

THE PETER SWIRE HOME PAGE

14 YJR 67 (Cite as: 14 Yale J. on Reg. 67)

Yale Journal on Regulation

March, 1996

Environmental Regulation

This document is also available in Yale Law and Policy Review

***67 THE RACE TO LAXITY AND THE RACE TO UNDESIRABILITY: EXPLAINING FAILURES IN COMPETITION AMONG JURISDICTIONS IN ENVIRONMENTAL LAW**

Peter P. Swire [\[FNd\]](#)

Copyright © 1996 Yale Law and Policy Review/Yale Journal on Regulation;

Peter P. Swire

Introduction	68
I. Races to Laxity and Races to Undesirability	72
II. Race to Strictness or Race to Laxity in Environmental Law	80
III. Revesz's Argument for a Race to Laxity and a Race to Desirability ...	87
A. The Race to the Bottom as Prisoner's Dilemma	88
B. The Oates and Schwab Model	89
C. Strengthening the Revesz Conclusion: The Benefits of Competition and Why No Prisoner's Dilemma Exists	91
IV. The Race to Laxity and the Race to Undesirability in Environmental Law	94
A. Measurement Problems	95
B. Public Choice and Reasons for Believing States Will Underprotect the Environment	98
1. Interstate and Inter-temporal Externalities	99
2. Interest Groups, State Decisionmakers, and the Under-provision	

of Environmental Law	100
3. State-Firm and State-State Strategic Interactions	103
V. NIMBY as the Race to the Bottom in Reverse	105
Conclusion	107

*69 Introduction

This Article addresses a fundamental question in environmental law: When is it desirable to have competition among multiple jurisdictions, such as among states in the American federal system or nations in the international arena? The heart of the debate has been whether competing regulatory regimes tend to create a "Race to the Bottom" in their efforts to attract industry. This Article proposes a new framework for understanding what is meant by the Race to the Bottom, and uses that framework to analyze the nature of competition among jurisdictions in environmental law. The recent literature in this area has made cogent critiques of earlier claims that a Race to the Bottom would exist. This Article answers those critiques, and shows how significant failures would likely occur in competition among the states if the federal government were to repeal its minimum environmental standards. The analytic framework developed in the Article also illuminates the nature of jurisdictional competition in areas beyond the environment, including corporations law, occupational safety, child labor laws, welfare, and tort reform.

Since the first Earth Day in 1970, the United States federal government has created environmental standards in a great variety of settings, such as clean air, clean water, endangered species, and protection against toxic chemicals. Richard Stewart and others have delineated several distinct justifications for regulating at the national level. [\[FN1\]](#) First, many environmental problems spill over state lines, and externalities are handled better at the federal level. Second, there may be economies of scale from regulating complex environmental problems at the national level. Third, the national political process may do a better job of protecting the environment. This argument was especially persuasive in the period around 1970, when states were widely seen to have failed badly on environmental issues. [\[FN2\]](#) Fourth, and most critical to the claims about the benefits of competition, regulation at the state level may lead to a Race to the Bottom, in which states lower their environmental standards to suboptimal levels in an effort to attract industry.

Each of these justifications is now subject to challenge. Richard Revesz has argued that interstate externalities are less pervasive than is often believed, and that the presence of externalities fails to explain how and where federal standards exist. [\[FN3\]](#) The economies-of-scale justification has weakened as many states have developed large and sophisticated environmental protection agencies. The claim that the federal government will systematically provide more protection is less compelling since the 1994 elections, when the Republicans took control of both houses of Congress for the first time since modern environmental law was created. Finally, scholars have raised important doubts about whether competition among states actually leads to laxer regulations and, even if the regulations are loosened, whether that is necessarily a bad thing.

The call for devolution of environmental regulation from the federal government to the states has been most strongly voiced in the political realm, notably by Republicans in the House of Representatives. Bills have been introduced to repeal a wide array of federal environmental provisions, including important aspects of the Endangered Species Act, the Clean Water Act, and the Superfund law. [\[FN4\]](#) These proposals highlight the split between substance and process in debates about whether to devolve power to the states. [\[FN5\]](#) The substantive debate has witnessed heated rhetoric between environmentalists, who generally seek to retain strict federal laws, [\[FN6\]](#) and newly-powerful Republicans, who have been explicit in their desire for fewer environmental restrictions on industry and property-owners. [\[FN7\]](#)

The academic discussion has focused more carefully on process--how state competition and federal minimum standards operate, and which will better achieve externally-set, substantive goals. Scholars such as David Vogel have suggested that competition among jurisdictions in the environmental area will often lead to stricter standards--to a "Race to the Top." [\[FN8\]](#) Scholars such as Richard Revesz, working from explicitly economic assumptions, have reached the opposite conclusion, that competition among the states will tend to create less stringent standards. They argue that this laxity is desirable, however, because it will tend to create more efficient outcomes, including greater economic growth. [\[FN9\]](#)

This Article critically examines these academic arguments concerning competition among jurisdictions. Part I of the Article puts the environmental debate in the context of other Races, notably by drawing on the much-studied topic of whether state competition for corporation charters is beneficial. A new terminology is proposed for understanding the Race to the Bottom, by clearly separating two distinct dimensions. As a descriptive matter, competition among jurisdictions might lead to a "Race to Strictness," as Vogel believes often occurs, or to a "Race to Laxity," as most other environmental and corporation scholars have believed. For law as for parents, neither strictness nor laxity is always appropriate. The second dimension is the prescriptive one of whether the competition leads to a desirable result. Even if competition leads to laxer standards, it may result in a "Race to Desirability," the view of Judge Ralph Winter, Jr. in corporations law and Richard Revesz in environmental law, or a "Race to Undesirability," the view of William Cary in corporations law

and of much of this Article. Clarifying the descriptive and prescriptive dimensions in this manner then helps uncover a more general framework for understanding competition among jurisdictions in a wide range of substantive areas.

Part II of the Article examines Vogel's argument for a Race to Strictness. Vogel and other scholars do identify some circumstances in which competition can lead to a Race to Strictness. Upon examination, however, Vogel's analysis applies only to a highly limited subset of environmental laws, and the Race to Strictness, when it occurs, offers little or no reason for removing federal minimum standards.

Part III develops Revesz's argument that competition among jurisdictions is efficient in environmental law. Relying on formal economic models, the argument essentially reduces to familiar themes--that free trade is better than protectionism, and that competition is better than monopoly. These arguments are extremely powerful within a model based on the assumptions of neoclassical economics. It is therefore unsurprising that Revesz concludes that competition will enhance overall societal welfare by creating higher economic growth and by better satisfying citizens' preferences. Revesz concludes that the traditional view of the Race to the Bottom, in which competing states find themselves in a prisoner's dilemma, is unconvincing. Instead, competition will produce both a Race to Laxity and a Race to Desirability.

Part IV explores the limits of the competitive models, notably by challenging three of their assumptions. First, the models assume that state decision-makers have no measurement problems. Essentially, officials are assumed to perform perfect, costless, and immediate cost/benefit analyses of every decision in environmental law. Based on these cost/benefit analyses, state officials can measure whether the net effects of lowering environmental standards are positive (due to higher economic growth) or negative (due to greater pollution). Second, the models assume that there are no interstate externalities. When such externalities exist it is clear that states might under-protect the environment and dump pollution into other states. Third, the models assume that there are no public choice problems, that state officials will automatically and uniformly satisfy the preferences of their citizens. By contrast, the public choice analysis here suggests that states are likely to under-protect the environment substantially, compared to their citizens' preferences.

By understanding measurement, externality, and public choice problems, it becomes possible to re-interpret the traditional Race to the Bottom and see how competition among jurisdictions often creates a Race to Undesirability. As in the traditional account, this re-interpretation leads to the conclusion that states err on the side of promoting industry and polluting the environment. The difference, once the competitive models are properly understood, is that the likely market failures stem from sources such as measurement and public choice problems, and not solely from the game-theoretic market failure of the prisoner's dilemma, as assumed by Revesz.

A corroboration of the importance of public choice problems is offered in Part V, which interprets the Not-In-My-Back-Yard (NIMBY) effect as the Race to the Bottom in reverse. NIMBY effects can be so powerful that they prevent the siting of facilities even where the total benefits exceed the total costs. Whereas the Race to the Bottom is both a Race to Undesirability and a Race to Laxity, NIMBY can be interpreted as a Race to Undesirability and a Race to Strictness. NIMBY, like the Race to the Bottom, should be understood as largely a public choice problem. [\[FN10\]](#)

*72 I. Races to Laxity and Races to Undesirability

Debates about the desirability of inter-jurisdictional competition have been marked by terminological confusion. To help dispel that confusion, this part will consider how the terms "Race to the Bottom" and "Race to the Top" have been used in various contexts, including corporations law, environmental law, occupational safety, child labor laws, welfare reform, and tort reform. The central insight of this section is that the terms "Race to the Bottom" and "Race to the Top" have been used in two distinct senses. The first sense is descriptive and the second prescriptive. When used in the former sense, these terms describe whether competition leads to "lower" standards in the sense of less government intervention into the market. When used in the latter sense, these terms have a normative character; a "Race to the Bottom" represents a situation in which competition leads to a less efficient or otherwise less desirable outcome.

The distinction between the descriptive and prescriptive is especially apparent in corporations law, where the academic commentary has been most extensive. [\[FN11\]](#) The underlying concepts were developed as New Jersey and Delaware relaxed many of the previous state-law restrictions on corporate charters. As early as 1904, there were denunciations of the "tendency of state legislation" to move with great speed "toward the lowest level of lax regulation." [\[FN12\]](#) Justice Brandeis explained this view in the 1933 case of *Liggett Co. v. Lee*:

Companies were early formed to provide charters for corporations in states where the cost is lowest and the laws least restrictive. The states joined in advertising their wares. The Race was one not of diligence but of laxity. [\[FN13\]](#)

The Brandeis view was elaborated and made famous within the academy by William Cary, who feared that competition forced states to offer rules that *73 benefit managers at the expense of shareholders. [\[FN14\]](#) In a 1974 article, Cary condemned the "Race for the Bottom" in corporations law and called for a minimum federal standard. [\[FN15\]](#) As a linguistic matter, interstate competition pushed toward the "bottom" in two distinct senses. Descriptively, competition drove states from "higher standards" or stricter rules toward "lower standards" or less-strict rules. Prescriptively, competition drove states from a desirable situation toward a "lower" or worse situation. By 1977, it was

"almost universally the opinion of academic commentators that state corporation codes do not impose sufficiently stringent controls on corporate management and are lax in protecting shareholders." [\[FN16\]](#)

Professor (now Judge) Ralph Winter, Jr., followed by other scholars associated with the law-and-economics movement, responded with a major attack on this conventional wisdom. [\[FN17\]](#) Schooled in the advantages of competitive markets, these scholars found it quite plausible that competing states would create better corporations law than a federal monopoly. [\[FN18\]](#) Managers would face a variety of market constraints if they chose a state whose laws reduced shareholder value. For instance, the corporation would find it more difficult to gain access to capital markets, or the stock price would fall and a takeover would become more likely. [\[FN19\]](#) In short, these scholars argued that interstate competition would tend to achieve the largely agreed-upon goal of corporations law--the maximization of share value. [\[FN20\]](#) Maximizing share value, in turn, is ^{*74} generally thought to be a good proxy for efficiency. [\[FN21\]](#) Winter and those who came after him viewed interstate competition as tending toward an efficient "Race to the Top."

