *Markets and the Environment: A Critical Reappraisal*, 13 CONTEMP. ECON. POL'Y 62 (1995); Fred L. Smith, Jr., *A Free-Market Environmental Program*, 11 CATO J. 457 (1992).

¹⁵ Daniel A. Farber, *Politics and Procedure in Environmental Law*, 8 J.L. ECON. & ORG. 59, 61 (1992).

A. *The Environmental Transition*

There was not always a significant demand for environmental regulation. While this nation has a long and proud conservation history, dating back at least to the creation of hunting-oriented conservation groups at the turn of the twentieth century,¹⁶ many of the environmental matters subject to regulation today were not seen as significant problems. Even as various environmental problems began to emerge, they were not initially seen as significant policy concerns. Some environmental problems were regarded as the inevitable, if not wholly desirable, consequence of industrial progress and economic growth.¹⁷ In other cases, society was simply unaware of the magnitude of certain environmental harms. In still other instances, official policy sought to encourage environmental modifications and land-use changes that current policy now seeks to reverse.¹⁸

Furthermore, the state of environmental knowledge was relatively poor. Environmental resources were devalued, and some environmental offenses were even believed to be positive goods. Wetlands were viewed as breeding grounds for mosquitoes that spread disease; the important ecological functions wetlands provide were underappreciated, if even understood at all.¹⁹ Predators and pest species were targets for extermination, with little consideration of the role various species play in ecosystem health.²⁰ For example, in the 1950s, government agencies sprayed DDT and other pesticides indiscriminately, even over the objections of local landowners, with little cognizance of the potential consequences for non-target species.²¹ At one time, many thought smoke and coal dust had "antiseptic" qualities

¹⁶ See PHILIP SHABECOFF, *A FIERCE GREEN FIRE: THE AMERICAN ENVIRONMENTAL MOVEMENT* 79–80 (rev. ed. 2003).

¹⁷ See, e.g., WILLIAM DONAHUE ELLIS, *THE CUYAHOGA* 157 (1966) (stating that some viewed the prismatic colors of pollution on the Cuyahoga River as "the sweetest colors a river ever had"). External factors also affected the level of concern about waste management and other environmental practices. See, e.g., CRAIG E. COLTEN & PETER N. SKINNER, *THE ROAD TO LOVE CANAL: MANAGING INDUSTRIAL WASTE BEFORE EPA* 139–41 (1996) (noting that wartime imperatives reduced concern for industrial waste management during World War II).

¹⁸ For examples of how federal policy has encouraged environmental harm, see generally GOVERNMENT VS. ENVIRONMENT (Donald R. Leal & Roger E. Meiners eds., 2002). See also Jason Scott Johnston, *The Tragedy of Centralization: The Political Economics of Natural Resource Federalism*, 74 U. COLO. L. REV. 487, 514 (2003) ("During the Progressive Era . . . most federal laws were not passed to preserve natural resources but to develop them.").

¹⁹ PAUL F. SCODARI, ENVTL. LAW INST., *MEASURING THE BENEFITS OF FEDERAL WETLAND PROGRAMS* 16–17 (1997); see also David E. Gerard, *Federal Flood Policies: 150 Years of Environmental Mischief*, in GOVERNMENT VS. ENVIRONMENT, *supra* note 18, at 59–77.

²⁰ See J. Bishop Grewell, *War on Wildlife*, in GOVERNMENT VS. ENVIRONMENT, *supra* note 18, at 97–121.

²¹ See Roger E. Meiners & Andrew P. Morriss, *Silent Springs and Silent Villages: Pesticides and the Trampling of Property Rights*, in GOVERNMENT VS. ENVIRONMENT, *supra* note 18, at 15–37.

and could stem the spread of tuberculosis.²² In the first part of the twentieth century, environmental protection, as it is understood today, was not a prominent public concern, particularly in comparison to economic development, technological progress and addressing other social ills. Insofar as environmental protection registered on the public agenda, it was focused on sanitation and drinking water, not recreational or aesthetic values.

As the nation awakened to environmental concerns, regulations and other protective measures were put in place. City by city, state by state, the nation began to go through what can be termed an environmental transition.²³ Places that once placed little value on environmental protection now sought the adoption of stringent regulatory measures. Increased demand for environmental protection led to the adoption of a new generation of local, state and, eventually, federal environmental controls. The first regulatory measures were local ordinances designed to control smoke—one of the first modern environmental problems to be recognized as such.²⁴ Later measures addressed other air pollution concerns, water pollution and, eventually, other environmental problems.²⁵

This increase in demand for environmental protection can best be understood as resulting from an environmental transition, during which a given community or jurisdiction develops a demand for a given type of environmental protection. This transition is driven, in large part, by increases in economic well-being. As higher-order priorities are addressed, and quality of life improves, societies begin to devote more resources to previously neglected concerns. Once families are housed, clothed and fed, they begin to devote greater efforts to securing other wants and necessities, including greater protection of their health and environmental surroundings.

As populations become wealthier, both their willingness and ability to pay for environmental protection increase dramatically.²⁶ At the same time, increases in development tend to coincide with increases in technological capabilities and the accumulation of scientific and other knowledge which may reveal heretofore unknown aspects of environmental problems, further heightening the desire for change.²⁷ It is also likely that the increase in development itself, insofar as it results in increased pollution and other environmental harms, further serves to increase the priority of environmental protection. A given level of pollution may be viewed initially as an acceptable cost to bear in return for increased prosperity. Yet

²² INDUR M. GOKLANY, *CLEARING THE AIR: THE REAL STORY OF THE WAR ON AIR POLLUTION* 11 (1999).

²³ *Id.* at 5, 87–109.

²⁴ See Arthur C. Stern, *History of Air Pollution Legislation in the United States*, 32 *J. AIR POLLUTION CONTROL ASS'N* 44, 44 (1982).

²⁵ See Adler, *supra* note 2, at 98–100; Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 *HARV. L. REV.* 553, 577 (2001).

²⁶ GOKLANY, *supra* note 22, at 5 (“[T]he wealthier the society, the more it can afford to research, develop, and install the technologies necessary for a cleaner environment.”).

²⁷ *Id.* at 89.

over time, as prosperity and pollution both increase, priorities and perceptions change. What was once an “acceptable” level of pollution becomes unacceptable. At the same time, increased productive efficiency and technical capabilities reduce waste and industrial products. The end result of these trends is an eventual reduction in pollution levels. This theory of an environmental transition can explain the Environmental Kuznets Curve documented in an extensive economic literature, in which pollution levels initially increase but then eventually decline as societal wealth increases over time.²⁸

For any given environmental problem, the environmental transition begins with a “period of perception,” a period “during which a substance . . . gains sufficient notoriety to be perceived as [a] . . . pollutant by the public and, perhaps more importantly, by policy-makers.”²⁹ Unless a given environmental problem is recognized as such, there is no reason to expect any institution, public or private, to do much about it. This period of perception is itself facilitated by both changes in social priorities as well as by increases in scientific and technical knowledge. Societal affluence and technological capacity are almost certainly interdependent, and they both seem to be important elements of the environmental transition.³⁰ In most cases, however, the period of perception will precede the adoption of policies to address a given environmental concern. For many, if not most, environmental problems, the period of perception began in states and local communities before it occurred at the federal level.³¹ If for no other reason, this occurred because many environmental problems were evident at the local level before they received national attention. As a result, many

²⁸ See Bruce Yandle, Madhusudan Bhattacharai & Maya Vijayaraghavan, *Environmental Kuznets Curves: A Review of Findings, Methods, and Policy Implications*, PERC RESEARCH STUDY 02-1 (Apr. 2004); see also Richard L. Stroup, *ECO-NOMICS: WHAT EVERYONE SHOULD KNOW ABOUT ECONOMICS AND THE ENVIRONMENT* 13–14 (2003) (summarizing research finding that willingness to pay for environmental protection increases with income); Jason Scott Johnston, *On the Market for Ecosystem Control*, 21 VA. ENVTL. L.J. 129, 146 (2002) (“There is abundant evidence that the demand for outdoor recreation and environmental amenities increases with national income.”); Kenneth E. McConnell, *Income and the Demand for Environmental Quality*, 2 ENVTL. & DEV. ECON. 383, 385–86 (1997) (reporting on empirical evidence of an Environmental Kuznets Curve); Matthew E. Kahn & John G. Matsusaka, *Demand for Environmental Goods: Evidence from Voting Patterns on California Initiatives*, 40 J.L. & ECON. 137 (1997) (noting that for most environmental goods demand rises with income); Patrick Low, *Trade and the Environment: What Worries the Developing Countries?*, 23 ENVTL. L. 705, 706 (1993) (noting that “the demand for improved environmental quality tends to rise with income”). Not all analysts accept that the Environmental Kuznets Curve can be generalized across all societies or applied to all environmental problems, or even that it accurately describes observed trends in some developed nations. See, e.g., Susmita Dasgupta, et al., *Confronting the Environmental Kuznets Curve*, 16 J. ECON. PERSP. 147 (2002); David I. Stern, *Progress on the Environmental Kuznets Curve?*, 3 ENV'T & DEV. ECON. 173 (1998).

²⁹ GOKLANY, *supra* note 22, at 3.

³⁰ See *id.* at 89.

³¹ See Adler, *supra* note 2, at 100.

state and local governments adopted relevant environmental measures before the federal government.

The concept of the environmental transition is important in evaluating state regulatory policy as the transition occurs for different environmental problems at different places at different times. Certain states will go through a period of perception for particular concerns at different periods, due to a wide range of factors, some of which are discussed below. When a state goes through the environmental transition for a particular concern is important for evaluating the influence of federal policy on state regulatory choices. Where a state's environmental transition precedes federal regulation, the effect of federal action on state policy choices may well be different than when a state goes through the transition after federal regulations are already in place.³²

B. Determinants of State Regulation

The rate at which different states adopted environmental protections varied greatly.³³ Some went through their environmental transitions with regard to particular environmental concerns well before others. Some of this pattern of state and local activity may be explained by the increase in economic prosperity and a resulting increase in the demand for environmental protection. As already noted, it is generally accepted that as people become wealthier, their willingness to pay for environmental protection increases, resulting in an eventual decline in at least some measures of pollution.³⁴ Yet wealth and per capita income are not sufficient in themselves to explain the patterns of state regulation. The variation in state environmental priorities is greater than differences in economic factors alone would indicate. Therefore, numerous other factors must also play a role.

As a state's population grows, many environmental impacts will increase. The pressure to develop previously undeveloped land will rise; there will be more vehicles on the road; demand for energy production will increase, and so on. Therefore, population growth (and other measures of development) could well correlate with a demand for increased environmental protection.³⁵ The amount of land available for development or environmental

³² In addition, as discussed *infra* Part III, the adoption of federal regulations may themselves influence when a state goes through the environmental transition for a given environmental concern.

³³ See Johnston, *supra* note 18, at 494-95 ("for most of American history, American states and regions have exhibited tremendous variation in both their current economic development opportunities and the extent to which prior development has transformed their natural environments.").

³⁴ See *supra* notes 26, 27, 28 and accompanying text.

³⁵ This increase in the demand for environmental protection should also be driven, in part, by the increased marginal value of undeveloped land or resources as the supply dwindles. For example, holding all else equal, the marginal value of each acre of undeveloped land in a sparsely populated and largely undeveloped state should be less than the value of an acre in a highly developed state.

preservation should have a significant impact on the demand for at least some sorts of environmental protection.

The economic and ecological benefits provided by various environmental resources—"the wealth of nature"—could also contribute to the demand for environmental protection, whether or not they are priced and incorporated into economic markets. Wetlands, for example, provide many ecosystem services, including water filtration, species habitat and flood control.³⁶ To the extent that these services have value in a state's economy, the state government should be more likely to protect wetlands so as to maintain that value. Thus, for example, there may be greater support for coastal protections in a state with industries that rely upon coastal resources, such as fishing or tourism.³⁷ In a similar fashion, states that receive substantial revenue from hunting and fishing licenses, bird-watching, and the sale of outdoor recreation-related goods and services may support greater land and habitat conservation measures, at least insofar as the benefits of such measures can be captured within the state.

In one sense, efforts to protect a state's "wealth of nature" will be due to local knowledge about the benefits of local environmental amenities. Environmental knowledge, like economic knowledge, is highly decentralized.³⁸ Specific knowledge about local ecological conditions—threats, problems, and solutions—is more likely to be found at the local level than in a centralized regulatory bureaucracy.³⁹ Due to the decentralized nature of knowledge, one might expect that environmental protections would be adopted first in those areas where local knowledge about the need for such protection is the greatest. A state in which there is substantial knowledge about the ecological benefits of wetlands—and the costs and extent of wetland losses—may be more likely to regulate than a state in which such knowledge is relatively lacking. This knowledge could be measured by economic data that measure the value of wetlands to a state's economy.

³⁶ See generally OFFICE OF TECH. ASSESSMENT, *WETLANDS: THEIR USE AND REGULATION* 37–60 (1984).

³⁷ Likewise, a state in which coastal tourism industries predominate is likely to have different priorities within the realm of coastal protection than a state in which fishing or other coastal-related industries are more dominant.

³⁸ See, e.g., John Dwyer, *The Practice of Federalism Under the Clean Air Act*, 54 MD. L. REV. 1183, 1218 (1995) (noting that "[t]he knowledge necessary to administer any air pollution control program . . . can be found only at the local level."). This observation is based on the insights of Nobel Laureate economist F. A. Hayek, who observed "[t]he knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess." F. A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 519 (1945). For more on the "knowledge problem" in environmental policy, see Adler, *Jurisdictional Mismatch*, *supra* note 10, at 165–66.

³⁹ BUTLER & MACEY, *supra* note 5, at 27 ("Federal regulators never have been and never will be able to acquire and assimilate the enormous amount of information necessary to make optimal regulatory judgments that reflect the technical requirements of particular locations and pollution sources.").

Such a state may also be more likely to regulate than the national government.