Note, however, the possible confusion lurking in the term "Race to the Top." Winter and Cary agree as a descriptive matter that competition will lead to "lower" or more lenient standards. They disagree only as to whether these "lower" standards are desirable. Cary thinks competition will lead to a less-desirable result, the "Race to the Bottom." Winter thinks competition leads to a more-desirable result, the "Race to the Top." As a linguistic matter, though, "Race to the Top" is paradoxical--we must "lower" standards to get to a "higher" result.

The same sort of linguistic confusion has arisen in the environmental context. Richard Stewart and others have written about how a Race to the Bottom can occur when states lower their environmental standards in order to attract out-of-state factories or retain in-state factories. [\[FN22\]](#) Richard Revesz has recently argued under certain restrictive assumptions that the Race to the Bottom does not occur, and that interstate competition presumptively leads to socially beneficial results. [\[FN23\]](#) One objection to the Revesz argument is purely linguistic--since he agrees that interstate competition will generally lead to less strict environmental rules, [\[FN24\]](#) how can he deny that a Race to the Bottom will exist?

To avoid this sort of confusion, this Article will generally eschew using the terms "Race to the Bottom" or "Race to the Top." I propose a taxonomy that clearly separates the descriptive from the prescriptive. As a descriptive matter, the question will be whether competition leads to a "Race to Laxity" (less regulation) or a "Race to Strictness" (more regulation). This choice of terms is intended to avoid any suggestion that either more or less regulation is necessarily desirable. Just as parents can be too lax or too strict, so too can regulations. In describing whether a regime is lax or strict, I suggest that people are using an implicit baseline. Roughly speaking, the baseline or "bottom" is where there is no government intervention into a particular policy area. At the limit, a lax state might have no environmental laws, or no ^{*75} restrictions on the chartering of corporations. [\[FN25\]](#)

The contrast between laxity and strictness illuminates the debates about the Race to the Bottom in environmental and corporations law. In the corporations debate, both sides have agreed that the effect of interstate competition has been a Race to Laxity--Delaware corporations law today has eliminated many of the nineteenth century limits on the corporate form. In the environmental context, David Vogel has recently argued that inter-jurisdictional competition will often lead to stricter standards, which I call a Race to Strictness. [\[FN26\]](#) Most other writers, including Stewart and Revesz, have suggested that competition in the environmental context will typically lead to a Race to Laxity. [\[FN27\]](#)

In addition to the descriptive question of whether competition leads to strictness or laxity, there is also the normative question of whether the effects of competition are desirable. In some instances, the measuring rod of desirability will be efficiency. [\[FN28\]](#) In the corporations setting, Winter believes that competition will tend toward efficiency, while Cary fears an inefficient result as managers benefit at the expense of shareholders. In the environmental setting, Revesz adopts an explicitly economic perspective and argues that competition will tend to produce efficient results. The discussion below points out, however, that various sorts of market failures may defeat any tendencies toward efficiency. [\[FN29\]](#)

In addition, it is far from clear whether and in what way efficiency is an overriding goal of environmental law. As Ronald Coase has observed, the economic criterion of efficiency is less useful where the "measuring rod of ^{*76} money" is not available. [\[FN30\]](#) In environmental law, the measuring rod of money is usually absent from many of the key aspects of a dispute. Indeed, much of what we call environmental law deals specifically with externalities that do not have a well-established price in the marketplace. [\[FN31\]](#) I will not attempt here to recap the extensive literature on cost/benefit analysis and the role of efficiency in environmental law. [\[FN32\]](#) The discussion below will, however, indicate ways in which the lack of a clear definition of efficiency weakens Revesz's conclusions about the desirability of competition in environmental law.

Assessing competition in environmental law involves not only major market failures and the lack of the "measuring rod of money," but also a view on difficult moral issues. It is difficult, for instance, to evaluate what moral weight, if any, should be given to the interests of yet-unborn generations of humanity, or to the interests of ecosystems and non-human animals. Environmental law involves normative questions which cannot be reduced to an investigation of whether competition between jurisdictions is efficient. Rather than attempting to specify the normative goals of environmental law (or other areas), it seems more useful to ask whether competition among jurisdictions leads to a "Race to Desirability" or a "Race to Undesirability." The term "desirability" stands as a placeholder for whatever goals exist

within a particular context subject to government regulation. These goals will typically be in dispute, with efficiency being only one of the values that is being sought.

With these terms in mind, Table 1 shows a taxonomy of the effects of competition among jurisdictions for environmental and corporations law. As discussed below, Vogel believes that competition will lead to a Race to Strictness, but he has no general position regarding whether this strictness will be desirable. Revesz expects both a Race to Laxity and a Race to Desirability. My own position is to expect a Race to Laxity, with exceptions discussed in Sections II and V below, and often to expect a Race to Undesirability, as discussed in Section IV below.

Table 1:
The Effects of Inter-Jurisdiction Competition in Environmental and Corporations Law

Descriptive	Prescriptive
Higher/Top	
Race to Strictness Vogel	Race to Desirability Revesz; Winter
Race to Laxity Swire Winter Cary	Race to Undesirability Swire (sometimes) Cary
Lower/Bottom	

Table 2:
The Effects of Inter-Jurisdiction Competition

Descriptive	Prescriptive
Higher/Top	Greater Government Intervention V V
Status Quo	More Desirable V V V V

	V	V
Lower/Bottom	V Less Government Intervention	V Less Desirable

*78 The same taxonomy can be easily applied to other contexts in which jurisdictions can compete on laxness of regulation. For example, one argument for passing the Occupational Safety and Health Act was to prevent a Race to Laxity and a Race to Undesirability, caused allegedly by factories that would shop for states with weak worker safety laws. [FN33] A prominent example from early in this century concerned child labor laws. [FN34] States passed a number of laws, justified in large measure on moral grounds, rather than being based only on a quest for a more efficient economy. Progress in the states was retarded, however, by the concern that competition among jurisdictions would lead to a Race to Laxity and a Race to Undesirability. The industrialized Northern states did not wish factories to head South, where child labor was still permitted. [FN35] The legislative solution, which the Supreme Court eventually upheld in 1941, was to set federal minimum standards. [FN36]

The taxonomy proposed here can be extended beyond the regulatory context. Consider proposed welfare reform, which would repeal existing federal rules and provide states with more latitude to compete and set their own welfare rules. [FN37] Once again the race can be understood along the descriptive and prescriptive dimensions. Proponents of a strong federal role, who fear a Race to the Bottom in welfare, generally expect both that benefits will be reduced and that the result will be normatively worse than the present. Those who favor devolution may believe that benefits will be lowered. [FN38] If they do expect lower benefits, they may nonetheless believe on other grounds that the new regime is normatively superior. [FN39] Rather than simply condemning a Race to the Bottom, it is important to clarify which disagreements concern the effects *79 reform will have on benefits levels and which disagreements concern normative assessments of these effects.

As shown in Table 2, welfare fits neatly into a generalized form of Table 1. The descriptive column now moves explicitly from a "higher" level of government intervention, such as greater redistribution through the welfare system or stricter environmental regulation, down to a "lower" level of intervention. "Higher" or "lower" are defined relative to the status quo. [FN40] The Race exists because competing jurisdictions have a continuing incentive to decrease (or increase) their levels of intervention, in order to reduce welfare costs, attract industry, or advance other goals that state policy makers value. The "bottom" is a regime in which there is no government redistribution or environmental regulation at all. The prescriptive column ranges from a "higher" regime that is more desirable than the status quo down to a "lower" or less desirable regime.

As a final example, we will turn to tort reform, which was extensively discussed in this Symposium. [FN41] One reason advanced for federal legislation is that, under current law, excessively pro-plaintiff states can allegedly impose costs on other states. [FN42] High jury awards in plaintiff-friendly states might redistribute income to in-state plaintiffs and away from out-of-state suppliers of products. High jury awards may also create inefficiencies in product markets; manufacturers may pull products from a market entirely, or take precautions that would otherwise not have been cost-justified. If these effects indeed exist, federal law might be warranted to foster efficiency and prevent unwarranted redistribution.

At the Symposium, there was considerable terminological confusion in the tort reform discussion. Some participants believed that there might be a Race to the Top, because states would be tempted to allow large jury awards and thereby redistribute money to their citizens. Other participants worried about a Race to the Bottom, because state competition would lead to inefficient and unfair results. We now can see that both sides can be right, once the descriptive and prescriptive dimensions are separated. As a descriptive matter, *80 the temptation to allow high jury awards can lead to a Race to Strictness, because competition can create greater government intervention in the form of tort judgments. As a prescriptive matter, if some states are unjustly redistributing income to their citizens, we may conclude that there is a Race to Undesirability. [FN43]

With the terminology made clear, we are now prepared to look at the effects of inter-jurisdictional competition on environmental law. Section II focuses on whether competition will produce a Race to Strictness or a Race to Laxity in environmental law. For most situations, one will expect a Race to Laxity. Sections III and IV examine whether we should expect a Race to Desirability or a Race to Undesirability. Section IV argues that due to measurement, public-choice, and other problems, we will often expect a Race to Undesirability. Section V then focuses in on one particular kind type of Race to Strictness-- the Not In My Back Yard (NIMBY) effect, and discusses how NIMBY turns out to be the traditional Race to the Bottom in reverse.

II. Race to Strictness or Race to Laxity in Environmental Law

The traditional account of the Race to the Bottom in the environmental context contemplated a Race to Laxity, as states responded to the interstate competition for industry by lowering regulatory standards. This was also thought to be a Race to Undesirability, on the view

that the pressure of competition would drive states to reduce standards below what their citizens would prefer. The traditional remedy for this Race to the Bottom has been federal legislation, which enacts the stricter environmental standards that the states "really" want but could not achieve while facing the pressures of competition.

David Vogel has challenged this traditional account by highlighting ways in which competition might lead to "trading up," or "the ratcheting upward of regulatory standards in competing political jurisdictions," [\[FN44\]](#) such that states would become "greener." Along with scholars such as Joel Paul [\[FN45\]](#) and Anthony Ogus, [\[FN46\]](#) Vogel contemplates a Race to Strictness in environmental law. Where Vogel is correct, and competition does create a Race to Strictness, ***81** then neither federal minimum standards nor international treaties are needed to protect the environment.

Careful analysis, however, reinforces the traditional support for minimum standards. Vogel and the other scholars [\[FN47\]](#) help define situations in which a Race to Strictness can take place. Vogel's analysis is thought-provoking, and he ably shows the central role that public choice plays in driving competition among jurisdictions. The conditions that lead to "trading up," however, exist only for a very limited subset of environmental regulations. Furthermore, even where the "trading up" may occur as a result of competition among jurisdictions, the existence of a Race to Strictness offers little or no reason to abandon federal minimum environmental standards. [\[FN48\]](#)

Vogel calls his Race to the Top the "California effect," named for the state that has often been on the cutting edge of environmental regulation. [\[FN49\]](#) There are three principle mechanisms by which large and wealthy jurisdictions such as California might influence other jurisdictions to adopt stricter environmental or safety standards. [\[FN50\]](#) The first mechanism depends on the existence of a large domestic consumer market, such as California currently possesses within the United States, and the United States currently possesses in the world. When California or the United States passes a strict product standard, its trading partners are forced to meet those standards in order to maintain their export markets. This in turn often encourages consumer or environmental organizations in the exporting country [or state] to demand similar standards for products sold in their domestic markets--a demand that internationally [or interstate] oriented producers are now more willing to support since their exports to greener markets already meet them. [\[FN51\]](#)

An important element of this account relies on the public choice assumption that internationally-oriented producers will support the stricter standard once they are already complying with that standard in the greener market. Vogel's other proposed mechanism for the Race to the Top is even more explicitly ***82** grounded in public choice theory:

[I]n the case of many environmental and consumer regulations, stricter standards represent a source of competitive advantage for domestic producers, in part because it is often easier for them to comply with them. Hence domestic producers often compete with firms from other political jurisdictions by raising rather than lowering their standards. [\[FN52\]](#)

Domestic producers can hope to gain market share by helping craft environmental or safety standards to their own advantage. Foreign producers eventually learn to comply with the stricter standards and can then tolerate similarly strict standards in their own jurisdictions.

A third mechanism promoting this Race to Strictness, which Vogel emphasizes less, is the demonstration effect of the strict standard--the ability of producers to meet the strict standard in one jurisdiction proves that the standard is technologically achievable at reasonable cost. [\[FN53\]](#) In this way, producers lose their usual arguments against technology-forcing regulations, as the technological and economic uncertainty that plagues environmental regulation is reduced or eliminated. [\[FN54\]](#)

Vogel's leading example of the California effect is auto emissions controls under the Clean Air Act. Under the 1970 version of the Act, California was specifically permitted to enact stricter auto standards. In 1990, Congress raised national standards to the California level and permitted California to enact still-stricter standards. In 1994, a group of twelve Eastern states and the District of Columbia announced that they would comply with the new California standards, and the courts have upheld New York's adoption of those standards. [\[FN55\]](#) In this example, the California standards first paved the way for a stricter federal standard, and later served as the basis for even more stringent standards in other states. [\[FN56\]](#)

***83** Although Vogel clearly contemplates a Race to Strictness, he is agnostic about whether interjurisdictional competition will create a Race to Desirability. The California effect can lead to desirable environmental protection, such as the cleaner air resulting from California's strict emissions controls. [\[FN57\]](#) The prominence of producer interests in his model leads, however, to a significant risk that the regulation will be tantamount to trade protectionism. [\[FN58\]](#) Although domestic producers will benefit from the regulation, consumers will pay higher prices. [\[FN59\]](#) Overall efficiency will depend on how the environmental benefits compare with the economic loss. [\[FN60\]](#)

One of the central purposes of Vogel's work is to show that there is no necessary conflict between free trade and environmental protection. Vogel's description of the California effect shows that richer and greener jurisdictions can actually help spread strict environmental standards to their trading partners. As Vogel himself admits, however, the nature of free trade regimes limits the generality of the California effect.

The chief limitation is that Vogel's Race to the Top can occur for products but not for processes. [\[FN61\]](#) California can effectively set strict standards for cars and other products that are sold within its borders. Any company wishing to sell cars in California must meet the

standards. Other states would learn that the strict standards are feasible. Producers in the other states would acquiesce more readily to the spread of standards they are already facing and meeting in California. By contrast, California is much less effective at creating a Race to the Top for process standards, such as pollution limits from a factory smokestack, that take place outside of the state. If the exporting state, such as Nevada, sets lax factory standards, it will be quite difficult for California to prevent the factory's products from entering the California market.

California might seek to exclude car imports from Nevada, or impose a tariff on such imports equal to the difference in pollution control costs. Such efforts by California would face a series of objections. Enforcement of the California process standard would require monitoring pollution in Nevada, whereas a product standard involves monitoring pollution occurring in California. At a minimum, out-of-state monitoring would typically be more costly for California, and would face the (perhaps insuperable) burden of gaining permission from Nevada about how to assess compliance with the California rule.

From a public choice standpoint, there would be an acute fear that the import ban or tariff were the result of protectionist pressure within California. In-state producers would claim that the tariff was set to compensate for the higher environmental compliance costs paid by in-state producers. In light of the usual assumption that in-state producers are more politically powerful than out-of-state producers, however, there is good reason to believe that the tariff would be set higher than any difference in costs might justify.

Perhaps most importantly, there would be substantial legal objections to efforts by California to enforce its process standards against out-of-state producers. In the United States, states may regulate under their police power to assure health, safety, and general welfare within their borders. The dormant Commerce Clause, however, limits a state's ability to discriminate against out-of-state articles of commerce. [FN62] As long as they do not mention the state of origin, product standards are facially non-discriminatory and thus permissible. For instance, it is generally permitted to require all cars in a state to meet a certain emissions standard. [FN63] By contrast, any tariff imposed on an item in commerce because it comes from out of state will be subject to strict scrutiny by the Supreme Court, and the Court has repeatedly struck down such laws in recent years. [FN64] Similar legal rules exist at the international level. The General Agreement on Tariff and Trades authorizes health and safety regulation for products used in a country, but forbids discriminatory regulations against foreign goods or foreign production processes. [FN65]

The above analysis shows the very limited applicability of Vogel's Race-to-the-Top account. Consider what a large fraction of environmental protection laws do not fit Vogel's model. Vogel's prime example concerns air pollution from mobile sources, but he provides no account of how a jurisdiction can create a Race to the Top for air, water, or ground pollution from stationary sources such as factories. [FN66] Nor is there any evident way that interstate competition would lead to stricter quality standards for air, water, or groundwater. [FN67] The entire and important realm of natural resources protection would also fall completely outside of the California effect. If other jurisdictions destroy natural resources in the process of manufacturing for export, it is considered illegal protectionism to ban the goods for that reason. [FN68] Other jurisdictions can thus kill dolphins, cut down rain forests, or destroy wetlands, [FN69] without any sign of the California effect.

Even within the realm of products, the California effect is substantially limited. The effect can take place only to the extent that consumers cannot go out of state to purchase the product. [FN70] If consumers can go out of state, then a smaller share of the products actually used will comply with the strict standard. [FN71] In such an open economy, in-state sellers may also lobby effectively against the strict standard. Small states, such as Delaware, or states where a large portion of the population lives near a state border, such as New York, [FN72] will thus tend to find it more difficult to promulgate and retain strict product standards and thereby create the California effect.

For similar reasons, it may be difficult to generate the California effect where goods can be used out of state. For example, consider if California had wished to require double hulls on oil tankers, before double hulls were required by the Federal Oil Pollution Act of 1990. [FN73] In this case, the tankers might seem to be a product subject to the California effect, with non-complying tankers banned from California ports as unsafe products. If shippers could deliver oil through other states, however, the California effect would be defeated. Thus, the California effect may be less effective for producer goods, such as tankers, than for consumer goods, where the consumers in at least large states may be less able to get the product out-of-state.

In summation, the California effect gives little reason to believe that repealing federal environmental laws will lead to a more desirable level of environmental protection. The analysis here highlights how the California effect, to the extent it works, will do so for a highly limited subset of environment controls: for products, where neither consumers nor sellers can readily shift the sale or use of the product out-of-state. [FN74] Furthermore, even where this Race to Strictness does exist, it provides little or no reason to relax federal standards. [FN75] The usual pattern of environmental law has been to set federal minimum standards, and allow the states to enact rules that are stricter. [FN76] Under this pattern, states such as California are free to experiment with stricter regulation. [FN77] Indeed, to the extent the California effect leads to ^{*87} beneficial environmental results, as Vogel suggests often occurs, it cautions against federal preemption. Preemption would interrupt the ability of states such as California to experiment with stricter laws. Federal minimum standards are not inconsistent with--and may in fact facilitate--such experimentation and consequent beneficial competition.

III. Revesz's Argument for a Race to Laxity and a Race to Desirability

Part II showed the very restrictive circumstances under which a Race to Strictness in environmental law could occur. The more general pattern is to expect competition to create a Race to Laxity. The next task is to explore whether one should expect that Race to Laxity to be desirable.

Richard Revesz has written a sophisticated article that expects a Race to Desirability in environmental law: "[C]ontrary to prevailing assumptions, competition among states for industry should not be expected to lead to a race that decreases social welfare; indeed, as in other areas, such competition can be expected to produce an efficient allocation of industrial activity among the states." [\[FN78\]](#) In particular, he concludes that "the Race-to-the-Bottom hypothesis, though influential, lacks a sound theoretical basis." [\[FN79\]](#)

This part will present Revesz's arguments as to why competition among jurisdictions will be efficient. Revesz first creates a model for the Race to the Bottom as he believes it has been traditionally understood. At the core of this traditional account is a prisoner's dilemma, or a situation in which the states acting in their individual self-interest reach a collectively irrational or inefficient result. The traditional remedy for the prisoner's dilemma is a federal minimum standard. After establishing this traditional account, Revesz sets out to demolish it by use of economists' models, especially one created by Wallace Oates and Robert Schwab. Within the narrow scope created by the model's strict assumptions, competition among jurisdictions indeed turns out to be efficient, just as similar economic models show that free trade is more efficient than protectionism and competition is more efficient than monopoly.

The intent in this part is to uncover the logic of the models that support the efficiency of competition among jurisdictions. Section IV, below, will show the important consequences of relaxing the strict and factually dubious assumptions that undergird the models.

A. The Race to the Bottom as Prisoner's Dilemma

The first step in Revesz's article is to present a model that he says describes the traditional understanding of the Race to the Bottom. Revesz begins by considering an "island" jurisdiction, surrounded by water, and unaffected by what occurs beyond its borders. Firms choose the level of pollution that maximizes their profits, and ignore the social costs borne by citizens who breathe polluted air. Revesz states that the socially optimal level of pollution reduction is the level that maximizes the benefits of cleaner air to breathers, minus the costs of pollution control. [\[FN80\]](#) In a world with no measurement or public choice problems, the island jurisdiction will set pollution controls at the level that maximizes net benefits.