Even apart from wealth and economic effects, environmental causes are clearly more popular in some states than in others. For whatever reason, the political culture of some states is more hospitable to the adoption of environmental regulations than others. While this may correlate with other variables, such as income, wealth, education and the like, there is evidence that state environmental policies are in part a function of the environmental attitudes of state residents.⁴⁰

State environmental policy preferences can be measured in various ways. For instance, the League of Conservation Voters ("LCV"), a prominent national environmental organization, publishes an annual vote rating for members of the U.S. Senate and the U.S. House of Representatives. LCV ratings appear to correlate with political preference for environmental regulatory policies.⁴¹ These ratings vary from state to state and do not appear to be explained solely by economic factors.⁴² Another measure of state support for environmental measures more generally could be membership or contributions to state-level environmental organizations.⁴³

There are several other independent political variables that could influence the likelihood that a given state will adopt environmentally protective measures. Some state governments may be more "activist" or "professional" than others. It is possible that states with larger state governments, measured by budget or personnel, would be more likely to adopt environmental regulations than states with smaller, less active governments. Among other things, this could reflect the political culture of the state, as

⁴⁰ See TESKE, *supra* note 9, at 169 (citing Matthew Potosky, *Clean Air Federalism: Do States Race to the Bottom?*, 61 PUB. ADMIN. REV. 335 (2001)).

⁴¹ See TESKE, *supra* note 9, at 191.

⁴² See Richard J. Lazarus, *A Different Kind of "Republican Moment" in Environmental Law*, in *THE JURISDYNAMICS OF ENVIRONMENTAL PROTECTION: CHANGE AND THE PRAGMATIC VOICE IN ENVIRONMENTAL LAW* 369, 374-81 (Jim Chen ed., 2003). There are some potential problems with the use of LCV vote ratings to measure the environmental nature of a given state's politics. First, some would argue that the LCV vote ratings are politicized, if not somewhat partisan. In this critique, the LCV vote ratings do not measure whether a given politician is "pro-environment" so much as whether he or she votes in line with Washington, D.C.-based environmental organizations and that such organizations have institutional or political interests which may conflict with some environmental goals.

Insofar as such groups do not maintain a monopoly on what policy positions are pro-environment, a politician could receive a lower vote rating despite his or her attentiveness to environmental concerns. At the same time, because environmental issues may differ at the state and federal level, a pro-environment vote rating in Congress may not correlate with attentiveness to environmental concerns in a given state. It may be that in a given state, environmental issues addressed by state and local governments are more important to voters than environmental issues typically addressed by the federal government, or vice versa. It is not altogether clear that state concern for local environmental problems would necessarily translate into support for politicians that are supportive of measures to address national, or even international, environmental problems. Nonetheless, LCV ratings are almost certainly measuring a factor that influences state regulatory choices, even if only the political influence of mainstream environmental interest groups.

⁴³ See TESKE, *supra* note 9, at 186.

some states will be more receptive to government regulation of any sort than others. In the political science literature, measures of the “professionalism” of state governments often correlate with their willingness to adopt regulatory measures.⁴⁴ Some states may also be more ideologically predisposed to support the creation of regulatory programs. Therefore, whichever party controls the statehouse or various policy positions could also affect (or at least correlate with) state regulatory policy choices.⁴⁵

State regulatory choices are also influenced by the actions of other states. The “race to the bottom” theory posits that states will be discouraged from adopting the optimal level of environmental protections due to interjurisdictional competition with other states.⁴⁶ The theory asserts that states seeking to encourage economic investment and industrial development will be locked into a “race” to lower existing environmental standards (or fail to adopt optimal measures) in an effort to attract investment. Furthermore, the theory states that any resulting economic gains will fail to offset the welfare losses from suboptimally lax environmental regulations.⁴⁷ Though possible, empirical evidence demonstrating a race to the bottom in environmental policy is generally lacking.⁴⁸ There is evidence that state policy-makers consider the impact of environmental regulations on their states’ economic competitiveness.⁴⁹ Nonetheless, most empirical studies have failed to find any evidence that such pressures result in a systematic lowering of state-level environmental measures.⁵⁰

Whether or not there is a “race to the bottom” in environmental policy, the existence of interjurisdictional spillovers may discourage states from adopting some environmental protections.⁵¹ Where states are able to extraterritorialize the environmental effects of their own industrial growth,

⁴⁴ See *id.* at 187–88; Chris Mooney, *Measuring U.S. State Legislative Professionalism: An Evaluation of Five Indices*, 26 ST. & LOC. GOV'T REV. 70 (1994).

⁴⁵ See TESKE, *supra* note 9, at 180–81 (finding correlation between party control of legislature and state regulatory activity).

⁴⁶ See Richard B. Stewart, *Pyramids of Sacrifice?: Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1211–12 (1977); see also RECHTSCHAFFEN & MARKELL, *supra* note 8; FISCHER, *supra* note 8, at 162.

⁴⁷ See RECHTSCHAFFEN & MARKELL, *supra* note 8; see also Engel, *supra* note 6; Swire, *supra* note 6.

⁴⁸ See, e.g., Revesz, *Rehabilitating*, *supra* note 5; see also Adler, *Jurisdictional Mismatch*, *supra* note 10, at 151–54.

⁴⁹ Engel, *supra* note 6.

⁵⁰ Several economic studies have failed to find empirical evidence of any race to the bottom in environmental policy. See, e.g., Daniel L. Millimet & John A. List, *A Natural Experiment on the ‘Race to the Bottom’ Hypothesis: Testing for Stochastic Dominance in Temporal Pollution Trends*, 65 OXFORD BULL. ECON. & STAT. 395 (2003); Daniel L. Millimet, *Assessing the Empirical Impact of Environmental Federalism*, 43 J. REGIONAL SCI. 711 (2003); John A. List & Shelby Gerking, *Regulatory Federalism and Environmental Protection in the United States*, 40 J. REGIONAL SCI. 453 (2000); see also Oates, *supra* note 5, at 11–17. See also Johnston, *supra* note 18, at 517 (noting conditions that could produce strategic over-preservation of natural resources by local jurisdictions).

⁵¹ See Thomas W. Merrill, *Golden Rules for Transboundary Pollution*, 46 DUKE L.J. 931, 968–70 (1997); see also Adler, *Jurisdictional Mismatch*, *supra* note 10, at 162–63.

they will be less likely to adopt environmental controls. For example, an upwind state may adopt air pollution control measures to protect its own citizens—who vote and pay taxes within the state—but is highly unlikely to adopt environmental measures designed to protect citizens of downwind jurisdictions. At the same time, downwind jurisdictions may be less likely to adopt environmental measures if such measures will be relatively unable to control environmental problems that are largely due to activities in upwind jurisdictions.

States can also be encouraged to adopt greater levels of environmental protection by the actions of their neighbors. Insofar as one state is successful at addressing a given environmental problem in a cost-effective manner, other states become more likely to follow suit as they learn from competing jurisdictions. This hypothesis has some empirical support in studies showing that state decisions to adopt specific regulatory measures are influenced by the decision of neighboring jurisdictions to adopt similar measures.⁵² These studies find stronger evidence for this positive “contagion” effect than for a negative “race to the bottom.”⁵³

Just as state policy-makers can be influenced by policy decisions and environmental conditions in other states, state policy-makers can be influenced by the federal government. Federal regulatory decisions undoubtedly affect state environmental policy choices. At the extreme, some commentators suggest that state regulatory choices are heavily influenced, if not effectively dictated by, federal policy.⁵⁴ Short of this, it is possible that the federal government still exercises a substantial influence on state regulatory decision-making, intentionally or not. For instance, while some federal policies directly seek to influence or preclude certain state policies, others may influence the relative costs and benefits of implementing state policies, thereby encouraging or discouraging state regulatory action. Unlike many of the other factors driving environmental policy decisions at the state level, these effects have been relatively unexplored.⁵⁵

⁵² See Oates, *supra* note 5, at 15 (“States appear to be ‘pulled’ to higher levels of abatement spending by more stringent measures in neighboring states, but relatively lax regulations nearby appear to have no effect on such expenditures.”); TESKE, *supra* note 9, at 180–81 (finding states are more likely to increase, rather than decrease, air quality regulation in response to actions taken in neighboring states, and concluding that “the race to the bottom is not a factor here”); *id.* at 191–92 (also finding no “race to the bottom” in groundwater regulation).

⁵³ TESKE, *supra* note 9, at 180–81.

⁵⁴ See, e.g., Dwyer, *supra* note 4, at 203 (“For the most part, states are not genuinely autonomous regulators; they exercise regulatory authority only by congressional grace.”).

⁵⁵ One exception is Johnston, *supra* note 18, which considers the consequences of past and future centralization on state natural resource policy decisions.

II. DIRECT FEDERAL INFLUENCE ON STATE POLICY CHOICES

Federal policy decisions can have both direct and indirect effects on state regulatory choices. Their effects may also be either positive or negative, in both quantitative and qualitative terms. The potential of both positive and negative effects weakens the common presumption that adopting federal environmental measures will increase social welfare. It is possible that in some states the aggregate level of environmental protection could be lower than it would otherwise be due to the existence of federal regulations that discourage state environmental protection measures.⁵⁶

The most direct way for the federal government to influence state environmental policy decisions would be to dictate state policies from Washington, D.C. While this approach was considered by the U.S. Environmental Protection Agency ("EPA"),⁵⁷ and mulled over by academics,⁵⁸ it is clearly unconstitutional under current Supreme Court precedent. State governments remain "sovereign" under the doctrine of "dual sovereignty,"⁵⁹ and therefore cannot be commandeered by the federal government. Whether to ensure sufficient disposal capacity for low-level radioactive waste⁶⁰ or remedy lead contamination in drinking water,⁶¹ the federal government cannot require state governments to adopt desired policy measures. Articulated by the Supreme Court in clear and unequivocal terms, this anti-commandeering principle admits no exceptions.⁶²

⁵⁶ It is also possible that while the aggregate level of environmental protection could increase, social welfare might decline because the costs of the increased levels of environmental protection are greater than the benefits.

⁵⁷ See, e.g., *Brown v. EPA*, 521 F.2d 827 (9th Cir. 1975), *vacated*, 431 U.S. 99 (1977); *Maryland v. EPA*, 530 F.2d 215 (4th Cir. 1975), *vacated sub nom. EPA v. Brown*, 431 U.S. 99 (1977); *District of Columbia v. Train*, 521 F.2d 971 (D.C. Cir. 1975), *vacated sub nom. EPA v. Brown*, 431 U.S. 99 (1977). This litigation is summarized in Adler, *Judicial Federalism*, *supra* note 10, at 423.

⁵⁸ See, e.g., Stewart, *supra* note 46.

⁵⁹ *Gregory v. Ashcroft*, 501 U.S. 452, 457 (1991).

⁶⁰ *New York v. United States*, 505 U.S. 144 (1992) (holding that portions of the Low-Level Radioactive Waste Policy Act Amendments unconstitutionally commandeer state governments).

⁶¹ *Ass'n of Cmty. Orgs. for Reform Now (ACORN) v. Edwards*, 81 F.3d 1387 (5th Cir. 1996) (invalidating portions of the Lead Contamination Control Act).

⁶² See *Printz v. United States*, 521 U.S. 898, 935 (1997) ("[N]o case-by-case weighing of the burdens or benefits is necessary; such commands are fundamentally incompatible with our constitutional system of dual sovereignty."). There is language in *Printz* that suggests purely ministerial requirements *might* be exempt from the anti-commandeering rule, but the federal courts have not, as yet, found an attempted commandeering that was sufficiently immaterial to warrant an exception. See *Printz*, 521 U.S. at 936 (O'Connor, J., concurring) (noting the Court "appropriately refrains from deciding whether other purely ministerial reporting requirements" represent unconstitutional commandeering of state governments). This may be due, in part, to the fact that relatively few statutes, environmental or otherwise, commandeer state governments. Two exceptions, the Forest Resources Conservation and Shortage Relief Act and a provision of the Lead Contamination Control Act, were invalidated by lower courts on commandeering grounds. See *Bd. of Natural Res. v. Brown*, 992 F.2d 937 (9th Cir. 1993); *ACORN*, 81 F.3d 1387. A few such statutes in the environmental context remain, but these statutes have not been challenged in court. Two

Despite the prohibition on federal commandeering of state governments, the federal government retains substantial ability to influence state policy-making. The powers enumerated in Article I of the Constitution provide abundant means of encouraging state and local governments to act in accordance with federal preferences. If the federal government seeks to prevent states from regulating in a given field, it may preclude states from acting. Such preemption should, in principle, be authorized by Congress, though federal agency actions can also have preclusive effect. Under the Supremacy Clause, the federal government has the largely unchallenged authority to preempt contrary state laws through the exercise of Congress's enumerated powers. Preemption is used to reduce the amount of state regulatory activity.⁶³

If the federal government seeks to encourage greater regulatory activity by state governments, it may offer various inducements. These inducements may be positive (carrots) or negative (sticks). The most straightforward way to encourage state activity is to offer financial support for state programs that meet federal requirements or to otherwise confer benefits on compliant state governments. Occasionally more punitive measures may be required, such as the threat to preempt regulatory activity by non-compliant states or reduce funding from unrelated programs. In practice, the federal government often resorts to some combination of measures to encourage the desired level of state regulation. The ways in which federal policy may influence state regulatory decisions directly are illustrated in Figure 1a and discussed in greater detail below.

examples are mandatory reporting requirements contained in the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. §§ 11001(a)-(c), 11003(e), 11022(a), 11022(e)(3) (2000), and the underground storage tank provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6991a(c) (2000). As these statutes impose minimal requirements on state governments, and the relevant programs are already in place, it is unlikely that these statutes will be challenged in the future. See Adler, *Judicial Federalism*, *supra* note 10, at 423-30.

Where federal courts have excused commandeering of state agencies in the environmental context, it has been by denying that commandeering is taking place. The court's order in *Strahan v. Coxe* arguably commandeered state officials under the federal Endangered Species Act, yet the First Circuit denied this was the case. See *Strahan v. Coxe*, 127 F.3d 155 (1st Cir. 1997); Adler, *Judicial Federalism*, *supra* note 10, at 429-30.

⁶³ "Regulatory activity" here should be understood to include legislation and agency regulations, as well as judicial decrees that have a forward-looking regulatory effect, including tort judgments that create de facto standards for product safety or professional conduct.

FIGURE 1A: FEDERAL INFLUENCE ON STATE REGULATORY ACTIVITY

	Direct	Indirect
More State Regulation ("positive")	Commandeering Inducement	
Less State Regulation ("negative")	Preemption	

A. Preemption

Where Congress adopts a law pursuant to its enumerated powers, it preempts conflicting state laws. Federal preemption comes in two forms, express and implied. Express preemption is straightforward: where Congress or a federal agency explicitly preempts state laws on a given subject, states are barred from adopting and enforcing their own regulations.⁶⁴ Yet Congress need not be so explicit for courts to find preemption. Preemption may be implied "where the scheme of federal regulation is 'so persuasive as to make reasonable the inference that Congress left no room for the states to supplement it,'"⁶⁵ so-called "field preemption." Preemption may also be implicit where state and federal law conflict or compliance with state law would obstruct, if not preclude, compliance with federal law, so-called "conflict preemption."⁶⁶

Although courts may find federal preemption where Congress has not made its intent to preempt state law explicit, such judgments are not to be made lightly.⁶⁷ Generally, there is a presumption against finding preemption.⁶⁸ Explicit statutory language easily overcomes this presumption,

⁶⁴ See *Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n*, 461 U.S. 190 (1983) ("It is well established that within Constitutional limits Congress may preempt state authority by so stating in express terms.")

⁶⁵ *Gade v. Nat'l Solid Wastes Mgmt. Ass'n*, 505 U.S. 88, 98 (1992) (quoting *Fid. Fed. Sav. & Loan Ass'n v. De La Cuesta*, 458 U.S. 141, 153 (1982)).

⁶⁶ *Id.*

⁶⁷ See Richard H. Fallon, Jr., *The "Conservative" Paths of the Rehnquist Court's Federalism Decisions*, 69 U. CHI. L. REV. 429 (2002); Michael S. Greve & Jonathan Klick, *Preemption in the Rehnquist Court: A Preliminary Empirical Assessment*, 14 SUP. CT. ECON. REV. 43 (2006).

⁶⁸ See *Wisc. Pub. Intervenor v. Mortier*, 501 U.S. 597, 605 (1991) ("When considering pre-emption, 'we start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress.'" (quoting *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947))). Although this is the stated presumption, it is not clear how powerfully this presumption is applied in practice. See Caleb Nelson, *Preemption*, 86 VA. L. REV. 225 (2000); Thomas W. Merrill, *Preemption in Environmental Law: Formalism, Federalism Theory, and Default Rules*, available at http://federalismproject.org/preemption/papers/Merrill_Preemption_in_Environmental_Law.pdf (on file with the Harvard Environmental Law Review). A revised

as does a clear conflict between state and federal law. If federal law is supreme, it will not yield to conflicting state enactments. In other cases, the presumption will be overcome where there are indicia of Congressional intent suggesting that the federal government did not intend to allow state interference in a given area or field. In such cases, and when preemption is inferred from federal agency action, Congressional intent is "the ultimate touchstone" of preemption analysis.⁶⁹

Preemption operates to prevent state regulatory activity. The net effect of federal preemption is often for there to be less regulation than there would have been otherwise.⁷⁰ Federal laws precluding state regulation of automobile or oil tanker design mean that manufacturers need only comply with one regulatory standard. Federal regulations in such cases serve as a regulatory "floor" and a regulatory "ceiling" at the same time. In other cases, preemption may serve to ensure that there is no regulation governing a particular subject matter, where federal law precludes states from adopting particular rules but the federal government does not adopt rules of its own.⁷¹ Where implied preemption is found, this will typically preclude any state or local regulation whatsoever.⁷² Where Congress explicitly preempts state regulation, however, the scope of the preemption usually will be limited to the extent provided for in the statutory text.⁷³

Given that preemption operates to reduce aggregate regulatory burdens, it should be no surprise that federal preemption of state environmental regulatory standards is often sought by business interests seeking to establish regulatory uniformity, a "ceiling" on regulatory stringency, or both.⁷⁴

version of this article will be included in a forthcoming book from AEI Press, edited by Richard Epstein and Michael Greve.

⁶⁹ *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 485 (1996) (quoting *Retail Clerks v. Schermerhorn*, 375 U.S. 96, 103 (1963)); see also *CSX Transp., Inc. v. Easterwood*, 507 U.S. 658, 664 (1993) (Courts should "focus on the plain wording of the clause, which necessarily contains the best evidence of Congress' preemptive intent.").

⁷⁰ See TESKE, *supra* note 9, at 15 (noting federal preemption has often been "designed to facilitate greater total deregulation"). In some cases the purpose of federal preemption is to replace one type of regulation with another. This still results in less regulation than if the federal regulation was adopted *in addition* to the state regulation. The effects of preemption across states may not be uniform, however. A federal statute that imposes a federal standard when only a handful of states have regulated will increase regulation in some jurisdictions at the same time that it reduces regulation by preempting preexisting rules elsewhere.

⁷¹ The most obvious example, albeit a case of constitutional rather than statutory preemption, occurs under the "dormant commerce clause." States are precluded from adopting measures that discriminate against out-of-state trade not because it is assumed that such regulations will be adopted by Congress. Rather, there is a constitutional presumption against the adoption of such rules by *any* level of government, though Congress does retain the authority to adopt laws limiting the flow of interstate commerce or even delegating authority to the states to adopt such measures themselves. This division of authority "creates obstacles to states' enacting laws that are more protective of the environment." RICHARD J. LAZARUS, *THE MAKING OF ENVIRONMENTAL LAW* 38 (2004).

⁷² See Weiland, *supra* note 11, at 258-59.

⁷³ See *supra* note 68 and sources cited therein.

⁷⁴ See Weiland, *supra* note 11, at 242 ("By creating a ceiling, environmental laws may

Federal preemption of state automotive emission regulations, for example, resulted from lobbying by U.S. automakers fearing the potential for different emissions standards to be adopted in different states—and believing that federal standards would be less stringent than those developed in the states.⁷⁵ This is not to say that there are not sometimes economic justifications for preempting variable state standards with a single federal standard, only to note that this pressure for federalization often comes from industry rather than from environmentalist interests.

The mere adoption of a federal regulatory standard that operates as a regulatory floor does not necessarily preempt state regulation as a legal matter (though it may well have that practical effect). For example, a federal regulation imposing emission limitations on an industrial facility will not necessarily preempt a less stringent or differently structured state regulation governing emissions from the same facility. As a practical matter, regulated facilities will focus on compliance with the more stringent federal standard and may ignore the duplicative state requirement (or vice-versa). Nonetheless, the existence of the federal standard would not necessarily absolve the regulated facility from simultaneous compliance with the state's regulation, particularly insofar as the state regulation imposes independent reporting or enforcement provisions or uses an alternative means of determining compliance.⁷⁶ There is no conflict as it is possible to comply with both rules; by meeting the more stringent regulation a facility would also comply with the less stringent regulation. If permits are required from both federal and state agencies for facility operation, then both permits are required even if compliance with one should make compliance with the other a foregone conclusion, unless the less stringent standards are explicitly or otherwise preempted by the federal regulation.⁷⁷

allow the private sector to operate within a predictable and uniform environment.”). For a recent example, see *Am. Chemistry Council v. Dep't of Transp.*, No. 90-345 (D.C. Cir. Oct. 13, 2006) (in which trade associations sued a federal agency seeking more expansive regulation of hazardous waste transportation so as to provide for greater preemption of local rules). Similar arguments have been used to support federal preemption of state regulations and tort suits in other areas as well. See, e.g., Caroline E. Mayer, *Rules Would Limit Lawsuits; U.S. Agencies Seek to Preempt States*, WASH. POST, Feb. 16, 2006 at D1 (preemption by Consumer Product Safety Commission); Gary Young, *FDA Strategy Would Preempt Tort Suits*, NAT'L L.J., Mar. 1, 2004, at 1 (preemption by Food & Drug Administration).

⁷⁵ See E. Donald Elliott et al., *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J.L. ECON. & ORG. 313, 330–33 (1985). For other examples of this phenomenon, see ENVIRONMENTAL POLITICS: PUBLIC COSTS, PRIVATE REWARDS (Michael S. Greve & Fred L. Smith, Jr., eds., 1992); POLITICAL ENVIRONMENTALISM: GOING BEHIND THE GREEN CURTAIN (Terry L. Anderson, ed. 2000).

⁷⁶ Levels of stringency are not the only way in which federal and state standards could differ. For example, it would be possible for the federal government to impose a technology standard on a given facility while the state government could impose an explicit emission limit, or vice-versa.

⁷⁷ See, e.g., 42 U.S.C. § 7416 (2000) (preempting state enforcement of emission standards less stringent than existing federal standards).

Preemption is common in environmental law, particularly concerning the regulation of products that are manufactured for sale in interstate commerce.⁷⁸ For example, section 209(b) of the Clean Air Act (“CAA”) prohibits states from adopting “any standard relating to the control of emissions from new motor vehicles.”⁷⁹ The Energy Policy Conservation Act preempts any state regulation of automotive fuel economy.⁸⁰ Other preemption provisions can be found in the Federal Insecticide, Fungicide, and Rodenticide Act,⁸¹ and the Toxic Substances Control Act,⁸² among other statutes. In *United States v. Locke*, the Supreme Court found Washington State’s laws governing the prevention of spills from oil tankers to be preempted by relevant federal laws.⁸³ Federal environmental laws have also been found to preempt the federal common law of interstate nuisance.⁸⁴

B. Inducement

Whereas the federal government has broad authority to preclude state regulation, its power to induce state regulation is more proscribed. State sovereignty precludes the federal government from dictating state regulatory initiatives. As noted above, such “commandeering” of legislative or executive functions violates the residual sovereignty of state governments and is not a “necessary and proper” exercise of federal power.⁸⁵ This constitutional prohibition hardly leaves the federal government without substantial ability to preempt state regulatory efforts, however. As the Supreme Court noted in *New York v. United States*, there are “a variety of methods, short of outright coercion, by which Congress may urge a State

⁷⁸ Ann E. Carlson, *Federalism, Preemption and Greenhouse Gas Emissions*, 37 U.C. DAVIS L. REV. 281, 306 (2003) (“[E]nvironmental regulation—in which both the states and the federal government play an active role—frequently raises preemption questions.”).

⁷⁹ 42 U.S.C. § 7543(a) (2000). There are exceptions to this rule. EPA may waive preemption of emission standards adopted by California, subject to certain conditions. 42 U.S.C. § 7543(b) (2000). Where EPA has approved a waiver for California, other states may adopt the California rule. In all cases, however, the other 49 states may not adopt a “third” standard. The CAA contains similar provisions governing standards for gasoline. 42 U.S.C. § 7545(c)(4) (2000).

⁸⁰ 49 U.S.C. § 32919(a) (2000). Unlike with emission standards, there is no conditional exemption for California.

⁸¹ 7 U.S.C. § 136v(b) (2000). There has been a significant amount of litigation about the scope of preemption under this provision, in part because FIFRA also contains a savings clause at 7 U.S.C. § 136v(a) (2000). See generally Alexandra B. Klass, *Pesticides, Children’s Health Policy, and Common Law Tort Claims*, 7 MINN. J. L. SCI. & TECH. 89 (2005).

⁸² 15 U.S.C. § 2617 (2000).

⁸³ 529 U.S. 89 (2000) (finding preemption under the Port and Waterways Safety Act of 1972).

⁸⁴ See *City of Milwaukee v. Illinois*, 451 U.S. 304 (1981). See also Robert Percival, *The Clean Water Act and the Demise of the Federal Common Law of Interstate Nuisance*, 55 ALA. L. REV. 717 (2004).

⁸⁵ See *Printz v. United States*, 521 U.S. 898 (1997).

to adopt a legislative program consistent with federal interests.”⁸⁶ Congress can encourage “cooperative” regulatory efforts by offering states financial and other resources to implement regulatory programs in conformity with federal requirements.⁸⁷ Where such rewards are insufficient, Congress may impose various penalties on noncompliant states, threatening to cut off funds unrelated to the regulatory program at issue or to preempt state regulatory programs that do not meet federal dictates.⁸⁸

The federal government’s power to induce state cooperation is on display throughout the environmental portions of the U.S. Code. While current federal environmental laws grant expansive regulatory authority to federal agencies, most environmental statutes are implemented through a “cooperative federalism” model.⁸⁹ The federal government outlines the contours of a given regulatory program, and then uses a combination of carrots and sticks to encourage states to implement the program in accordance with federal regulations.⁹⁰ The carrots include funding for state regulatory programs; the sticks include the threat of federal preemption—specifically, if states refuse to regulate as the federal government demands, the federal government may regulate in their place—and, in some instances, the loss of federal funding not directly related to the implementation of environmental regulations. Provided the relevant standards are met, states are free to tailor the details of their individual programs to accommodate local conditions and concerns.⁹¹

The strongest inducements for state cooperation are probably found in the CAA.⁹² Pursuant to the CAA, EPA establishes nationally applicable air quality standards, known as the National Ambient Air Quality

⁸⁶ 505 U.S. 144, 167 (1992).

⁸⁷ See, e.g., 33 U.S.C. § 1256 (2000) (authorizing financial support for state water pollution control programs that conform with federal requirements); see also Percival, *supra* note 1, at 1173 (noting other examples).

⁸⁸ See, e.g., 42 U.S.C. § 7509 (2000) (detailing sanctions imposed on states for failing to meet federal air quality standards).

⁸⁹ *New York*, 505 U.S. at 167–68 (1992) (“[W]here Congress has the authority to regulate private activity under the Commerce Clause, we have recognized Congress’ power to offer States the choice of regulating that activity according to federal standards or having state law pre-empted by federal regulation. . . . This arrangement . . . has been termed . . . ‘a program of cooperative federalism.’ . . .” (internal citations omitted)). Statutes that employ the cooperative federalism model include the Clean Water Act, Occupational Safety and Health Act, Resource Conservation and Recovery Act, and the Surface Mining Control and Reclamation Act. *Id.*

⁹⁰ See Dwyer, *supra* note 38, at 1184. See generally DENISE SCHEBERLE, *FEDERALISM AND ENVIRONMENTAL POLICY: TRUST AND THE POLITICS OF IMPLEMENTATION* (1997).