Next, Revesz considers a scenario in which competition can exist between two or more states in a federal system. [\[FN81\]](#) Firms can now try to reduce the costs of pollution control by moving to the state that imposes the least stringent requirements. Firms will relocate whenever the costs of moving are lower than the amount the firm will save through lower compliance costs. As before, each state will take account of the benefits to breathers of cleaner air and the costs to firms of pollution control. States will now also consider another factor: lower environmental standards may attract factories from other states, raising wages and taxes in the state. Conversely, a state with stricter standards may lose industrial activity.

Revesz then presents what he sees as the traditional version of the Race to the Bottom, which involves a prisoner's dilemma. [\[FN82\]](#) Assume two identical states that had not previously been in competition. [\[FN83\]](#) Assume, as on the island, that the states have set optimally strict environmental standards, perhaps seven on a ten-point scale. State Two then sees an opportunity to attract factories from State One by lowering environmental standards. Lowering environmental standards will increase costs on breathers, reduce compliance costs for firms, and increase wages and taxes from the newly-attracted industry. In a world with no public choice problems, if there are net benefits from lowering standards, then State Two will lower them. This action by State Two, in turn, gives State One an incentive to lower its standards in order to recover its lost jobs and tax revenues. In a prisoner's dilemma game, the result could be the *89 following: Both states lower their environmental standards to four. The competition has done nothing but rearrange the locations of the same number of factories. [\[FN84\]](#) Social welfare is lower--pollution is higher, but wages and taxes remain the same.

This prisoner's dilemma situation is a particular sort of market failure, one arising from strategic interaction among competitive players, the states. A defining feature of the prisoner's dilemma is that individually rational behavior is collectively irrational. In this instance, choosing the suboptimally-low environmental standard is what game theorists call a dominant strategy. [\[FN85\]](#) If the states really are in a prisoner's dilemma--that is, if the payoffs from each choice have been correctly described--then competition among the states will result in suboptimal environmental standards. A federal minimum standard can push the states back up to the optimal standard of seven. [\[FN86\]](#)

B. The Oates and Schwab Model

After Revesz lays out his understanding of the prisoner's dilemma, he sets out to show why the Dilemma will not occur. Revesz does not specifically explain why the dilemma does not occur. Instead, he relies on economic models-- notably a 1988 article by economists Wallace Oates and Robert Schwab [\[FN87\]](#)--to reach his conclusions about the efficiency of competition among jurisdictions.

Examination of the main points of the Oates and Schwab model will show both the source of Revesz's conclusion that competition is efficient and the extremely limited scope of that conclusion. Both Revesz and the economists make several important assumptions. [\[FN88\]](#) First, they assume that there are no *90 interstate externalities. The effects of pollution are felt entirely within the state creating the pollution. Second, they assume that there are no measurement problems. States can measure both the costs and benefits of

environmental restrictions, and can determine the "socially optimal level of pollution reduction." [FN89] Third, they assume that there are no public choice problems. State decision-makers automatically and effectively achieve the preferences of their citizens.

In the Oates and Schwab model, states must decide on the level of environmental controls and the level of taxation on capital. Reducing these controls or taxes will attract capital to the state. More capital, in turn, leads to higher wages for residents. [FN90] Oates and Schwab show that competitive jurisdictions will set the tax rate on capital at zero. [FN91] Competitive jurisdictions then trade off environmental quality with higher wages. Given the preferences of residents, each state will have a point where the incremental costs of environmental harm will offset the incremental benefits of higher wages. This is the equilibrium level of environmental protection in the state. Stricter environmental controls would make the state worse off, because residents would value higher wages more than the incrementally cleaner environment. More lenient environmental controls would also make the state worse off, because residents would prefer lower wages and a cleaner environment. Oates and Schwab conclude that it is efficient (utility maximizing) for each state to set environmental regulations at its own equilibrium level. [FN92] Revesz quotes this conclusion, and simply adds: "Thus, there is no Race to the Bottom." [FN93]

Revesz, having earlier described how a prisoner's dilemma might exist in competition among the states, never explains the formal relationships between this inefficient two-jurisdiction result and the Oates and Schwab efficient two-or n-player result. He refutes the possibility of a prisoner's dilemma indirectly, concluding: "There are no formal models supporting the proposition that competition among states creates a prisoner's dilemma in which states, contrary *91 to their interests, compete for industry by offering progressively laxer standards." [FN94]

This indirect refutation of the prisoner's dilemma is unsatisfying. In particular, it leaves the nagging worry that the formal models have omitted something crucial. [FN95] Russell Hardin has shown that a two-player game-theoretic inefficiency does not necessarily disappear simply by moving to n players. [FN96] If there is two-player prisoner's dilemma, then there is good reason to suspect an n-player inefficient outcome.

C. Strengthening the Revesz Conclusion: The Benefits of Competition and Why No Prisoner's Dilemma Exists

As Revesz moves from the island jurisdiction to competitive jurisdictions, he uses two of economic theory's most compelling arguments for efficiency--the shift from isolationism to free trade, and, as he discusses, the shift from monopoly to competition. [FN97] A better understanding of these arguments will show why the case for efficiency is convincing, but will also reveal how the prisoner's dilemma is assumed away in the formal models.

Take first the argument for free trade. As the island jurisdiction becomes open to competition, standard economic theory has an overwhelming presumption that the island will become better off. Free trade will allow economies of scale in production so that local plants can produce more efficiently for a broader market. Free trade will also confer the benefits of comparative advantage. Jurisdictions with different initial relative prices, such as their tradeoff between wages and environmental quality, can reach higher utility by trading and moving toward an equilibrium price. Put another way, factors of production that were relatively scarce in a state become available from other jurisdictions. In particular, more capital becomes available to jurisdictions with a strong taste for higher wages, and the number of facilities increases. By contrast, the prisoner's dilemma story essentially argues that the island jurisdiction will become worse off when it engages in free trade. Such a result is profoundly counter-intuitive to economists. [FN98]

*92 Similar conclusions ensue from the basic economic tenet that competition is better than monopoly. In the island jurisdiction, the state can be thought of as having a monopoly on location rights. [FN99] With the coming of competition, that monopoly is destroyed. The chief effect of competition is to lower the monopolist's price; in this setting, competition reduces the level of taxes or environmental controls that the previously monopolist state can impose. The benefits of competition occur in response to this price cut, as the number of facilities expands and wages increase.

Thus far we have restated the usual economist's preference for free trade and competition rather than protectionism and monopoly. The gains from competition have come from two sources. [FN100] First, the number of firms has expanded and wages have risen. Because states are assumed to measure social welfare accurately and to maximize that welfare, states have only bid for additional plants (lowered their taxes and environmental controls) where the benefits from higher wages exceeded the costs to the environment. Second, states have benefitted from their comparative advantages, so that factors of production have moved to their most efficient locations, and prices for mobile factors of production have come into equilibrium. [FN101]

As persuasive as these general themes may be, however, some puzzles remain. The first might be expressed as follows: What happened to the monopolist's rents? That is, the island jurisdiction presumably was obtaining some benefit from its monopoly on location rights. Perhaps it was taking that benefit in the form of a cleaner environment. With the coming of competition, the state lost its ability to do so. Perhaps this loss is somehow at the root of the Race to the Bottom or the prisoner's dilemma.

Posing this puzzle, on reflection, reveals how strongly the Oates and Schwab model pushes toward the conclusion that competition is efficient, and how the possibility of a prisoner's dilemma is eliminated under that model. First, the model gives no premium at all to having a cleaner environment. The only goal is to maximize social welfare, given pre-existing citizen preferences for both wages and the environment. Second, there is really no one from whom the island state can extract monopoly rents. The costs of monopoly fall on the

citizens themselves, so there are no monopoly rents that are lost in the switch to competition. [FN102] Third, the state itself receives no independent good from its monopoly position. Because the model assumes away all measurement and public choice problems, the state simply acts on the preferences of citizens and does not make mistakes. In doing so, the model implicitly assumes away the possibility of a prisoner's dilemma. To see how, remember that Revesz assumed that the island jurisdiction perfectly mirrored the preferences of its citizens, and that the Oates and Schwab model assumed that competing jurisdictions similarly mirrored their citizens' preferences. There is no mechanism within the Oates and Schwab model for strategic behavior, such as the prisoner's dilemma, to occur--states simply do not make their own decisions based on an assessment of other states' decisions.

Indeed, there is an additional way to see how strongly the Oates and Schwab model pushes toward a competitive result rather than a prisoner's dilemma. Once again, the state sets higher environmental standards as an island than in a competitive setting. In the island jurisdiction, by definition, the stricter environmental standards do not send the factories fleeing to other jurisdictions. Overly strict standards can, however, reduce the number of firms on the island, driving down wages and thus social welfare. [FN103] This response of firms to strict standards in the island setting--to have fewer facilities--provides another reason that a prisoner's dilemma does not develop in Revesz's model. Essentially the same dynamics are at play in the island jurisdiction as in the competitive setting. In both settings, the state seeks higher wages and a cleaner environment. In both settings, the state will encourage new firms to enter to the point where the marginal benefits of higher wages equal the marginal costs to the environment. There is no discontinuity created by the opening of trade, such as the prisoner's dilemma describes. Even as an island, the state puts limits on environmental standards and taxes in order to promote firm entry from within the state. [FN104] Put somewhat differently, the state negotiates with industry both before and after the onset of competition, seeking to get expansion of facilities while preserving the environment. By assumption, the state bargains accurately in order to maximize the welfare of its citizens; thus it will not lower environmental standards except where the benefits of higher wages outweigh the environmental costs.

IV. The Race to Laxity and the Race to Undesirability in Environmental Law

The economic models demonstrate the powerful logic of free trade over protectionism and of competitive markets over monopolies. The models formalize the widespread intuition that competition is generally desirable, and cast into doubt the long-held view that competition among jurisdictions will lead to undesirably weak environmental laws.

These conclusions are indeed powerful, but they go too far in asserting that "competition can be expected to produce an efficient allocation of industrial activity among the states." [FN105] To determine whether competition among jurisdictions is desirable, we must explore to what extent the models fit the reality of environmental regulation. In particular, we must scrutinize the assumptions of the models. First of all, these assumptions are strongly counter-factual. Environmental law is largely defined by the very factors that are assumed away in the models, such as many interstate externalities, deep public choice problems, and intractable theoretical and practical obstacles to measuring the social utility of environmental regulations. Second, Revesz may slide too easily from conclusions within the context of his stylized model to claims about the real world. At issue is a topic of major national significance, the proposed rollback of federal environmental laws and the devolution of broad responsibility to the states. It is important that the weakness of the underlying assumptions and resulting conclusions be made clear, to prevent the possibility that actual political decisions might be influenced by conclusions based on these models.