⁹¹ Adam Babich, *Our Federalism, Our Hazardous Waste, and Our Good Fortune*, 54 MD. L. REV. 1516, 1534 (1995) (“The essence of cooperative federalism is that states take primary responsibility for implementing federal standards, while retaining the freedom to apply their own, more stringent standards.”). A notable exception is the case of product standards. As a general matter, federal product standards, such as vehicle emission standards, tend to preempt more stringent state standards. See, e.g., 42 U.S.C. § 7543(a) (2000) (preemption of state automobile emission standards); 42 U.S.C. § 7545(c)(4)(A) (2000) (preemption of state fuel standards).

⁹² 42 U.S.C. §§ 7401–7661f (2000).

Standards ("NAAQS"), for criteria air pollutants, including ozone ("smog") and particulate matter ("soot"). States are required to draft State Implementation Plans ("SIPs") that will ensure that the NAAQS will be met throughout the state, and submit these plans to EPA for approval.⁹³ The SIPs must include a number of specific pollution control measures mandated by the CAA. If a state fails to submit an adequate SIP by the appropriate deadlines, it is subject to one or more federal sanctions, including the loss of federal highway funds, increased offset requirements for new development, and the imposition of an EPA-enforced Federal Implementation Plan ("FIP").⁹⁴ Furthermore, local transportation projects that do not conform to an EPA-approved SIP are ineligible for federal financial assistance.⁹⁵

Federal inducement does not guarantee that states will adopt measures that satisfy federal policy-makers. It does, however, adjust the relative costs and benefits (economic and otherwise) of regulatory choices. If states decide that the costs of following federal preferences are greater than the value of the incentives offered (or if the costs are greater than bearing the punitive sanction threatened), they may not follow federal wishes. Indeed, in the 1970s when EPA claimed the authority to commandeer state officials directly, some of these officials still balked.⁹⁶ States retain the ability to reject federal requirements under the CAA, yet some would argue that this combination of inducements virtually assures state cooperation.⁹⁷

III. INDIRECT FEDERAL INFLUENCE ON STATE POLICY CHOICES

Federal policies that directly influence state regulatory decisions are only half of the picture. Just as federal action may encourage or discourage state regulatory action directly, federal action may indirectly, or even incidentally, encourage or discourage state regulatory action. Federal policies will facilitate greater state regulation where such actions reduce the costs of state implementation, such as by subsidizing necessary research, or where federal policies increase the demand for given regulatory policies at the state level so as to alter or "set" state policy agendas. Federal policies will discourage state regulatory action where they "signal" that

⁹³ 42 U.S.C. § 7410 (2000).

⁹⁴ 42 U.S.C. § 7509 (2000). The imposition of such sanctions is not solely, or even primarily, within EPA's discretion, as individual citizens and activist groups may force EPA's hands through citizen suits seeking to enforce the express requirements of the CAA and regulations promulgated pursuant to it. See 42 U.S.C. § 7604 (2000).

⁹⁵ 42 U.S.C. § 7506 (2000).

⁹⁶ See Stewart, *supra* note 46, at 1204 ("State and local officials refused to enforce many of the [EPA]'s unpopular controls."); see also *supra* note 57, and cases cited therein.

⁹⁷ This author has argued elsewhere that, while the CAA's inducement scheme is effective, it also may be unconstitutional insofar as it exceeds the scope of permissible uses of conditional spending. See Adler, *Judicial Federalism*, *supra* note 10, at 447-52.

state regulatory action is excessive or unnecessary, or where they reduce the marginal benefits of adopting state regulatory programs—benefits either to the general welfare, those interest groups demanding state regulatory activity, or to the policy-makers responsible for adopting the relevant policies.⁹⁸ Such crowding out is most likely to occur where federal regulations serve as a substitute for state regulations, though there may be other factors that have a similar effect. Adding in these indirect influences—facilitation, agenda setting, signaling, and crowding out—produces a more complete matrix of the ways in which federal policies influence state regulatory choices (see Figure 1b below).

FIGURE 1B: FEDERAL INFLUENCE ON STATE REGULATORY ACTIVITY

	<u>Direct</u>	<u>Indirect</u>
More State Regulation ("positive")	Commandeering Inducement	Agenda Setting Facilitation
Less State Regulation ("negative")	Preemption	Signaling Crowding Out

A. Positive Indirect Effects

Federal regulation and other policy measures may indirectly encourage or facilitate state environmental regulation. Without offering any direct inducements, the federal government may encourage state policy-makers to adopt environmental regulations that they would not otherwise enact by affecting the costs and benefits of state regulatory measures, or by increasing the demand for given policies at the state level.

1. Agenda Setting

One way in which federal action may indirectly encourage greater state regulation is taking actions that affect the state-level policy agenda. Specifically, federal action may elevate the salience of particular issues to state policy-makers, thereby increasing the demand for regulation or other

⁹⁸ It should be noted that the hypotheses presented in this section are not dependent upon any particular theory about what sorts of interests ultimately drive the policy-making process. The hypotheses are equally compatible with public interest and public choice theories of policy formation. See Andrew P. Morriss, Bruce Yandle & Andrew Dorchak, *Choosing How to Regulate*, 29 HARV. ENVTL. L. REV. 179, 214–23 (2005) (summarizing various theories of regulation); Farber, *supra* note 15, at 62–70 (same).

policy action in a given state.⁹⁹ In this fashion, federal policy-makers may engage in “agenda setting” that influences state regulatory policy choices.

Actions by all three branches can have an agenda setting effect. For example, a study by an executive agency or congressional committee may identify a particular health concern that may prompt local action to reduce the threat. National debate over a given issue, such as whether to create or reform a new entitlement, may prompt states to act where the federal government does not. Similarly, a judicial decision either requiring the federal government to act, or perhaps finding that the federal government lacks the power to address a given concern, may raise the profile of a given issue and increase the demand for action at the state level.

An area in which federal agenda setting can be observed is indoor air pollution. Indoor air pollution is a serious environmental problem. Indeed, by some accounts, indoor air pollution is a greater health concern than outdoor air pollution in all but the most heavily polluted cities.¹⁰⁰ Yet indoor air pollution is not the sort of problem particularly suited to federal regulation. Insofar as indoor air pollution is a function of building design and local conditions, and does not involve spillovers across property—let alone jurisdictional—boundaries, it is the sort of issue that state and local governments should be able to address.¹⁰¹ State and local governments are in a better position to address indoor air pollution through building codes, real estate transaction disclosure requirements, workplace exposure regulations, and the like. Thus it should be no surprise that there are few federal regulations governing indoor air.

However, this is not to say that the federal government is inactive in this area. EPA has programs to address indoor air pollution, but these programs are, for the most part, designed to increase awareness and understanding about indoor air concerns and do not include regulatory controls.¹⁰² EPA puts out information, including scientific reports, about radon levels, environmental tobacco smoke and other issues affecting indoor air.¹⁰³ These reports increase the salience of indoor air pollution for state and local policy-makers, and therefore may increase the demand for state and local regulatory measures. When EPA released a study claiming

⁹⁹ William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1, 55 (2003) (“[I]ncreased activity and publicity about an issue can over time change stakeholder perceptions and possibly preferences.”).

¹⁰⁰ See GOKLANY, *supra* note 22, at 43 (noting that “indoor air quality, particularly in the home, is a far better indicator of the impact of air pollution on public health” than is outdoor air quality).

¹⁰¹ For a discussion of where federal intervention is, and is not, justified to address environmental concerns, see Adler, *Jurisdictional Mismatch*, *supra* note 10, at 139–57.

¹⁰² See EPA, Air—Indoor Air Quality, <http://www.epa.gov/iaq> (last visited Oct. 18, 2006) (on file with the Harvard Environmental Law Review).

¹⁰³ For example, EPA distributes various publications, posters and other materials on the risks posed by secondhand smoke. See EPA, Indoor Air Quality—Smokefree Homes Program, <http://www.epa.gov/smokefree/publications.html> (last visited Oct. 18, 2006) (on file with the Harvard Environmental Law Review).

secondhand smoke is a carcinogen,¹⁰⁴ it did not prompt federal regulation. Yet numerous local governments cited this study as a basis for local ordinances controlling secondhand smoke.¹⁰⁵ A more recent report by the U.S. Surgeon General¹⁰⁶ appears to be having a similar effect.¹⁰⁷

A combination of federal action and inaction has also increased the salience of climate change as an environmental policy concern. Various federal agencies have sponsored research and published reports on the potential impact of anthropogenic emissions of carbon dioxide and other greenhouse gases on climate change.¹⁰⁸ Such actions, combined with the efforts of international organizations and environmental NGOs, have increased the profile of “global warming” as a policy issue. At the same time, the federal government has not adopted any regulatory policies to control emissions of carbon dioxide and other gases linked to climate change. To the contrary, both Congress and the Executive have, at times, explicitly refused to adopt such measures.¹⁰⁹

¹⁰⁴ See EPA, RESPIRATORY HEALTH EFFECTS OF PASSIVE SMOKING: LUNG CANCER AND OTHER DISORDERS (1992), available at <http://cfpub2.epa.gov/ncea/cfm/recordisplay.cfm?deid=2835>. While quite influential, this study has been subject to criticism and challenged in court. See *Flue-Cured Tobacco Coop. Stabilization Corp. v. U.S. EPA*, 4 F. Supp. 2d 435, (M.D.N.C. 1998), vacated on other grounds, 313 F.3d 852 (4th Cir. 2002).

¹⁰⁵ See, e.g., Editorial, *Yes, Smoking's Still Dangerous*, CAPITAL TIMES, (Madison, Wis.) July 22, 1998, at 8A, available at 1998 WLNR 2459193 (on file with the Harvard Environmental Law Review) (“That EPA report turned secondhand smoke into a national issue, and led to state and local bans on smoking in public buildings, airplanes, restaurants and other spaces.”); Jim Quinn, *Big Ban to Come: Smoking Prohibition in State Vehicles, Buildings to Go into Effect June 13, Five Months After Order*, AKRON BEACON J., Apr. 30, 1993, at C1, available at 1993 WLNR 1234938 (on file with the Harvard Environmental Law Review) (Ohio Governor “Voinovich signed the order Jan. 8 after the U.S. EPA issued a report that called secondhand smoke a health hazard”); *Study Prompts More Smoking Restrictions*, BRADENTON HERALD, Mar. 1, 1993, at A4, available at 1993 WLNR 737630 (on file with the Harvard Environmental Law Review) (“A government report linking secondhand cigarette smoke to lung cancer and children’s diseases has triggered a surge in smoking restrictions across America—from a delicatessen in Denver to state offices in tobacco-growing Kentucky.”).

¹⁰⁶ See THE HEALTH CONSEQUENCES OF EXPOSURE TO TOBACCO SMOKE: A REPORT OF THE SURGEON GENERAL (2006), available at <http://www.surgeongeneral.gov/library/secondhandsmoke>.

¹⁰⁷ See Harlan Spector, *Sweeping Prohibition on Smoking Is Adopted*, CLEVE. PLAIN DEALER, Nov. 8, 2006, at S7, available at 2006 WLNR 19427960 (on file with the Harvard Environmental Law Review) (citing Surgeon General’s report as factor contributing to passage of statewide indoor smoking ban).

¹⁰⁸ See, e.g., U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS ON THE UNITED STATES: THE POTENTIAL CONSEQUENCES OF CLIMATE VARIABILITY AND CHANGE (2000), available at <http://www.usgcrp.gov/usgcrp/Library/nationalassessment/00Intro.pdf>. See also NAT’L ACADEMY OF SCIENCES COMM. ON THE SCIENCE OF CLIMATE CHANGE, CLIMATE CHANGE SCIENCE: AN ANALYSIS OF SOME KEY QUESTIONS (2001) (specifically requested by the Bush Administration); EPA, Global Warming, <http://yosemite.epa.gov/oar/globalwarming.nsf/content/index.html> (last visited Oct. 18, 2006) (on file with the Harvard Environmental Law Review); U.S. Dep’t of Energy, Climate Change, <http://www.energy.gov/environment/climatechange.htm> (last visited Oct. 18, 2006) (on file with the Harvard Environmental Law Review).

¹⁰⁹ Congress considered, and rejected, a proposal to control greenhouse gas emissions during the debate over the legislation that would eventually become the 1990 CAA Amend-

This combination of enhancing climate change's profile on the public policy agenda and failing to act created an opportunity for states. Over the past decade, numerous states have adopted measures to address climate change concerns.¹¹⁰ Although these measures are more aggressive than those adopted by the federal government, most of the state measures are exceedingly modest, and few involve direct regulatory controls.¹¹¹ California, however, has sought to adopt prescriptive regulatory controls. In July 2002, California adopted legislation requiring the California Air Resources Board to "develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles."¹¹² Even though the federal government has not sought to regulate greenhouse gases, federal actions—ranging from scientific reports to explicit refusals to regulate—have almost certainly increased the demand for climate policies at the state level.¹¹³

2. Facilitation

A second way that federal action may indirectly encourage greater state environmental regulation is by reducing the costs of developing or

ments. During the Clinton Administration, several environmental organizations petitioned EPA, claiming the agency was nonetheless required to regulate greenhouse gases under the CAA. EPA, meanwhile, declared it had the authority to adopt such regulations, yet it did not take any steps to do so. Subsequently, under the Bush Administration, EPA revised its legal opinion, concluding that the CAA did not confer regulatory jurisdiction over greenhouse gas emissions. The Bush Administration has opposed legislative proposals to regulate greenhouse gas emissions. At the time of this writing, litigation efforts to force EPA to regulate greenhouse gases have been unsuccessful, but are ongoing. See *Massachusetts v. EPA*, 413 F.3d 50 (D.C. Cir. 2005), *cert. granted*, 126 S. Ct. 2960 (2006).

¹¹⁰ See TESKE, *supra* note 9, at 17 (noting several states adopted carbon dioxide standards, while others oppose ratification of the Kyoto Protocol); see also BARRY G. RABE, STATEHOUSE AND GREENHOUSE: THE EMERGING POLITICS OF AMERICAN CLIMATE CHANGE POLICY xi–xii (2004) (“[O]ver the past decade approximately one-third of the American states have enacted multiple policies that show considerable promise of reducing greenhouse gases.”); Carlson, *supra* note 78, at 282 (noting many states “have quietly begun to fill the void in leadership that some believe exists at the national level”).

¹¹¹ See, e.g., Juliet Eilperin, *Cities, States Aren't Waiting for U.S. Action on Climate*, WASH. POST, Aug. 11, 2006, at A1 (noting state and local governments are adopting climate change policies due to “deadlock” over the issue at the federal level); Jim Marzilli, *Laboratories of Progress*, AM. PROSPECT, Oct. 2005, at A13.

¹¹² Assemb. B. 1493, 2001–2002 Sess. (Ca. 2002), codified at CAL. HEALTH & SAFETY CODE § 43018.5(a) (2003).

¹¹³ See, e.g., Eilperin, *supra* note 111 (“Some local officials said they are pushing ahead with plans because the Bush administration, which has promoted cleaner technology but opposes mandatory curbs on greenhouse gas emissions, has failed to adequately address the problem.”). Despite its relative inaction on the climate front, EPA takes credit for facilitating some state programs. See EPA, Global Warming—Actions: State, <http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsState.html> (last visited Nov. 8, 2006) (on file with the Harvard Environmental Law Review) (“Many of these actions were initiated and/or have received assistance from the US EPA’s State and Local Climate Change Program, a capacity-building program that provides technical and financial assistance to state (and local) officials and organizations that support state functions.”).

implementing environmental regulation. Federally funded scientific research, data collection, and information disclosure requirements may reduce the fixed costs of developing, implementing, and enforcing state regulatory programs.

While much of the information required for effective environmental protection is local in nature, much of the relevant scientific knowledge will apply nationwide.¹¹⁴ The weather conditions and topographical features that influence ozone formation will vary from place-to-place, but the underlying chemical reactions will not. Thus, federal research into the relative effectiveness of controls on various ozone precursors can reduce the cost, and increase the effectiveness, of state-level air quality regulation. Were each state required to conduct its own environmental scientific research, there could be duplication and inefficiency.¹¹⁵ In addition, there are likely to be scale economies in the resources and technical expertise required for some forms of scientific research that reinforce the potential for federal efforts to facilitate state-level regulation.

Federal information reporting requirements may also facilitate state regulatory measures. Under the federal Toxics Release Inventory, for example, industrial firms are required to collect and release information about the amount of toxic releases from each facility. The resulting reports provide voluminous information on the nature and extent of industrial chemical use and disposal, and provide figures that serve as a proxy for the extent of industrial pollution. This information undoubtedly serves to increase the demand for regulation of toxic releases. At the same time, requiring the collection and publication of this information may reduce the costs of adopting supplemental state regulatory measures. By requiring the creation, collection, and dissemination of extensive data about industrial facilities, federal law may be providing state policy-makers with some of the information necessary to craft state-level responses to the same concerns. Moreover, insofar as state policy-makers can rely upon industry reports required under federal law, this may reduce the monitoring costs to ensure compliance with related state rules. Thus, even modest federal actions may facilitate significant state-level interventions.

¹¹⁴ NAT'L RESEARCH COUNCIL, *CONFRONTING THE NATION'S WATER PROBLEMS: THE ROLE OF RESEARCH* 68 (2004) ("[A] federal role is appropriate in those research areas where the benefits of such research are widely dispersed and do not accrue only to those who fund the research.").

¹¹⁵ See Esty, *supra* note 5, at 614–15 ("Absent centralized functions, independent state regulators will either duplicate each other's analytic work or engage in time-consuming and complex negotiations to establish an efficient division of technical labor."). Of course it is possible that competition could improve scientific research insofar as different entities pursue different research methodologies to address emerging environmental problems.

B. Negative Indirect Effects

Just as federal action may indirectly encourage greater state regulatory activity, federal action may *discourage* state regulatory action. This can occur in at least two ways. First, the adoption of a federal regulatory standard may “signal” that more stringent state regulations are unnecessary. In effect, the federal standard may be seen as evidence that a given level of regulatory protection is sufficient to safeguard relevant public interests, and more stringent measures are unnecessary. As a result, the adoption of a federal regulation may induce state policy-makers to adopt comparable state protections. In addition, the adoption of a federal regulation may crowd out state regulatory measures by reducing the net benefits of additional state measures. As a result, the existence of federal regulation may discourage the adoption of additional state-level regulatory protections in the future.

The potential for federal regulatory measures to reduce the level of state regulatory activity is significant because it challenges the prevailing assumption that the adoption of a federal regulatory standard raises, or at least maintains, the aggregate level of protection nationwide.¹¹⁶ Many environmental analysts, for example, suggest that the federal government should adopt a regulatory floor, but allow states to implement federal standards and adopt more stringent measures of their own.¹¹⁷ The general belief is that this will maximize the extent of environmental protection. Yet if the adoption of federal regulatory standards can induce states to adopt less protective environmental measures than they would otherwise have adopted, the net benefits of a federal floor will be less than traditionally assumed, and in some states it will actually result in a *net reduction* in the aggregate level of environmental protection. Indeed, it is possible that the net result of a federal regulatory floor, over time, could be the maintenance of lower levels of environmental protection than would otherwise have been adopted. Even if such effects are unlikely, federal policy-makers should consider these possibilities when assessing the likely costs and benefits of federal action.

1. Signaling

Just as federal attention to a given environmental concern may increase the demand for state-level action, the adoption of a given federal standard may send a signal that discourages the adoption or maintenance of more

¹¹⁶ Where federal regulation is preemptive, it may also provide a “ceiling” as well. *See supra* Part II.A.

¹¹⁷ *See* Barry G. Rabe, Mikael Roman & Arthur N. Dobelis, *State Competition as a Source Driving Climate Change Mitigation*, 14 N.Y.U. ENVTL. L.J. 1, 6–7 (2005) (noting “the notion of federal policy as a ‘floor’ protecting certain ‘fundamental rights’ still has vitality” in environmental policy debates).

protective state regulations. Specifically, the adoption of a given regulatory standard by a federal agency sends a signal that the standard is worthwhile.¹¹⁸ Among other reasons for this effect is that federal policy-makers, particularly federal agencies, are presumed to have substantial technical expertise. Thus, their actions may convince state policy-makers (or their constituents) that additional safeguards are “unnecessary” or that the benefits of more stringent regulatory protections are not worth their costs. The magnitude of this effect is likely to correspond with the magnitude of the difference between the relevant federal and state standards. In this way, federal standards can discourage state policy-makers from adopting and maintaining more stringent measures of their own, even where such measures could be justified. As a practical matter, the federal “floor” may become a “ceiling” as well.

This effect is not merely hypothetical. There are numerous examples of state legislation designed to prevent state environmental agencies from adopting regulatory standards that are more stringent than federal rules.¹¹⁹ Between 1987 and 1995, nearly twenty states adopted at least one statute limiting the ability of state agencies to adopt regulatory controls more stringent than relevant federal standards.¹²⁰ Some states focus on a given environmental concern, while others have general prohibitions against the adoption of any environmental rules more stringent than applicable federal standards.¹²¹ New Mexico and Colorado, for example, have statutes prohibiting the promulgation of air pollution controls more stringent than those required by federal law.¹²² Virginia law bars state regulatory authorities from requiring greater amounts of water treatment than mandated under the federal Clean Water Act (“CWA”).¹²³ Other states have general prohibitions against agency promulgation of environmental rules more stringent than federal law.¹²⁴

The existence of statutes barring state regulatory agencies from adopting more stringent regulations may be evidence of a greater hostility to environmental protection in some state legislatures than in Washington,

¹¹⁸ See McNollgast (Mathew D. McCubbins, Roger G. Noll & Barry R. Weingast), *Legislative Intent: The Use of Positive Political Theory in Statutory Interpretation*, 57 *LAW & CONTEMP. PROBS.* 3, 25 (1994) (noting that “an action is informative if it is taken by an informed person who pays a fee, expends effort, or foregoes some valuable alternative activity in order to take the action”). On signaling generally, see JEFFREY S. BANKS, *SIGNALING GAMES IN POLITICAL SCIENCE* (1991).

¹¹⁹ See Jerome M. Organ, *Limitations on State Agency Authority to Adopt Environmental Standards More Stringent than Federal Standards: Policy Considerations and Interpretive Problems*, 54 *MD. L. REV.* 1373, 1376–86 (1995); see also Arnold W. Reitze, Jr., *Federalism and the Inspection and Maintenance Program Under the Clean Air Act*, 27 *PAC. L.J.* 1461, 1465 (1996) (noting “movement among state legislatures to prohibit more stringent state standards”).

¹²⁰ Organ, *supra* note 119, at 1376 n.13.

¹²¹ *Id.* at 1377.

¹²² See N.M. STAT. § 74-2-5 (2003); COLO. REV. STAT. § 25-7-114.2 (2004).

¹²³ See VA. CODE ANN. § 62.1-44.15:1 (2004).

¹²⁴ See, e.g., KY. REV. STAT. ANN. § 13A.120 (2003).

D.C. Yet such laws may also be a rational response to the signal created by the adoption of a federal standard at a given level, particularly insofar as state policy-makers conclude that their federal counterparts have greater expertise and understanding of relevant environmental concerns. Information is costly, and the knowledge and expertise necessary to determine a given level of protection may tax the resources of state governments. Therefore, deferring to federal policy judgments by responding to the signal of a federal standard may enable state policy-makers to economize on information and policy development costs.¹²⁵

On the other hand, the localized nature of much environmental knowledge and expertise could suggest that signaling may systematically encourage less optimal state-level regulation to the extent that federal standards fail to take local needs and variation into account.¹²⁶ Some state laws may address this concern, however, as they allow state agencies to adopt more protective measures where local conditions warrant.¹²⁷

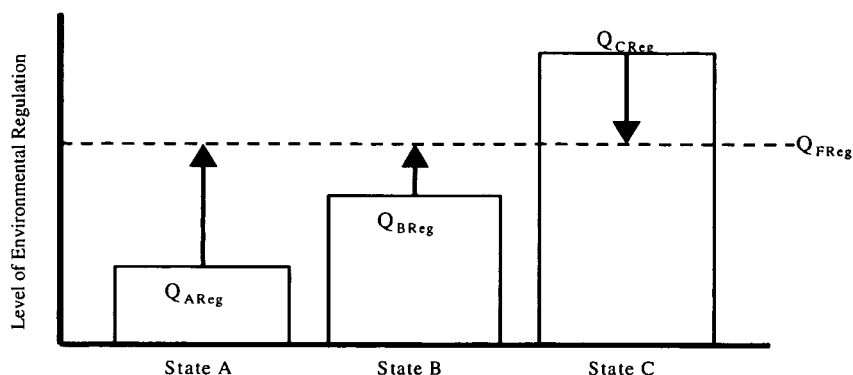
There are several reasons why this signaling effect may be of concern. First, and perhaps most important, the existence of a signaling effect that reduces the level of state regulations below what they would otherwise be could reduce the net benefits provided by federal regulations. When the federal government adopts a federal regulatory standard, this will increase the level of regulation in states that have lower levels of regulation. At the same time, it will lower the level of regulation in any state that adopts laws barring the promulgation of regulations more stringent than the federal standard.

¹²⁵ See Organ, *supra* note 119, at 1390.

¹²⁶ See *supra* notes 38–39 and accompanying text.

¹²⁷ See Organ, *supra* note 119, at 1380 (noting some states bar “an agency from promulgating standards or regulations more stringent than federal law unless unique circumstances justify more stringent regulations”).

FIGURE 2: SIGNALING EFFECT OF FEDERAL REGULATORY STANDARD



The net effect of such signaling is represented in Figure 2 above. States A and B have regulatory standards (Q_{AReg} and Q_{BReg} , respectively) less stringent than the federal standard (Q_{FReg}). State C, on the other hand, has a regulatory standard (Q_{CReg}) greater than the relevant federal standard. Adoption of the federal regulatory standard increases the aggregate level of regulation by a quantity equal to the sum of the difference between the federal standard and the lower state standards ($(Q_{FReg} - Q_{AReg}) + (Q_{FReg} - Q_{BReg})$). The *net* effect of the federal standard may be lower than this, however. If State C adopts a law prohibiting state standards that exceed relevant federal requirements, the aggregate level of regulation will be reduced by the amount to which State C's standard exceeded the federal standard ($Q_{CReg} - Q_{FReg}$). Thus, the net effect of the federal standard will be the extent to which the increase in regulation in States A and B exceeds the reduction in State C ($(Q_{FReg} - Q_{AReg}) + (Q_{FReg} - Q_{BReg}) - (Q_{CReg} - Q_{FReg})$). In the unlikely event that the reduction in regulation in State C *exceeds* the increase in regulation in States A and B, the adoption of a federal standard could actually result in a *net reduction* in the aggregate level of regulation.

There are other reasons to be concerned about a signaling effect. Insofar as federal standards are not based upon accurate, up-to-date scientific assessments of environmental problems,¹²⁸ and such information is not

¹²⁸ See Adler, *Jurisdictional Mismatch*, *supra* note 10, at 163–69 (noting inadequate understanding of data concerning environmental problems covered by various federal programs).

available to state and local policy-makers, the federal regulation may have an even greater distorting effect on state priorities. Such laws may also serve to shift effective control over environmental priorities from the state to the federal level.¹²⁹ Of course, to the extent federal policy-makers are likely to adopt quantitatively or qualitatively superior regulatory standards, the signaling effect may have a positive effect on regulatory policy. Insofar as there are welfare benefits from regulatory uniformity, there could be additional welfare benefits to the extent a signaling effect reduces regulatory variability across states.¹³⁰

The importance of signaling is not that it necessarily results in less optimal regulation. Rather, the primary importance of the signaling effect is that it often reduces the net benefit provided by the adoption of a federal regulatory standard. Taking this indirect effect of federal regulation on state regulatory choices into account will likely improve the quality of environmental policy-making.

2. *Crowding Out*

A second potential negative indirect effect of federal regulation on state regulatory choices is crowding out. This occurs because federal regulation may serve as a substitute for state-level regulation, thereby reducing the benefits of adopting or maintaining state-level protections. Insofar as voters in a given state demand a certain level of environmental protection, there is no reason to expect states to duplicate federal efforts when a federal program satisfies that demand, particularly if a state has not already created such a program. If the federal floor is greater than or equal to the level of environmental protection demanded by a state's residents, that state has no reason to adopt environmental regulations of its own once the federal government has acted. To the extent that this effect occurs, it is separate from—perhaps even in addition to—the signaling effect described above.