A third reason for challenging the assumptions is that these types of models are sensitive to changes in assumptions. The Oates and Schwab model is a variant of the well-known Tiebout model. [FN106] Scholars have long known that the efficiency results of the Tiebout model are not robust; that is, modest changes in initial assumptions can make competition among jurisdictions no longer efficient. [FN107] Indeed, Oates and Schwab themselves, in passages that Revesz does not highlight, show a number of plausible alternative assumptions under which competition among jurisdictions will not be efficient. [FN108]

Revesz has said that "the Race-to-the-Bottom hypothesis, though influential, lacks a sound theoretical basis." [FN109] This part re-invents that theoretical basis. A Race to Undesirability can readily exist in the environmental area, in patterns that in practice look very much like the traditional Race to the Bottom account. The market failures, however, come from previously under-appreciated sources, such as measurement problems, interstate externalities, and, especially, public choice problems.

The presence of serious market failures in competition among the states undermines any claim that the competition is efficient. An additional step is necessary, however, to know whether devolution to the states is desirable. That step, not undertaken in detail in this Article, is an assessment of the relative desirability of state competition or federal minimum standards. [FN110]

A. Measurement Problems

The Oates and Schwab model makes strong assumptions, to say the least, about the ability of regulators to measure the consequences of their actions. First, their model assumes that regulators are able to assess the change in ⁹⁶ industrial activity that will result from a change in environmental standards. It assumes, for instance, that for any given lowering of environmental standards, regulators know the level of new entry. Second, the model assumes that regulators can measure the effect of new entry on wage levels. Third, the model assumes that regulators can assess the effect of new entry on the quality of the environment--that regulators know how much additional

pollution will be created by the new factories. Fourth, and most magically, the model assumes that regulators know the preferences of citizens in the state. This means that regulators can, based on their knowledge of the increase in wages and the decrease in environmental quality, perfectly sum up the preferences of citizens and determine whether a relaxation of the environmental laws will increase social welfare. Put another way, the model assumes that regulators can measure the tradeoff of their citizens between higher wages and a cleaner environment.

These four assumptions, when taken together, constitute the composite "assumption of perfect measurement" upon which the findings of efficiency rest. Competition is generally efficient in the Oates and Schwab world because state officials know just how far to raise or lower environmental standards to maximize social welfare. If these four assumptions are not valid, even the best public officials will make mistakes. They may relax environmental laws in situations where stronger laws would increase social welfare. Conversely, they may strengthen environmental laws where the resulting costs to the economy are greater than the benefits.

Within the model, there are two major categories of benefits from competition: (1) new entry of factories in response to lower environmental standards; and (2) better satisfaction of the preferences of the residents of each state, who are benefitting from the tradeoff between pollution and wages that maximizes their utility. By focusing on these asserted benefits of competition, we see both the importance of measurement problems and the reasons why environmentalists are skeptical that competition is desirable in this context. Take first the increase in factories. The argument for competition is that, whenever a state lowers its environmental standards, more factories produce wage increases that are large enough to increase social utility, despite increased pollution. The initial environmentalist response is predictable yet powerful: "You admit there will be more factories and more pollution, and that's what you call desirable!" For many environmentalists, the admission that competition will produce weaker environmental laws, more factories, and more pollution is sufficient to prove that a Race to the Bottom exists.

A more sophisticated and ultimately more persuasive environmentalist response factors in the higher wages and consequent benefits that competition creates. Consider the measurement problems that arise when a state lowers its environmental standards. Proponents of the change assert that there will be a large increase in the number of factories, a large increase in wages, and a small effect on the environment. They further assert that the preferences of residents will be better satisfied, because for the expected range of wage changes and environmental changes, the summed-up utility of the state's residents will be higher after the change. Environmentalists, on the other hand, may assess each aspect differently. They may or may not dispute the estimates of industrial growth and higher wages. They are almost certain, however, to dispute the "small" effect on the environment and the alleged satisfaction of citizens' preferences.

As discussed earlier, [\[FN111\]](#) extensive debates have grown up concerning the usefulness of "efficiency" as the overriding goal in environmental law, and over the possibilities and limitations of cost/benefit analysis and risk/benefit analysis. Revesz, like the Oates and Schwab model, implicitly assumes that public officials will be able to perform this cost/benefit analysis costlessly and perfectly. Based on this flawless cost/benefit analysis, public officials will be able to raise or lower environmental standards to the level that maximizes welfare. This assumption of perfect, neutral and costless cost/benefit analysis is clearly counterfactual. The lack of realism in the assumption is not fatal to the use of any cost/benefit analysis, [\[FN112\]](#) but the lack of perfect cost/benefit analysis does discredit the argument that competition among jurisdictions is necessarily efficient. Simply put, a primary challenge of environmental law is making decisions under uncertainty. Assuming away that uncertainty, as Revesz does, does little to advance our understanding about how competition will actually work. [\[FN113\]](#)

In assessing whether to weaken environmental laws, therefore, even the most diligent and public-spirited officials will face pervasive uncertainties ^{*98} regarding whether the benefits of more factories and higher wages offset the costs to the environment. The same sort of critique applies to the other asserted benefit of competition in the model--a closer matching of the people in different states with their preferred mixes of a cleaner environment and higher wages. Here, the asserted gains from trade come from moving factories to the states that have a relatively stronger taste for higher wages and more pollution. Once again, the instinctive environmentalist reaction has a certain resonance: "Sure, people in some states really want more pollution, and that's why competition is good." The more sophisticated environmentalist position would emphasize the intractable difficulties in measuring people's preferences on such an abstract and complicated point. [\[FN114\]](#) Armed with different empirical and theoretical assumptions than industry advocates, these sophisticated environmentalists would have many arguments about why citizens in those states either do not wish to have the additional pollution, or would not if they were well-informed of the risks.

In conclusion, the models that support the desirability of competition make the remarkable assumption that cost/benefit analysis will be perfect, costless, and applicable to the many elements needed to determine whether an environmental law should be relaxed. As these faulty assumptions are relaxed, there is much less reason to believe that the actual decisions of states will be desirable. The likelihood of undesirable decisions is greatly heightened by the nature of the mechanisms for allegedly gaining efficiency. In every instance where proponents say a state is moving toward efficiency, environmentalist critics can say that the movement is instead toward more pollution, targeted especially at those states that claim their citizens wish more pollution. Reasonable people can generally differ about how to measure the costs of more pollution or the willingness of a population to endure more pollution. Due to measurement problems, the alleged net benefits of competition can in each instance be portrayed as net costs.

B. Public Choice and Reasons for Believing States Will Under-protect the Environment

Public choice problems, which arise when state decision-makers fail to follow the preferences of citizens, build on measurement problems in two ways. First, even selfless and talented public officials often will not be able to measure which policies will maximize social welfare. A state can easily misgauge the tradeoff between wages and the environment. As a result, there is no reason to presume that any given public decision is efficient. As Oates and Schwab observe: "[I]f public decisions deviate from the will of the electorate . . . then efficient outcomes, not surprisingly, are not to be expected." [FN115] Second, public choice problems tend to flourish precisely where measurement of efficiency is difficult. Where the general public cannot monitor the quality of government decisions, public officials have greater slack, [FN116] and consequently greater ability to follow their own preferences rather than those of the citizens.

The following discussion highlights three fundamental public choice problems that arise in environmental regulation. The first problem concerns interstate or inter-temporal externalities, and arises when the preferences of affected persons are not included in the decision process. The second problem stems from advantages that industry interest groups, who suffer concentrated costs from regulation, will be expected to have over environmental groups, who represent individuals having a more diffuse interest in regulation. A related set of issues involves the incentives of state decision-makers, who have strong public choice reasons to side with concentrated industry groups. The third problem ensues from strategic interactions between states and firms and among competing states. These strategic interactions, which the Oates and Schwab model assumes away, further contribute to the "mistakes" that public officials make when they fail to match policy to the preferences of their citizens. [FN117]

1. Interstate and Inter-temporal Externalities

Revesz makes the usual utilitarian assumption of neoclassical economics, that the normative goal for a state is to maximize social welfare, understood to mean satisfying the preferences of persons in the state. [FN118] This approach *100 ignores the interests of those in other states who are affected by the pollution. It also ignores the interests of future generations, whose interests are only imperfectly represented by current citizens and state decision-makers. For interstate pollution, a logical way to address the problem is to expand the geographic scope of the decision, so that the interests of both industry and breathers are considered in the decision. [FN119] In the United States, given the difficulties that states face in negotiating compacts to address pollution, the presence of interstate pollution argues for a substantial federal role. For inter-temporal pollution, a goal should be to shape a decision process that does a relatively good job of considering the interests of future generations. That process, too, will likely have an important federal component. [FN120]

In fairness to Revesz and the economists he cites, there is a clear understanding that interstate and inter-temporal externalities would undermine any claim that competition among states is necessarily efficient. If states are competing by dumping their pollution across state lines, then states can gain the benefit of industrial activity without suffering the costs. To the extent that Revesz is simply trying to analyze game-theoretic effects on interstate competition, it is understandable why he would assume away other justifications for federal environmental laws, such as externalities. To the extent that he claims that competition among states is in fact desirable, however, then the magnitude of externalities must be addressed. For reasons expressed elsewhere, those externalities are likely to be considerable. [FN121]

2. Interest Groups, State Decisionmakers, and the Under-provision of Environmental Law

Interstate and inter-temporal externalities can exist even with Revesz's assumption that states will perfectly reflect the preferences of current voters. The next step is to introduce public choice problems, based on interest-group theory or the incentives facing state decision-makers, arising from the relative likelihood of environmental laws being too strict or too lax compared with *101 those preferences.

A primary theme of the economic theory of regulation is that laws tend to benefit small, cohesive special interest groups at the expense of the general public. [FN122] For many important environmental issues, regulations impose costs on cohesive industry groups, often led by a few firms facing large compliance costs if a rule is imposed. These industry groups would ordinarily be expected to succeed very well politically against the diffuse individuals who might benefit from environmental controls. Following the insights of Mancur Olson and other public choice scholars, [FN123] the situation seems the perfect recipe for industry dominance, resulting in blockage of environmental laws that voters actually prefer.

But the outlook for passing environmental laws is much bleaker than the Olson problems, acute as they are, would suggest. Under the Olson analysis, industry is assumed to know the costs it would suffer, and breathers are assumed to know their potential benefits. Industry has two decisive advantages over the breathers. First, an individual firm faces large costs from compliance, so that it is more likely that the payback to that firm from political participation exceeds its cost of participating. Ignoring the efforts of others, it is thus more likely to be rational (i.e., profitable) for the firm than for the breather to spend resources seeking a more favorable law. Second, industry faces much less severe free-rider problems. A small group can do a better job of monitoring for shirkers, and members of industry groups are likely to be repeat players who can suffer in later rounds if they defect in this round. The Olson problems at the heart of the economic theory of regulation thus exist even with perfect information about the costs and benefits flowing to those affected by regulation.