The claim here is not simply that states regulate less than they would absent federal regulation—although this claim is almost certainly true. Rather, the claim is that some states that would adopt regulations *more protective* than the federal floor, absent the imposition of federal regulation, have not done so due to federal regulation and may not do so in the future. If this hypothesis is correct, the net effect of federal environmental regulation in at least some states could be less environmental protection than would have been adopted had the federal government not intervened.

To see how this could occur, recall that the demand for environmental regulation in any given jurisdiction tends to increase over time as wealth,

¹²⁹ See Organ, *supra* note 119, at 1387.

¹³⁰ See Adler, *Jurisdictional Mismatch*, *supra* note 10, at 145–49 (noting potential benefits from economies of scale generated by regulatory uniformity).

technical capability, scientific knowledge, and environmental impacts increase.¹³¹ In any given state (as in the nation as a whole), there is an initial period ("Period A") during which the demand for a given type of environmental protection is relatively low. The costs of adopting environmental regulations in this period are greater than the benefits of adopting any such protections. These costs include the costs of developing, drafting, and passing legislation; the costs of creating a new policy program, drafting and implementing regulations, defending the regulations from any potential legal or administrative challenges, creating a means to monitor and enforce regulatory compliance; and so on. In addition, there are opportunity costs of devoting state resources and political capital to the cause of environmental protection as opposed to some other policy goal.

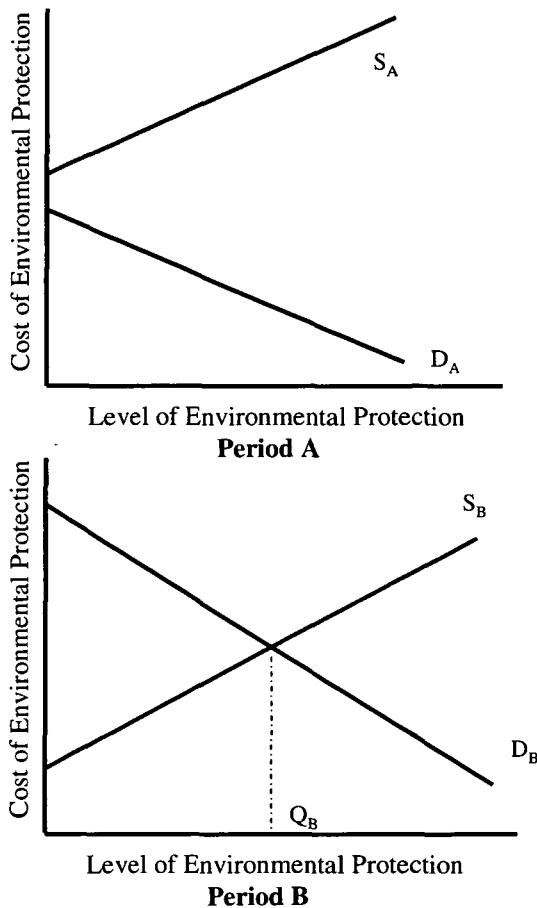
As discussed earlier, the demand for environmental protection has tended to increase over time along with increases in living standards.¹³² At the same time, increases in technical knowledge and administrative efficiency may lower the costs of a given regulatory program. Eventually, a state will enter a second period ("Period B") in which the benefits of a given environmental regulatory program are greater than the costs of initiating, implementing, and operating such a program. Absent any federal interference, the hypothetical state will not adopt environmental regulations in Period A, but will adopt such regulations in Period B. See Figure 3. This is the environmental transition discussed in Part I. In Period A, the demand for environmental protection is insufficient to justify the costs of implementing environmental protection measures. By Period B, however, the demand for environmental protection has risen due to increases in wealth and knowledge, among other factors. At the same time, increases in technical capacity and scientific understanding have reduced the cost of adopting environmental protections. As a result, in Period B a state will adopt Q_B amount of environmental protection.¹³³

¹³¹ See *supra* Part I.A.

¹³² See *id.*

¹³³ Environmental protections can be evaluated in both quantitative and qualitative terms. This initial discussion focuses exclusively on the quantity of environmental protection. The effects of qualitative differences in environmental protection are discussed below. See *infra* Part IV.

FIGURE 3: COST/BENEFIT OF ADOPTING ENVIRONMENTAL REGULATIONS BEFORE AND AFTER THE "ENVIRONMENTAL TRANSITION"

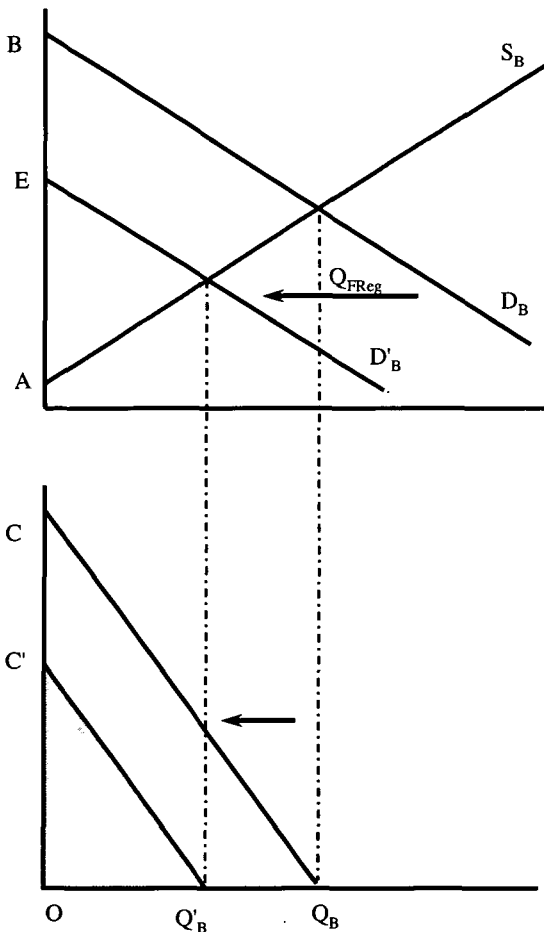


The timing of Period A and Period B will vary from state to state. This is clearly the case as different states have enacted different environmental regulatory measures at different times—some before the adoption of federal environmental regulation, some after, and some not at all. Looking at the history of various environmental concerns, such as air quality, water quality, or wetlands, it is clear that many states moved from Period A to Period B for these environmental concerns at various times prior to the onset of federal regulations in the 1970s. In many other states, however, a federal regulatory floor was adopted *before* the onset of Period B.

For states that went through their environmental transition and entered Period B prior to the enactment of federal environmental protection, whether the adoption of a federal regulatory floor increased the aggregate level of environmental protection in that state depended upon whether pre-existing state policies offered greater or lesser levels of protection than the relevant federal policies. For states in which the onset of Period B begins *after* the adoption of federal regulations, the enactment of a federal regulatory floor will, at the time of enactment, increase the aggregate level of environmental protection in that state. However, this may not be the case over time. In states that desire a greater level of protection than that provided by the relevant federal regulations, it is not clear that the existence of the federal regulatory floor will result in an equal or greater level of protection than would be adopted were it not for the federal regulations. This is because federal regulation will, to some extent, act as a substitute for state regulation. As a result, the adoption of federal regulation has the potential to reduce the demand for state regulation and, in some instances, even result in less aggregate regulation in a given state than would have been adopted absent federal intervention. In short, federal regulation can crowd out state regulation.

The potential for such a crowding-out effect is illustrated in Figure 4. The existence of federal regulation will reduce the demand for state regulation by an amount equal to the extent to which federal regulation is a substitute for state regulation of the same environmental concern (Q_{FReg}). This substitution effect will reduce the net benefit of adopting state-level environmental regulations from OCQ_B to $OC'Q'_B$. By reducing the net benefits of state-level environmental regulation in this manner, federal regulation has the potential to crowd out state-level environmental protections, even if the quantity of environmental protection demanded in the state is greater than that provided by the federal government. In such cases, the aggregate level of environmental protection will be lower with federal regulation than it would be without it.

FIGURE 4: EFFECT OF FEDERAL REGULATORY STANDARD ON NET BENEFIT OF ADOPTING STATE-LEVEL ENVIRONMENTAL REGULATIONS



A key assumption in this analysis is that there are significant fixed costs to the adoption of environmental protections (or, for that matter, any regulatory program). In some states, the additional benefits of adopting more stringent regulations on top of the federal requirements will more than offset the costs of adopting the new program. In these states the fixed costs of creating a program plus the operating costs are less than the expected marginal benefits from the additional margins of regulation. However, it seems likely that there are at least some states in which the aggregate net benefits of regulation at a level more protective than the federal standard are greater than the costs, but where the net benefits of additional regulation above the federal floor are less than the

costs of adopting such additional regulations. In other words, if the net benefits of adopting state regulations alone (OCQ_b) are greater than the costs of adopting such regulations (CReg), but the net benefits of adopting such regulations given federal regulations are already in place ($OC'Q'_b$) are less than CReg, then the presence of a federal regulatory floor will produce a lower level of environmental protection than were that floor not to exist.¹³⁴

In this latter situation, one would not expect the state to regulate, *even though* the amount of regulation demanded in the given state is greater than that provided by the federal government. While federal regulation creates a floor, raising the regulatory baseline, it does not reduce the fixed costs of policy change. If anything, it may increase the opportunity costs for state policy-makers who devote their political capital to the environmental resource at issue rather than another environmental concern in which the federal government is not active. Federal regulation does, however, reduce the benefits of state regulation, and may do so significantly, making state-level initiatives less attractive to state policy-makers.

This theory is based on several premises and observations about the political economy of policy-making. First, environmental regulation, like most forms of regulation or other government action, experiences diminishing marginal benefits and increasing marginal costs. That is, the marginal environmental gains from each additional increment of regulation will tend to be less than the gains from the preceding increment. Thus, when the federal government establishes a floor, it has likely displaced those state efforts that would be most cost-beneficial. (This has the effect of shifting the demand curve for state regulation to the left, reducing the net benefits of state regulation.)

Second, the political process imposes substantial transaction costs on the creation (or elimination) of new government programs, and these costs are relatively fixed such that they do not vary with the size of the program in question. The most obvious example of such transaction costs is the existence of so-called “vetogates”¹³⁵ that determined minority interests can use to prevent the adoption of policies that enjoy majority support.¹³⁶ The existence of these vetogates means that many policy changes

¹³⁴ Put in formulaic terms, for states in which $OCQ_b > CReg$ but $CReg > OC'Q'_b$, the presence of a federal regulatory floor will result in a lower level of environmental protection.

¹³⁵ William Eskridge defines a “vetogate” as “a place within a process where a statutory proposal can be vetoed or effectively killed.” William N. Eskridge, Jr., *Norms, Empiricism, and Canons in Statutory Interpretation*, 66 U. CHI. L. REV. 671, 677 n.13 (1999).

¹³⁶ See McNollgast, *supra* note 118, at 11 (observing that because “attempts to pass new legislation typically must navigate through numerous veto gates . . . it is difficult and time-consuming to change most prior legislative bargains”). While some states have different legislative structures, and therefore may have a lesser (or greater) number of “vetogates,” the general observation that determined minority interests can block the adoption of policies that enjoy majority support still holds.

must have supermajority support before they are enacted—or at the very least require the expenditure of substantial amounts of political capital by their proponents (as a means of purchasing supermajority support).¹³⁷ The fragmentation of policy-making authority across branches of government adds to the difficulty of adopting new policies. These obstacles may also be particularly large in highly complex policy areas like environmental protection.¹³⁸

Third, policy-makers are, to some extent, utility maximizers such that, all else equal, they will invest in policies that provide the greatest benefits and lowest costs to them.¹³⁹ Insofar as state policy-makers “share” responsibility for some environmental concerns with their federal counterparts, it may be difficult for them to secure the benefits of their efforts.¹⁴⁰ Relatedly, information about the relative activities of the federal and state governments and their relative merits is costly to the average voter where both the state and federal governments are active. As a result, it may be difficult for policy-makers to get credit for all of the policies they promote or implement.¹⁴¹ This is one reason why some argue that cooperative federalism undermines accountability. When both the federal government and the states are involved, it is more difficult for a voter to know who to credit or blame for a given policy.¹⁴² Because it is easier for a state pol-

¹³⁷ *Id.* at 16 (noting “the basic structure of government establishes several checks on the ability of legislative majorities to enact their will”).

¹³⁸ LAZARUS, *supra* note 71, at 32 (noting the “strong structural bias within our existing lawmaking institutions in favor of government’s acting more slowly and incrementally”). While Lazarus’ comments are directed at the national government, this same structural bias can be seen in state governments as well.

¹³⁹ The utility maximized by the policy-maker need not be the policy-maker’s “self-interest” but could also be the “public interest” that the policy-maker seeks to serve. See Nathaniel O. Keohane, Richard L. Revesz & Robert N. Stavins, *The Choice of Regulatory Instruments in Environmental Policy*, 22 HARV. ENVTL. L. REV. 313, 333 (1998) (observing that a legislator may derive utility from many different interests). Alternate assumptions do not alter the analysis. Indeed, as Jonathan Macey observes,

[O]ver a wide range of issues, the outcomes predicted by the public-interest model will be identical to those predicted by the interest-group model when the political-support-maximizing solution varies widely from jurisdiction to jurisdiction.

Jonathan R. Macey, *Federal Deference to Local Regulators and the Economic Theory of Regulation: Toward a Public-Choice Explanation of Federalism*, 76 VA. L. REV. 265, 284 (1990); see also *supra* note 98 and sources cited therein.

¹⁴⁰ See Buzbee, *supra* note 99, at 27–28 (noting policy-makers may view “regulatory opportunity as a commons resource much as fishers would view a shared ocean,” resulting in regulatory inattention).