As discussed above, however, the reality for environmental regulation is terribly imperfect information. The additional point made here is that the measurement problems are systematically skewed, with the costs of compliance being systematically highlighted and the

benefits of environmental regulations being systematically discounted. The degree of skew will vary by area of environmental law, and there are counter-examples for each claim made below. But the predictable result of this skew is that environmental law will be under-provided to an even greater degree than the Olson analysis alone would suggest.

Consider how the costs of compliance are highlighted. First, the costs of regulation tend to be front-loaded in time, such as when a pollution control device must be installed. Second, the costs of regulation are often incurred in ***102** dollar or other tangible ways. Third, it is typically easy to identify the polluters or users of natural resources on whom the initial burden of regulation will fall. Those suffering costs often have the technical ability to understand that they will be affected by proposed or actual regulations. Costs also tend to hit identifiable individuals, who have a strong incentive to complain or otherwise mobilize politically.

By contrast, notice how the benefits of environmental regulation tend to produce a weaker interest group response. First, benefits of regulation often occur over a much longer time, such as when the pollution control device gradually contributes to cleaner air. Second, benefits of regulation are often incurred in less tangible ways, such as the value of experiencing a cleaner environment. There are sharp theoretical and empirical disputes about how to value these less tangible benefits, and the benefits may well be discounted due to the "dwarfing of soft variables." [\[FN124\]](#) Third, it is usually much harder to identify the precise individuals who will benefit from pollution control or preservation of natural resources. Those benefitting often lack the information or technical ability to know that they will be affected. Even if the beneficiaries know they are affected, they will often benefit only on a probabilistic basis, such as a lower likelihood of getting cancer. These beneficiaries will have a weaker incentive to seek regulation than would identifiable individuals.

These are all reasons to believe that those experiencing the costs of regulation will have relatively strong incentives to mobilize politically, and those experiencing the benefits will have far weaker incentives to mobilize. The under-provision of environmental law can readily become worse once we explicitly consider another branch of public choice theory, the incentives of political actors. [\[FN125\]](#) As an example, consider a jurisdiction that is deciding whether to issue zoning and environmental permits for a major factory to enter from out-of-state. Pro-development groups will mobilize to influence political decision-makers--zoning boards, state officials, etc.--to permit the factory to open. Political decision-makers predictably will be at least somewhat affected by this mobilization. The effects may occur due to pure motives, such as when the decision-makers receive persuasive information from industry about why the factory would be in the public interest. The effects may also occur for less benevolent reasons, such as when decision-makers are "captured" by industry or even willing to be explicitly bribed.

***103** Concentrated benefits may accrue to politicians who can take credit for helping the factory open. The governor and the mayor, for instance, may boost their chances for re-election by supporting the factory. Such benefits to politicians can be due to the popularity with voters of the proposed factory. That popularity may be due in no small measure to the relatively hidden or long-term nature of environmental costs, or of the ability of the factory to pollute into a different jurisdiction. In addition, the benefits to politicians may occur in the face of preferences of (hypothetical) well-informed voters. The cost to politicians of displeasing some voters on the merits may be outweighed by other benefits to politicians, such as the ability to raise campaign funds or otherwise share rents with the factory owners, workers, and others who benefit from the facility.

3. State-Firm and State-State Strategic Interactions

Both the siting of a plant and the promulgation of a regulation can be thought of as a negotiation between industry and the state. The competitive models implicitly assume that both firms and states are perfect negotiators-- they take only actions that are in their self interest and they never make mistakes. The suggestion here is that the results of such negotiations are likely to be skewed in favor of the firms. The suggestion rests on two plausible hypotheses. First, there is less uncertainty about expected profits to the firm than there is about the expected value to the state of fuzzily- defined goals such as environmental protection or other aspects of social welfare. Second, markets impose tighter discipline on firms than on jurisdictions. The combined effect of these two hypotheses is that state decision-makers have more leeway than corporate negotiators to deviate from their principals' goals--"mistakes" are less easy to detect by the principals and less likely to be corrected by market action.

To illustrate these points, consider a firm that is deciding whether to open a facility in the state, or whether to threaten to leave the state if an environmental regulation is promulgated. If the state takes too strict a stance--demanding too much--the firm will do its relatively accurate calculation and decide not to do business in the state. However, if the state takes too lenient a stance--not demanding as much environmental protection as the firm would tolerate--the firm will jump at the chance. In short, the outcome will be skewed in favor of the party that can more accurately measure the implications of a proposed deal. As a particularly worrisome application, the lack of precise market discipline on states creates the possibility that firms will migrate to a subset of states that greatly under-values the environment. [\[FN126\]](#)

***104** Once the potential for such negotiating mistakes is understood, it is possible to understand how the traditional prisoner's dilemma model may indeed play some role in how competition among states would operate. As discussed above, [\[FN127\]](#) firms have strong incentives even within an island jurisdiction to seek to relax environmental regulations, [\[FN128\]](#) and island states have the incentive to encourage firms to expand when the benefits from higher production outweigh the environmental costs. The state's temptation to relax environmental rules may be greater with the onset of competition, because a firm's threat to move to another state may be more credible

than its threat in the island jurisdiction to reduce production. As in the traditional prisoner's dilemma, a state may relax environmental rules in order to keep the existing firm and attract firms from other states.

The dynamic of firm-state interaction, however, would seem to be much the same in the island and competitive settings. The firm will seek to relax environmental controls. The state decision-maker will attempt to determine, under great uncertainty, how much production will be affected for any increment of environmental protection. If the state decision-maker tries to estimate the likely actions of other states and the effects of those actions, additional and difficult measurement problems will be introduced. This image of mismeasurement and uncertainty differs notably from the usual specification of a prisoner's dilemma, with its crisp payout matrix and dominant strategy.

In a situation of such uncertainty, the perception of a prisoner's dilemma may well be more important than whether one actually exists. [\[FN129\]](#) As before, the assumption is that market discipline on state decision-makers is not very strict. In such a case, state decision-makers can persistently act on their beliefs, including a mistaken belief that the state's dominant strategy is to relax environmental rules. In the alternative, decision-makers can claim to believe in a prisoner's dilemma, as a politically-acceptable excuse for favoring industry at the expense of the general public. In short, a prisoner's dilemma may exist, or the perception of one may exist, but neither is necessary to the possibility that a variety of measurement and public choice effects are pushing states toward a lower level of environmental protection than their citizens would ***105** prefer.

V. NIMBY as the Race to the Bottom in Reverse

Section IV explains how a variety of market failures can produce a Race to Undesirability and a Race to Laxity in environmental law. The discussion thus far, however, has omitted one well-known mechanism for passing strict environmental laws--the NIMBY (Not In My Back Yard) effect. How can environmentalists so often assert that competition leads to excessive development (through a Race to the Bottom), when jurisdictions often keep development out (through NIMBY)? [\[FN130\]](#)

To answer this question, it is necessary to clarify how NIMBY works. NIMBY can sometimes occur when a jurisdiction accurately reflects the preferences of its citizens, but there is a particular sort of externality. Usually in environmental law we think of the external costs of pollution, such as when an upwind factory pollutes a downwind state. By contrast, NIMBY can arise where there are external benefits from siting a facility. In this instance, the costs to local residents, such as the bad odor from a waste facility, exceed the local benefits, such as jobs. In such a case the region as a whole might benefit from the facility but the local jurisdiction would not. NIMBY is then a rational decision by the locality not to suffer costs for the benefit of other jurisdictions. [\[FN131\]](#)

Public choice effects can powerfully accelerate the likely magnitude of this externality effect. The key insight is that NIMBY occurs when there is the reverse of the usual interest-group pattern in environmental law. The general pattern, discussed above, is that industry will suffer visible and concentrated costs of regulation (or visible and concentrated benefits from developing a facility), industry will have Olson advantages in organizing to protect itself from regulation (or advantages in organizing to gain the benefits of the facility), and politicians will benefit from aligning with industry in opposition to burdensome regulation (or in favor of development). This pattern leads to the under-provision of environmental law.

In NIMBY situations, by contrast, the environmental costs of the facility become salient. In the classic example of a malodorous dump site, the neighbors suffer visible and concentrated costs, such as physical unpleasantness ***106** and lower property values. These neighbors are geographically close to each other and easy to identify, so they face unusually low organization costs. Politicians in the locality are held to account for the high-visibility issue of siting the dump, and thus have incentives to align against the dump.

We can thus understand NIMBY as the Race to the Bottom in reverse. In the Race to the Bottom, a Race to Laxity and Race to Undesirability occur due to market failures such as measurement and public choice problems. In NIMBY, by contrast, a Race to Strictness and Race to Undesirability occur, again due to externality and public choice problems. The intense preferences of people near the dump, combined with the possibility that the locality suffers net costs from development, may lead to the exclusion of even a facility with positive net benefits.

Understanding the Race to the Bottom and NIMBY in this way helps us understand important patterns in local environmental decisions, where people's "back yards" are especially noticeable. Either the Race to the Bottom or NIMBY, or both, might occur in a particular setting. Where the benefits of development are salient--with visible and concentrated benefits to industry and politicians--then public choice effects tend toward laxity. Where the costs of development are salient--with visible and concentrated costs on neighbors and consequent effects on politicians--then public choice effects tend toward strictness. When both the costs and benefits of development are salient, or when they are equally salient, we might expect a see-saw battle between interests favoring and opposing development. This see-saw pattern is indeed very familiar in environmental issues, such as in zoning battles between developers and community groups. The concentrated benefits of development (tending toward a Race to the Bottom) are matched by the concentrated costs of development (tending toward NIMBY). The outcome in any particular setting depends on the balance of political power.

In conclusion, this understanding of NIMBY makes it clear how competition among jurisdictions can lead to undesirably strict outcomes, such as may occur when the costs of a facility are geographically concentrated and highly salient. In other instances, NIMBY can desirably offset an otherwise-powerful public choice tendency to be too lax. Whatever the balance of political forces, however, this

understanding of NIMBY reinforces a central conclusion of the Article--that public choice effects are crucial to understanding competition among jurisdictions in environmental law, and that any model that assumes away public choice effects will provide a bad fit for how competition actually works. [\[FN132\]](#)

*107 Conclusion

This Article began by describing the confusion that has plagued discussions of the Race to the Bottom, in environmental law and more generally. To clarify that question, this Article showed different ways in which the terms "Race to the Top" and "Race to the Bottom" are used. As a descriptive matter, competition might create a Race to Strictness or to Laxity. As a prescriptive matter, the result might be a Race to Desirability or Undesirability.

Having clarified the vocabulary, this Article then turned to the issue of how competition among jurisdictions tends to operate in environmental law. It focused on competition among states, although much of the analysis is similarly applicable to competition among nations. [\[FN133\]](#) As shown in Table Three, the effort here has been to clarify the conditions under which each of several models is most useful. The traditional account emphasized a prisoner's dilemma model, in which states, acting strategically, lower their environmental standards to a suboptimal level in an effort to attract industry. In critique of the prisoner's dilemma model, Richard Revesz has offered a sophisticated argument for the general virtues of competition. Relying on formal economic models, Revesz claims that competition "can be expected to produce an efficient allocation of industrial activity among the states," [\[FN134\]](#) and that the Race- to-the-Bottom hypothesis, "though influential, lacks a sound theoretical basis." [\[FN135\]](#)

This Article has argued that these claims for competition are far too sweeping, because they are based on restrictive and counter-factual assumptions. There are important ways in which even an island jurisdiction may protect the environment less than its citizens desire. State decision-makers face pervasive measurement problems, which arise in ways that tend to skew the public choice effects in favor of industry.

Other market failures can become prominent once competition exists. Not only are interstate externalities likely to be substantial, but Revesz has not shown the prisoner's dilemma model to be inapplicable. Instead, he has simply assumed away the possibility that state decision-makers could make the kind of sub- optimizing decisions that are characteristic of the Dilemma. Once public choice effects are considered, the prisoner's dilemma model may once again *108 offer useful insights into the competitive process. More generally, given the array of possible market failures and their likely importance in environmental law, there are solid grounds for suspecting that competition will often lead to a Race to Laxity and a Race to Undesirability.

Other models suggest that competition in the environmental area will produce a Race to Strictness in certain well-defined situations. David Vogel's "California effect" emphasizes how a large, green jurisdiction can sometimes encourage desirable, strict standards as a condition of offering access to its market. [\[FN136\]](#) This paper, however, has argued that this effect pertains to a limited subset of product standards and will not apply to the vast bulk of environmental laws, such as those covering ambient quality standards, pollution from stationary sources, or protection of natural resources. In addition, the interpretation here of the NIMBY effect showed that a Race to Strictness and a Race to Undesirability can occur in situations where the usual public choice dynamic is reversed, and the environmental costs of development are more politically salient than the economic benefits. [\[FN137\]](#)

This review of the several models portrayed in Table Three shows that competition among jurisdictions in environmental law can lead to laxness or strictness, desirability or undesirability, depending on the factual setting. Notice, however, that the California effect, NIMBY, and my conclusion that there is often a Race to Undesirability are all premised on the importance of public choice effects.

The next task, not undertaken here in detail, would be to assess the relative ability of states and the federal government to correct for public choice problems. The public choice analysis in this article has explained reasons to expect both levels of government to under-provide environmental law, compared with the baseline of what voters prefer. To the extent under-provision is a problem, there is an important argument to have both federal and state law, so that either level of government can correct for periodic or systematic failures at the other level. The argument for dual regulation is especially strong when considering the destruction of irreplaceable natural resources, or concerning other long-term or irreversible effects on the environment. In such circumstances, dual regulation reduces the likelihood that polluters can temporarily "capture" one level of government and cause long-term societal harm.

In comparing state and federal regulation, some important disabilities apply more acutely at the state level. Interstate externalities can tempt a state to push pollution downwind, and the very perception of a Race to the Bottom can push decisionmakers to lower standards in an effort to attract businesses. Regulating at the national level internalizes many of the interstate externalities and reduces the strategic interactions among states.

In light of the straightforward public choice analysis presented here, the puzzle remains how environmental protection ever succeeds in the political process. It is abundantly clear that many environmental rules have been promulgated in recent decades, and complaints have mounted that we achieved over-protection of the environment, rather than the under-protection predicted by the theory. Answering this puzzle well would require another article, but a few thoughts may be helpful.

In explaining the puzzle, I am inclined to emphasize the ways that environmental issues have occasionally become highly salient at the national level. National media events have often spurred passage of environmental laws, such as the burning of the Cuyahoga River before passage of the 1972 Clean Water Act, Love Canal before passage of the Superfund law in 1980, and the Exxon Valdez spill before passage of the Oil Pollution Act of 1990. As explained in the theory of Michael Levine and Jennifer Forrence, [FN138] periods of high salience are an important way that the preferences of a majority of voters can overcome the interests of concentrated groups, such as polluters. This salience approach has at least three important consequences for future research. First, my estimate is that salience is more likely to occur at the national level, in light of the existence of national media markets, than at the state level of government, with its less intensive media scrutiny. If so, the case for federal regulation is strengthened. Second, where laws are passed due to high salience and vindication of the preferences of the majority, federal environmental regulation contributes to the overall goal of meeting citizen preferences. Finally, periods of high salience also might produce overzealous regulation. In choosing between repealing and retaining federal regulation, there are two possibilities. One is the possibility of systematically overzealous federal regulation--in a setting where concentrated industry groups should be expected to have so many advantages. The much more real possibility is that regulation at the federal level will reduce the undesirability of state competition, as explained in this Article.

Table 3:

Competition Among Jurisdictions in Environmental Law

	<u>Race to Strictness</u>	<u>Race to Laxity</u>
Race to Desirability:	"California Effect" of Vogel (but sometimes is undesirable protectionism)	Revesz (assumes no: <ul style="list-style-type: none"> • measurement problems • externalities • game theory problems • other public choice problems)
Race to Undesirability:	NIMBY (but sometimes is desirable public choice counter to pro-development interests)	Swire and traditional Race to the Bottom (often have the market failures in environmental setting) (separate question whether centralized approach is better)

Footnotes:

FNd. Associate Professor, Ohio State University College of Law; swire.1@osu.edu. Jody Kraus, Saul Levmore, and Paul Mahoney were especially generous in conversation during the course of this project. My thanks to Daniel Farber, Alvin Klevorick, Richard Lazarus, Deborah Merritt, Joshua Sarnoff, Rene Todd, and participants at the Yale symposium for their comments on earlier drafts. Greg Evans and Lisa Hoffman provided fine research assistance. This project was researched and written with support from the University of Virginia Law School Foundation.

FN1. Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 *Yale L.J.* 1196 (1977).

FN2. See, e.g., Edmund Muskie, *The Role of the Federal Government in Air Pollution Control*, 10 *Ariz. L. Rev.* 17 (1968).

FN3. Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-To-The-Bottom" Rationale for Federal Environmental Regulation*, 67 *N.Y.U. L. Rev.* 1210, 1212 (1992).

FN4. See, e.g., *GOP Sets the 104th Congress on New Regulatory Course*, 53 *Cong. Q.* 1693-1700 (June 17, 1995) (discussing proposed changes to Clean Water Act, Endangered Species Act, and other environmental statutes); *Oxley Treads a Fine Line in Revising Superfund*, 53 *Cong. Q.* 2989 (Sept. 30, 1995) (discussing proposed changes in Superfund law).

FN5. For a similar discussion of substance and process, as applied to the debate on whether state incorporation law leads to a Race to the Bottom, see Lucian A. Bebchuck, *Federalism and the Corporation: The Desirable Limits on State Competition in Corporate Law*, 105 *Harv. L. Rev.* 1435 (1992).

FN6. "Like a sleeper wave tossing dead fish far up on the shore, last November's electoral tsunami deposited a spectacular collection of stinkers in high places throughout the halls of Capitol Hill and America's statehouses." Paul Rauber & B.J. Berman, *Stump Speeches: Anti-environmentalism of Legislators Elected in Nov. 1994*, *Sierra*, May 1995, at 24.

FN7. For instance, House majority whip Tom DeLay has said: "The EPA, the Gestapo of government, pure and simply has been one of the major claw-hooks that the government has maintained on the backs of our constituents." James Gerstenzang, *GOP Clouds the Future of Environmental Protection*, *L.A. Times*, Dec. 24, 1995, at A1.

FN8. David Vogel, *Trading Up: Consumer and Environmental Regulation in a Global Economy* 259 (1995); see *infra* Section II.

FN9. See *infra* text accompanying notes 97-104 (analyzing model relied upon by Revesz).

FN10. In light of the importance of public choice effects, the next task is to compare how public choice failures operate at the state and national level. Although the public choice analysis here suggests that all levels of government will tend to under-protect the environment compared to citizen preferences, a theory must be developed to explain the large body of environmental law which has developed in the past quarter-century.

FN11. Using the search term "Race w/3 Bottom," a database search of law reviews found 221 references in the corporations area, compared with 31 environmental references, 34 in securities, 16 in labor, 7 in tax, and smaller numbers in various areas including product liability, welfare, and bankruptcy. LEXIS, Lawrev library, Allrev file (Jan. 9, 1996). Many other articles were excluded from this list because they did not apply to the subject of this Article.

FN12. Charles W. McCurdy, *The Knight Sugar Decision of 1895 and the Modernization of American Corporation Law, 1869-1903*, 53 *Bus. Hist. Rev.* 304, 340 (1979) (quoting 1904 Report of Commissioner of Corporations). For an early academic condemnation of the effects of state competition, see Raymond T. Zillmer, *State Laws: Survival of the Unfit*, 62 *U. Pa. L. Rev.* 509 (1914).

FN13. *Liggett Co. v. Lee*, 288 U.S. 517, 558-59 (1933) (Brandeis, J., dissenting) (footnote omitted).

FN14. William L. Cary, *Federalism and Corporate Law: Reflections Upon Delaware*, 83 *Yale L.J.* 663, 665-66 (1974); see also Melvin A. Eisenberg, *The Modernization of Corporate Law: An Essay for Bill Cary*, 37 *U. Miami L. Rev.* 187, 188-91 (1983); Donald E. Schwartz, *Federalism and Corporate Governance*, 45 *Ohio St. L.J.* 545, 548-51 (1984).

FN15. Cary, *supra* note 14, at 701.

FN16. Ralph K. Winter, Jr., *State Law, Shareholder Protection, and the Theory of the Corporation*, 6 *J. Legal Stud.* 251, 251 (1977).

FN17. See, e.g., *id.*; Frank H. Easterbrook, *Managers' Discretion and Investors' Welfare: Theories and Evidence*, 9 *Del. J. Corp. L.* 540, 549-50 (1984); Daniel R. Fischel, *The "Race to the Bottom" Revisited: Reflections on Recent Developments in Delaware's Corporation Law*, 76 *Nw. U. L. Rev.* 913, 919-20 (1982).