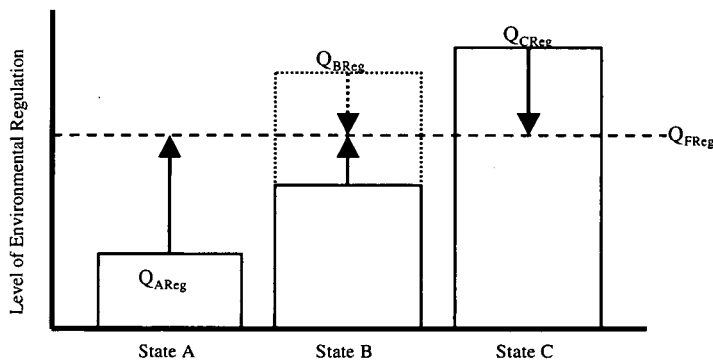
¹⁴¹ See Macey, *supra* note 139, at 275 (noting the division of authority between federal and state governments can enable Congress to “shift the blame for controversial enactments even more effectively . . . than by deferring to administrative agencies”); Buzbee, *supra* note 99, at 31 (“Where numerous regulators could be blamed for the ill, or sought out for relief, demanders of regulation encounter substantial informational and strategic hurdles confounding attribution decisions.”).

¹⁴² See Michael S. Greve, *Against Cooperative Federalism*, 70 MISS. L.J. 557 (2000–01); see also Roderick M. Hills, Jr., *The Political Economy of Cooperative Federalism*:

icy-maker to get credit for a policy when the state does not compete with the federal government in the provision of that policy goal, all else being equal, a state policy-maker will prefer to legislate where the federal government is less active.

One implication of the crowding-out effect is that it is possible that the adoption of a federal regulatory floor may result in lower aggregate levels of regulatory protection than had the federal government not entered the field at all. This potential is illustrated in Figure 5 below. As in Figure 2, which illustrated the signaling effect, States A and B initially have regulatory standards (Q_{AReg} and Q_{BReg} , respectively) less stringent than the federal standard (Q_{FReg}), while State C has a regulatory standard (Q_{CReg}) greater than the relevant federal standard. Here, however, the demand for environmental regulation in each state is not static. Rather, the demand for regulation in State B is increasing over time as State B goes through its own environmental transition. Absent federal regulation, State B would eventually adopt a higher level of protection—a level of protection greater than that which would be adopted at the federal level. In this scenario, the adoption of a federal standard has the potential to signal to states to reduce their levels of protection. It may also discourage the adoption of even greater levels of protection in those states that go through their environmental transition after the adoption of the federal standard. This potential opportunity cost of federal regulation is no less important than the more observable effects illustrated in Figure 2.

FIGURE 5: CROWDING-OUT EFFECT OF FEDERAL REGULATORY STANDARD



Why State Autonomy Makes Sense and "Dual Sovereignty" Doesn't, 96 MICH. L. REV. 813, 828 (1997-98) (noting "accountability" argument for anti-commandeering rule, insofar as it is accepted, applies with equal force to "cooperative federalism" arrangements).

When the crowding-out effect is combined with the signaling effect discussed above, the likelihood that federal regulation could result in a net decline in the aggregate level of regulatory protection increases. As before, adoption of the federal regulatory standard increases the aggregate level of regulation by a quantity equal to the sum of the difference between the federal standard and the lower state standards. The net benefit of the federal standard at any given point in time is this amount ($Q_{\text{FReg}} - Q_{\text{AReg}}$), less any reduction due to signaling ($Q_{\text{CReg}} - Q_{\text{FReg}}$), and the extent to which State *B* would have regulated absent federal action ($Q_{\text{BReg}} - Q_{\text{FReg}}$). Here the net effect of the federal standard will be the extent to which the increase in regulation in State *A* varies from the reduction in State *C* and regulation abandoned in State *B*. Stated as a formula, the net benefits of federal regulation equal: $(Q_{\text{FReg}} - Q_{\text{AReg}}) - [(Q_{\text{BReg}} - Q_{\text{FReg}}) + (Q_{\text{CReg}} - Q_{\text{FReg}})]$.

Even if the adoption of federal regulation initially increased the aggregate level of regulatory protection, over time the level of protection might be less than it would otherwise have been. As more states go through their environmental transitions, the magnitude of this crowding effect could increase, unless federal regulatory standards are able to keep pace. Given the slow rate at which existing federal regulatory programs are reviewed and expanded, however, this is a questionable assumption.

IV. QUALITATIVE VS. QUANTITATIVE PROTECTION

Up until this point, this Article has discussed environmental protection in a two-dimensional fashion, focusing on *quantitative* changes in regulatory protection. This vastly oversimplifies the relevant analysis, as various regulatory programs will vary in both *quantitative* and *qualitative* terms.¹⁴³ Two programs that appear to adopt the same quantitative level of environmental protection, such as the same ambient standard or emission limit, may vary quite significantly in cost, effectiveness, equitableness, and external effects on other media. Conversely, two programs that adopt superficially disparate goals may, in fact, offer qualitatively similar environmental protection. For these reasons, any complete analysis must acknowledge that environmental measures vary in both qualitative and quantitative ways.

There are several factors that may cause state-level environmental regulations to be more cost-effective, or otherwise qualitatively superior, than federal regulations of equivalent cost or scope.¹⁴⁴ First, and perhaps most important, state policy-makers and regulators may have access to

¹⁴³ See Keohane, Revesz & Stavins, *supra* note 139, at 313 (noting that the design of environmental policy requires determining both the desired level of environmental protection and what policy instruments should be used to achieve the specific environmental goal).

¹⁴⁴ See TESKE, *supra* note 9, at 23 (summarizing potential advantages of state regulation).

knowledge of local problems and conditions.¹⁴⁵ Consideration of such knowledge in the development and implementation of state regulatory programs may increase the protectiveness of existing programs without increasing their cost or scope. Second, state policy-makers, because they are closer both to the environmental problems they seek to address and the regulated community, may be more responsive to local needs and concerns. Third, insofar as environmental problems vary from place to place, state policy-makers may be able to focus state resources on environmental problems that exist in a given state. Federal standards, on the other hand, tend to impose broad one-size-fits-all requirements that, in actuality, often fit no state particularly well.¹⁴⁶ A regulatory requirement that makes perfect sense in one state may not provide much environmental protection in another. Fourth, the existence of a federal standard may inhibit the ability of (or incentive for) state policy-makers to innovate or experiment with different approaches to meeting a given environmental goal.¹⁴⁷

There is empirical evidence that, at least in some areas, state regulation may do a better job of addressing local environmental concerns in a cost-effective manner. Several states clean up abandoned hazardous waste sites at lower cost and more rapidly than the federal Superfund program.¹⁴⁸ Similarly, federal regulations may hinder the adoption of more effective pollution control or resource conservation strategies, and state policy-makers may be more sensitive to such concerns. The federal CAA requires many states to adopt suboptimal pollution control strategies when equally stringent—but differently targeted—measures would produce better results.¹⁴⁹ In the wetlands context, states took the lead in evaluating wetland functions and incorporating the ecological value of particular wetlands into the regulatory process when there was no evidence that similar considerations entered the federal permitting process.¹⁵⁰ In other words,

¹⁴⁵ See *supra* notes 38–39 and accompanying text.

¹⁴⁶ See Dwyer, *supra* note 4, at 222 (“The sheer size of the nation and the dizzying variety of social and environmental conditions and political preferences leave little hope that the central government could efficiently or accurately custom tailor environmental laws for different regions.”). See also Johnston, *supra* note 18, at 487 (“Regulatory centralization may be . . . just as tragic for natural resources as the regime of local control that it is designed to replace.”).

¹⁴⁷ On state innovation generally, see ALEXANDER VOLOKH ET AL., *NAT’L ENVTL. POLICY INST. & REASON PUB. POLICY INST., RACE TO THE TOP: THE INNOVATIVE FACE OF STATE ENVIRONMENTAL MANAGEMENT* (1998). See also Revesz, *supra* note 25, at 636 (“[T]he states, not the federal government, produced the most innovation in pollution control legislation in the 1990s.”).

¹⁴⁸ See Revesz, *supra* note 25, at 603 (noting state leadership in waste site clean up and brownfield redevelopment); J. Winston Porter, *Cleaning Up Superfund: The Case for State Environmental Leadership*, REASON FOUNDATION POLICY STUDY No. 195 (1995), available at <http://www.reason.org/ps195.pdf>.

¹⁴⁹ See Adler, *Judicial Federalism*, *supra* note 10, at 462–63.

¹⁵⁰ For instance, as of 1992 ten states were using wetland classification systems to evaluate function and value in the regulatory process. William E. Taylor & Dennis Magee, *Should All Wetlands Be Subject to the Same Regulation?*, 7 *NAT. RESOURCES & ENV’T* 32, 34 (1992). The development of these sorts of programs is important because “[a]bsent regulatory

at a given level of stringency, some states were beginning to incorporate ecological considerations so as to maximize the environmental value of regulations on wetland development when the federal government was doing no such thing.

States need not regulate "more" than the federal government to provide greater levels of environmental protection. Better regulation—that is, environmental protection measures that are qualitatively different—may be sufficient in some instances to improve the level of environmental protection. Insofar as federal regulation encourages states to adopt a particular approach to environmental protection, or discourages states from adopting programs more suited to specific state conditions, it can reduce aggregate environmental protection. Just as the federal government's regulatory programs may discourage more extensive state regulatory efforts, these programs may also discourage the adoption of qualitatively preferable state level programs that may differ more in kind than in their degree of stringency.

Much of the discussion debating proper levels of federal control over environmental policy has also operated under the assumption that a greater quantity or stringency of regulation is necessarily more optimal. While this assumption is common in the environmental literature, it is also an oversimplification. Over-regulation, in the form of excessively stringent or overly enforced regulatory requirements, is just as theoretically possible as under-regulation. If the costs of a given regulatory measure exceed its benefits, then its adoption does not increase aggregate welfare.¹⁵¹ The most welfare-enhancing regulatory regime is that which comes closest to the *optimal* level of environmental regulation, not necessarily that which produces the greatest level of regulation.

V. CASE STUDY: WETLANDS

The "cooperative federalism" model implemented in most federal environmental programs complicates the observation of indirect effects due to the existence of inducement measures to encourage state regulation. Wetlands regulation may be one context in which the indirect effects of

classification, there is a presumption that all wetlands are of equal significance with respect to functional value, and that no distinctions are necessary in the level of regulation or in designating mitigation requirements." *Id.* at 32. On the other hand, a review of Corps permitting decisions found no evidence such considerations entered into the regulatory process. See Michael J. Mortimer, *Irregular Regulation Under Section 404 of the Clean Water Act: Is the Congress or the Army Corps of Engineers to Blame?*, 13 J. ENVTL. L. & LITIG. 445, 446 (1998).

¹⁵¹ The costs and benefits of a given measure need not be measured in monetary terms. Moreover, this claim is not dependent upon being able to quantify the costs and benefits of a given regulatory measure. Whether a given measure increases social welfare is independent of the ability to measure effects on social welfare. In addition, a narrow cost-benefit comparison may ignore distributional effects that are equally relevant in the formulation of sound policies.

federal regulation on state policy choices can be observed, however, and perhaps even empirically tested. Under Section 404 of the CWA, the federal government regulates the filling and modification of wetlands directly.¹⁵² States receive little inducement to assume responsibility for administering the Section 404 program in the federal government's stead.¹⁵³ Wetland regulation is one area in which the state regulatory choices are largely free from *direct* federal influence.¹⁵⁴ For this reason, it may be easier in the context of wetland regulation than in other areas to isolate and assess the extent to which non-preemptive federal regulation is having the sorts of indirect effects on state regulatory decision-making discussed in Part III.

Several states began to regulate the modification of wetlands well before the federal government. Massachusetts in 1963 became the first state to enact wetland regulations, with the adoption of a statute requiring a state-issued permit for the dredging or filling of coastal wetlands.¹⁵⁵ This statute was based upon preexisting zoning requirements adopted by local governments in several coastal states.¹⁵⁶ Two years later, the Massachusetts legislature extended the statute to cover inland wetlands as well.¹⁵⁷ Other states shortly followed suit, including Connecticut, Georgia, and Washington.¹⁵⁸ By 1975, when federal regulation of wetlands began, every coastal state in the lower forty-eight states save Texas had adopted wetland regulations of some kind.¹⁵⁹

Congress enacted the CWA, originally known as the Federal Water Pollution Control Act Amendments, in 1972. The CWA prohibits the "discharge of any pollutant," including rock, sand, or dredged material, into "navigable waters" of the United States without a federal permit.¹⁶⁰ "Navigable waters" are defined as "waters of the United States,"¹⁶¹ which has been interpreted to include all navigable and nonnavigable waters, their tributaries, and wetlands whose use could impact interstate commerce.¹⁶² Section 404 authorizes the Army Corps of Engineers to issue permits "for the

¹⁵² See 33 U.S.C. § 1344 (2000).

¹⁵³ Only two states, Michigan and New Jersey, have delegated authority to administer wetlands regulations in lieu of the federal government. See Roxanne Thomas, *Profiling State Wetland Programs*, NAT'L WETLANDS NEWSL. (Env'tl. Law Inst., Wash., D.C.), July-Aug. 2006, at 14.

¹⁵⁴ The primary exception is federal funding for state coastal zone management programs which may include regulations of coastal wetlands. See 16 U.S.C. § 1455 (2000).

¹⁵⁵ Alexandra D. Dawson, *Massachusetts' Experience in Regulating Wetlands*, in WETLAND PROTECTION: STRENGTHENING THE ROLE OF THE STATES 255, 255 (ASS'N OF STATE WETLAND MANAGERS, 1985).

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ This history is recounted in Adler, *Wetlands*, *supra* note 10, at 47-54.

¹⁵⁹ JON A. KUSLER ET AL., STATE WETLAND REGULATIONS: STATUS OF PROGRAMS AND EMERGING TRENDS 1 (1994).

¹⁶⁰ 33 U.S.C. §§ 1311(a), 1362(6, 12) (2000).

¹⁶¹ 33 U.S.C. § 1362(7) (2000).

¹⁶² 33 C.F.R. § 328.3(a) (2005).

discharge of dredged or fill material into the navigable waters," subject to a veto by EPA.¹⁶³

The U.S. Army Corps of Engineers did not initially interpret the CWA to require Section 404 permits for the filling of wetlands.¹⁶⁴ Environmental groups disagreed with this interpretation and sued the Army Corps in federal court.¹⁶⁵ The United States District Court for the District of Columbia rejected the Corps' interpretation of the Act, holding that Congress, in passing the CWA, "asserted federal jurisdiction over the nation's waters to the maximum extent permissible under the Commerce Clause of the Constitution," including wetlands and other non-navigable waters.¹⁶⁶ While there seemed to be a substantial amount of state regulatory activity prior to the onset of federal wetland regulation, after the federal government began regulating wetlands in 1975, the rate at which non-regulating states adopted new wetland regulations appears to have slowed. States that had yet to adopt wetland protections by 1975 had yet to go through their environmental transition with regard to wetlands. It is possible, however, that at least some of these states went through their transitions some time after 1975. Were it not for the adoption of federal regulation, these states may have adopted wetland regulations in the intervening years. Such legislation could well have been discouraged or delayed—or crowded out—due to the presence of federal regulations.

Notably, all fourteen states in the continental U.S. with more than ten percent of their land area in wetlands according to the National Wetland Inventory adopted wetland protection measures prior to 1975.¹⁶⁷ As one review of state wetland regulations noted, "most of the states with the largest wetland acreages have adopted wetland regulatory efforts for all or a portion of their wetlands."¹⁶⁸ Although the adoption of such measures can entail significant costs, the states with the most wetlands clearly determined that the value of protecting wetlands was greater than the attendant costs of regulating them, interstate competitive pressures notwithstanding. This pattern is the exact opposite of what some scholars had predicted.¹⁶⁹ It is also significant that those states that regulated before the

¹⁶³ 33 U.S.C. §§ 1344(a), (c) (2000).

¹⁶⁴ See *Solid Waste Agency of N. Cook County (SWANCC) v. U.S. Army Corps of Eng'rs*, 531 U.S. 159, 168 (2001) (citing Corps' 1974 regulation, 33 C.F.R. § 209.120(d)(1) (1974)).

¹⁶⁵ *Nat'l Res. Def. Council v. Callaway*, 392 F. Supp. 685, 686 (D.D.C. 1975). EPA also disagreed with the Army Corps' initial statutory interpretation. *SWANCC*, 531 U.S. at 183, n.10 (Stevens, J., dissenting).

¹⁶⁶ *Callaway*, 392 F. Supp. at 686.

¹⁶⁷ See KUSLER ET AL., *supra* note 159, at 5–8 (Table 1). The states in question are Alabama, Delaware, Florida, Georgia, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, New Jersey, North Carolina, South Carolina, and Wisconsin.

¹⁶⁸ *Id.* at 3.

¹⁶⁹ See Oliver A. Houck & Michael Rolland, *Federalism in Wetlands Regulation: A Consideration of Delegation of Clean Water Act Section 404 and Related Programs to the States*, 54 MD. L. REV. 1242, 1253 (1995).

federal government tend to have more extensive regulatory protections than do those states that acted later.

A potential explanation for this history of state wetland regulation is that those states with the most wetlands were, by and large, the first states to go through the environmental transition with regard to wetlands. Under this hypothesis, states with a large percentage of their land area in wetlands were the first to recognize the tremendous ecological and economic benefits that wetlands can provide, including flood control, water filtration, species habitat, and the like. As these states went through the environmental transition, the demand for wetland protection increased until the benefits of adopting such measures was greater than the costs.

Beginning in 1975, however, the presence of federal regulation reduced the value of state wetland regulations to the extent that federal regulation served as a substitute for state measures. Because of the fixed costs involved with the adoption of a new wetland regulatory program, the net effect would be greater than just the substitution effect, so that states that went through the environmental transition with regard to wetlands after 1975 may not have adopted wetland regulations of their own, even if the state regulations would have been more protective than the federal rules. Where states did subsequently adopt wetland regulations, the regulations may have been adopted significantly later than they would have been absent the federal rules, due to the crowding-out effect.

The history of wetland regulations also provides evidence of how federal policy-making may encourage the adoption of environmental policies at the state level. While Massachusetts and some other states recognized the value of protecting their wetland resources before the federal government did, many other states adopted their first regulatory measures after the importance of wetland protection was recognized at the federal level.

Federal consideration and eventual passage of the Coastal Zone Management Act ("CZMA")¹⁷⁰ may have influenced state policy-makers as well, particularly in coastal states. A national discussion on the importance of protecting coastal resources could have increased the salience of coastal zone protection at the state level. The protection of wetlands is one of the specific policy goals explicitly referenced in the Act.¹⁷¹ Passage of the CZMA may have further encouraged state-level protection of coastal wetlands insofar as the CZMA authorizes federal funding of state coastal zone programs.¹⁷²

Contemporary developments in wetland protection at the federal and state level may provide further insight into the effect federal regulatory decisions have on state environmental policies. In 2001, in *Solid Waste*

¹⁷⁰ 16 U.S.C. §§ 1451–1465 (2000).

¹⁷¹ 16 U.S.C. § 1452(2)(A) (2000).

¹⁷² See *supra* note 154.

Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC),¹⁷³ the Supreme Court narrowed the scope of the CWA. Specifically, the Court held that the CWA does not confer federal regulatory jurisdiction over isolated, intrastate waters, including isolated wetlands.¹⁷⁴ Initial reactions to the *SWANCC* holding predicted substantial negative effects on wetland protection efforts nationwide.¹⁷⁵

While the initial response to the *SWANCC* decision was alarm, the actual effect of the decision became murky rather quickly.¹⁷⁶ A Joint Memorandum issued by the Army Corps and EPA in January 2003 prohibited the assertion of regulatory jurisdiction over isolated waters based upon the presence of migratory birds alone, but did not provide much additional guidance.¹⁷⁷ At the same time, the two agencies proposed to clarify the scope of regulatory jurisdiction under the CWA through a rulemaking.¹⁷⁸ This effort was soon abandoned due to extensive criticism from environmentalist organizations.¹⁷⁹ In the meantime, federal implementation of the holding has been inconsistent.¹⁸⁰ A study by the General Accounting Office found that Army Corps district offices' jurisdictional determinations varied significantly after *SWANCC*.¹⁸¹ In the courts, a circuit

¹⁷³ 531 U.S. 159, 168 (2001).

¹⁷⁴ *Id.* at 174.

¹⁷⁵ See, e.g., Lance D. Wood, *Do Not Be Misled: CWA Jurisdiction Extends to All Non-Navigable Tributaries of the Traditional Navigable Waters and to Their Adjacent Wetlands*, 34 ENVTL. L. REP. 10187, 10189, 10195 (2004) (noting "potentially disastrous" and "catastrophic" effects). Writing in dissent, Justice Stevens also predicted dire consequences from the Court's decision to "needlessly weaken[] our principal safeguard against toxic water." 531 U.S. at 175 (Stevens, J., dissenting).

¹⁷⁶ See Wood, *supra* note 175, at 10189 (noting *SWANCC* was "ambiguous" and courts have been "inconsistent" in their interpretations); Amended Statement of Patrick Parenteau, Professor of Law, Vermont Law School, Before the House of Representatives Comm. on Gov't Reform, Sept. 19, 2002 ("The decision has created substantial uncertainty regarding the geographic jurisdiction of the Clean Water Act."); Position Paper on Clean Water Act Jurisdiction Determinations Pursuant to the Supreme Court's January 9, 2001 Decision, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, Ass'n of State Wetland Managers, Dec. 2001 ("The section 404 regulatory program has been in turmoil ever since the Supreme Court's *SWANCC* decision.").

¹⁷⁷ Advance Notice of Proposed Rulemaking on the Clean Water Act Regulatory Definition of "Waters of the United States," 68 Fed. Reg. 1991 (proposed Jan. 15, 2003).

¹⁷⁸ *Id.* at 1995, Appendix A.

¹⁷⁹ See Eric Pianin, *EPA Scraps Changes To Clean Water Act; Plans Would Have Reduced Protection*, WASH. POST, Dec. 17, 2003, at A20. One reason given by the Army Corps and EPA to forego the rule-making was that federal courts had narrowly interpreted *SWANCC*'s impact. Ironically, on the same day as the Army Corps/EPA announcement, the U.S. Court of Appeals for the Fifth Circuit held that such narrow interpretations of *SWANCC* were "unsustainable." See Daniel Simmons, *Navigating SWANCC: An Examination of the U.S. Army Corps of Engineers' Authority Under the Clean Water Act*, 43 ENVTL. L. REP. 10723, 10730 (2004) (citing *In re Needham*, 354 F.3d 340, 345 (5th Cir. 2003)).

¹⁸⁰ U.S. GEN. ACCOUNTING OFFICE, *Waters and Wetlands: Corps of Engineers Needs to Evaluate Its District Office Practices in Determining Jurisdiction*, GAO-04-297, Feb. 2004, at 3 ("Corps districts differ in how they interpret and apply the federal regulations when determining what wetlands and other waters fall within the jurisdiction of the federal government.").

¹⁸¹ *Id.*

split soon developed on the scope of the holding.¹⁸² Most circuits adopted a fairly narrow reading of *SWANCC*, though the U.S. Court of Appeals for the Fifth Circuit interpreted *SWANCC* to impose potentially significant limits on federal regulatory authority under the CWA.¹⁸³ This interpretive split led the Supreme Court to once again consider the scope of Clean Water Act jurisdiction in 2006 in *Rapanos v. United States*.¹⁸⁴ It is too early to tell whether the *Rapanos* decision will resolve the current ambiguity. While *Rapanos* produced a discernible holding, the lack of a majority opinion makes conflicting judicial and administrative interpretations more likely, if not inevitable.¹⁸⁵

As state policy-makers are more likely to adopt new environmental measures where the net benefits from such actions are greatest—and they are most likely to receive credit for their efforts—the narrow interpretation of *SWANCC*, as well as the continued uncertainty as to the scope of post-*SWANCC* federal regulatory authority, would have discouraged additional state action.¹⁸⁶ The benefits of additional state regulation, and the extent to which state policy-makers will be able to take credit for protecting isolated waters is uncertain, so the value of such measures will be discounted accordingly. It is also possible that the reluctance of states to adopt additional wetland protections reflects nothing more than a lack of demand for such protections in those states that have yet to adopt measures covering isolated wetlands. Nonetheless, shortly after *SWANCC*, many states considered, and some adopted, additional regulatory measures to fill the gaps potentially left by the decision.¹⁸⁷ Insofar as *Rapanos* and subse-

¹⁸² See, e.g., *United States v. Deaton*, 332 F.3d 698 (4th Cir. 2003) (interpreting *SWANCC* narrowly); *United States v. Rapanos*, 339 F.3d 447 (6th Cir. 2003) (same); *United States v. Rueth Dev. Co.*, 335 F.3d 598 (7th Cir. 2003) (same). Compare *In re Needham*, 354 F.3d 340 (5th Cir. 2003) (after *SWANCC* federal jurisdiction only extends to wetlands adjacent to navigable waters); *Rice v. Harken Exploration Co.*, 250 F.3d 264 (5th Cir. 2001) (same).

¹⁸³ See *Needham*, 354 F.3d 340; *Rice*, 250 F.3d 264.

¹⁸⁴ 126 S. Ct. 2208 (2006). For an early assessment of *Rapanos* and its application by lower courts, see Jonathan H. Adler, *Reckoning with Rapanos: Revisiting "Waters of the United States" and the Limits of Federal Wetland Regulation*, 14 Mo. ENVTL. L. & POL'Y REV. (forthcoming 2006).

¹⁸⁵ *Id.*

¹⁸⁶ See Buzbee, *supra* note 99, at 14 (noting "uncertain regulatory turf creates both demand and supply-side incentives for regulatory inattention").

¹⁸⁷ According to Professor Michael Gerhardt,

[A]t least 19 states have responded to the decision by either enacting or recommending the enactment of laws to fill the void left as a result of the Court's decision. These states include, *inter alia*, California, Connecticut, Illinois, New Jersey, North Carolina, Ohio, Oregon, South Carolina, Virginia, and Wisconsin. These reactions are a clear illustration of environmental federalism in action.

Michael J. Gerhardt, *The Curious Flight of the Migratory Bird Rule*, 31 ENVTL. L. REP. 11079, 11085 (2001). The state of Ohio, for example, enacted an "emergency measure" to extend state regulations to isolated wetlands in July 2001, only a few months after the *SWANCC* decision. Sub. H.B. 231, 124th Gen. Assemb., Reg. Sess. (Ohio 2001). See also C. Victor Pyle III, *Isolated Wetlands Jurisprudence Post-SWANCC and Resulting Federal*

quent federal rulemakings resolve the lingering ambiguity over the scope of federal jurisdiction over waters and wetlands, state responses will be probative.

The history of wetlands regulation is far from conclusive. While it provides evidence that federal actions can both directly and indirectly encourage the adoption of state-level environmental measures, it does not prove that federal regulations have crowded out state wetland protections. One can only surmise the details of such a counterfactual scenario.¹⁸⁸ The pattern of wetland regulation is nonetheless consistent with the crowding-out theory. This narrative suggests the need for empirical examination into the determinants of state wetland regulation that seeks to measure the extent to which any crowding effect can be observed.

CONCLUSION

Both the federal and state governments have an integral role to play in environmental protection. If each is to play an optimal role, however, there must be greater consideration of how the various levels of government interact. In particular, there must be greater consideration of how federal regulatory decisions may enhance or undermine complementary efforts at the state level.

Even where federal regulation is absolutely necessary, establishing the optimal level of environmental protection requires consideration of how such regulations will affect state-level policy-making. In some cases, the adoption of a federal regulatory floor will enhance state efforts; in other cases, it will not. Indeed, in some instances, increased federal environmental efforts may produce less environmental protection. This observation is important because it challenges the prevailing assumption that the adoption of federal regulatory floors ensures higher levels of protection than would exist absent federal involvement. The precise extent of federal influence on state regulatory policy requires further empirical examination. In the meantime, greater attention to these influences could further facilitate the development of more effective and protective environmental measures.

and State Attempts to Fill the Void, 11 SOUTHEASTERN ENVTL. L.J. 91, 101–06 (2002) (summarizing initial state-level responses); Jan Goldman-Carter, *Isolated Wetland Legislation: Running the Rapids at the State Capitol*, NAT'L WETLANDS NEWSL. (Envtl. L. Inst., Wash., D.C.), May–June 2005, at 27 (same).

¹⁸⁸ See generally Robert N. Strassfeld, *If . . . : Counterfactuals in the Law*, 60 GEO. WASH. L. REV. 339 (1992).