FN18. It is perhaps no coincidence that Professors (now Judges) Winter and Easterbrook had worked extensively in the "Chicago School" of antitrust law before writing about the advantages of interstate competition. One feature of this law-and-economics approach to antitrust law is a belief that cartels pose less threat to consumers than had generally been presumed, except when the cartel is enforced by the state. A federal minimum standard, such as in corporations law, is precisely the sort of enforced cartelization that might most effectively and permanently prevent gains from competition among the states.

In the environmental area, Revesz similarly assumes the ordinary superiority of competition, and examines the extent to

which states competing for industrial firms are similar to ordinary product markets. Revesz, *supra* note 3, at 1233-35. He concludes that Race-to-the-Bottom advocates should have "the burden of identifying the relevant differences between the two markets and explain[] why they turn otherwise desirable competition into a Race to the Bottom." *Id.* at 1235 (footnote omitted).

FN19. Winter suggested other markets that would constrain opportunism by management, notably markets for products and services supplied by the corporation. Winter, *supra* note 16, at 264.

FN20. See Bebchuck, *supra* note 5, at 1455 & n. 78 (finding consensus among corporations scholars about goal of corporations law).

FN21. Efficiency is used here in the Kaldor-Hicks sense. See Richard Posner, *Economic Analysis of Law* 13-16 (4th ed. 1992). Maximizing share value would not be considered efficient to the extent that there were costs imposed on third parties. In most of the Race to the Bottom literature in the corporations context, scholars have at least implicitly assumed that there are not important externalities. See Bebchuck, *supra* note 5, at 1456, 1485-95 (noting this assumption and discussing categories of costs potentially imposed on third parties).

FN22. Stewart, *supra* note 1, at 1212; see also Revesz, *supra* note 3, at 1210 n.1.

FN23. See Revesz, *supra* note 3, at 1254 (finding interstate competition "generally beneficial").

FN24. *Id.* at 1234 (contrasting lower standards under competition with "supra- competitive price for location rights" charged by an island jurisdiction).

FN25. I do not mean to take any strong position on what this lax baseline of "no intervention" would look like for environmental law or any other area. I do not pretend that there is a neutral and natural market economy, into which the state episodically intrudes. The point, instead, is to understand as a linguistic matter what people mean by saying "Race to the Bottom." Repeal of all clean air and clean water statutes would be far closer to the "bottom" than our current regime. Limits on the common law of nuisance would push the regime even further toward the "bottom." Roughly speaking, the "bottom" is where the regime gives no weight to the value of environmental protection. (Encouraging pollution for its own sake would be even lower than the bottom, a sort of subterranean hell.)

The imprecise nature of the baseline does not make the concept of the baseline unusable. Consider Wittgenstein:

If I tell someone "Stand roughly here"--may not this explanation work perfectly? And cannot every other one fail too? But isn't it an inexact explanation?--Yes; why shouldn't we call it "inexact"? Only let us understand what "inexact" means. For it does not mean "unusable."

Ludwig Wittgenstein, *Philosophical Investigations* s 88 (G.E.M. Anscombe trans., 1973).

FN26. See *infra* Part II.

FN27. See Revesz, *supra* note 3, at 1210-11 n.2 (citing sources); see also *infra* text accompanying notes 97-104 (analyzing model relied upon by Revesz).

FN28. See *supra* note 21.

FN29. Revesz himself focuses on game-theoretic market failures which arise from a prisoner's dilemma among competing states. Revesz assumes away several other crucial market failures, including measurement problems, externalities, and public choice problems. Measurement problems arise because decision-makers face difficulties in assessing the costs and benefits of regulation. Externalities arise when pollution spills over from one state into another. Public choice problems are problems that cause state policies to diverge from those its citizens would most desire.

FN30. Ronald H. Coase, *Economics and Contiguous Disciplines*, 7 *J. Legal Stud.* 201, 209 (1978); see also James Q. Wilson, *The Politics of Regulation*, in *The Politics of Regulation* 362 (James Q. Wilson ed., 1980) (asserting that political choices are made "in a setting that does not usually permit monetary (or quantitative) values to be assigned to our competing preferences in any nonarbitrary way").

FN31. For instance, environmental laws regulate air pollution (e.g., the Clean Air Act), water pollution (e.g., the Clean Water Act), land pollution (e.g., CERCLA), and effects on wildlife and natural systems (e.g., the Endangered Species Act). Rarely are there well-defined markets that measure the price that those subject to pollution would be willing to pay to prevent the pollution or willing to accept to permit the pollution.

FN32. For views general skeptical about the usefulness of cost/benefit or risk/benefit analysis in environmental law, see for example Donald T. Hornstein, *Reclaiming Environmental Law: A Normative Critique of Comparative Risk Analysis*, 92 *Colum. L. Rev.* 562 (1992); Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 *Colum. L. Rev.* 1613 (1995); see also Alyson C. Flournoy, *Legislating Inaction: Asking the Wrong Questions in Protective Environmental Decisionmaking*, 15 *Harv. Env. L. Rev.* 327, 327 n.1 (1991) (listing sources that deal with measurement uncertainties in environmental regulatory decisions).

FN33. See, e.g., S. Rep. No. 1282, 91st Cong., 2d Sess. 144 (1970) ("[I]n a state-by-state approach, the efforts of the more vigorous states are inevitably undermined by the shortsightedness of others.").

FN34. See generally Stephen B. Wood, *Constitutional Politics in the Progressive Era: Child Labor and the Law* (1968).

FN35. *Id.* at 9.

FN36. The federal Fair Labor Standards Act, which limited child labor, was upheld in *United States v. Darby Lumber Co.*, 312 U.S. 100 (1941), and remains in effect today. 29 U.S.C. ss 201-19 (Supp. 1996).

FN37. For discussion of welfare reform and the effects of greater interstate competition, see R. Shep Melnick, *Federalism and the New Rights*, in *Yale Journal on Regulation* on *Regulation/Yale Journal*, Symposium: *Constructing a New Federalism* 325 (1996) [hereinafter *Constructing a New Federalism*]; Jerry L. Mashaw & Dylan S. Calsyn, *Block Grants, Entitlements, and Federalism: A Conceptual Map of Contested Terrain*, in *Constructing a New Federalism*, *supra*, at 297; Paul E. Peterson, *Devolution's Price*, in *Constructing a New Federalism*, *supra*, at 111; Stephen D. Sugarman, *Welfare Reform and the Comparative Federalism of America's Public Income Transfer Programs*, in *Constructing a New Federalism*, *supra*, at 123; see also Colleen M. Grogan, *Commentary: Block Grants and the Meaning of Entitlements*, in *Constructing a New Federalism*, *supra*, at 355.

FN38. It is also possible to believe that competition among jurisdictions will increase the level of benefits over time.

FN39. For instance, they may believe that benefit levels will be somewhat lower, but that a more flexible state bureaucracy will do a significantly better job of getting benefits to appropriate persons. I am not seeking to take a position on welfare reform, but only to clarify the descriptive and prescriptive components of state competition.

FN40. The pre-Race status quo may be formed by existing federal rules, or may occur for other reasons. For instance, competition among the states may increase over time, as seem to have happened when New Jersey and Delaware innovated in order to garner incorporation fees, and relaxed their chartering rules in the late Nineteenth and early Twentieth Century.

FN41. See Robert M. Ackerman, *Tort Law and Federalism: Whatever Happened to Devolution?*, in *Constructing a New Federalism*, *supra* note 37, at 429; James F. Blumstein, *A Perspective on Federalism and Medical Malpractice*, in *Constructing a New Federalism*, *supra* note 37, at 411; Thomas A. Eaton & Susette M. Talarico, *Testing Two Assumptions About Federalism and Tort Reform*, in *Constructing a New Federalism*, *supra* note 37, at 371; Gary T. Schwartz, *Assessing the Adequacy of State Products Liability Lawmaking*, in *Constructing a New Federalism*, *supra* note 37, at 359.

FN42. The intent is to clarify the nature of the tort reform debate, and to show how that debate fits into the more general analysis of Races to the Bottom. I do not intend to take a position on the merits of the tort reform arguments.

FN43. Then again, one might conclude that state competition leads to a Race to Desirability, if other benefits from competition outweigh its disadvantages.

FN44. David Vogel, *Trading Up: Consumer and Environmental Regulation in a Global Economy* 259 (1995).

FN45. See generally Joel R. Paul, *Free Trade, Regulatory Competition, and the Autonomous Market Fallacy*, 1 *Colum. J. Eur. L.* 29 (1994/95) (discussing regulation of packaging waste in European Union).

FN46. See Anthony Ogus, *Regulation: Legal Form and Economic Theory* 177-179 (1994) (discussing Race to the Top for product regulations in European Union). Although Ogus uses this as an example of a Race to Strictness, he does acknowledge that a Race to Laxity can occur if consumers are unable to evaluate cost-quality tradeoffs. *Id.*

FN47. Because Vogel's book gives the most extensive account, the comments here will focus on his work.

FN48. Similarly, the Race to Strictness offers little reason to abandon efforts to achieve harmonization of minimum standards among nations that are trading partners. The analysis proceeds in much the same way at the national and international level, and this Article focuses on competition among the states.

FN49. Vogel, *supra* note 44, at 6.

FN50. The jurisdictions might agree among themselves on stricter standards, via an interstate compact or treaty. The jurisdictions might also be subject to a minimum standard set by a higher authority, such as a rule set by the United States government or the European Union. The discussion in the text focuses on whether a Race to Strictness will occur in the absence of such agreements or rules set by a supra-jurisdictional authority.

FN51. Vogel, *supra* note 44, at 6.

FN52. *Id.*

FN53. If the product costs far more in the greener jurisdiction, due to the stricter standard, then producers will retain their argument that the standard is not achievable at reasonable cost.

FN54. Most federal environmental statutes explicitly link the level of control to technological achievability. E.g., 42 U.S.C. s 9621(d)(4)(C) (not requiring strict Superfund cleanup standards where compliance is "technically impracticable"); 33 U.S.C. s 1316(a)(1) (making Clean Water Act standards of performance depend on "best available demonstrated control technology"). Other statutes take the costs and benefits of regulations even more explicitly into account. E.g., 15 U.S.C. s 2606. See also *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991) (striking down EPA regulation under Toxic Substances Control Act for failure to calculate costs and benefits of regulation properly).

FN55. *Motor Vehicle Mfrs. Ass'n v. New York State Dep't of Env'tl. Conservation*, 17 F.3d 521 (2d Cir. 1994).

FN56. These actions by the eastern states give little reason, however, to believe that environmental improvements will happen without federal minimum standards. First, the eastern states acted under the Northeast Ozone Transport Commission, which was itself established by the federal Clean Air Act. 42 U.S.C. s 184. A federal statutory provision thus created the institution that fostered the stricter standards.

Second, the presence of strict federal rules and state implementation plan requirements was a strong motivation for the states' action. *Motor Vehicle Mfrs. Ass'n*, 17 F.3d at 529. In the absence of the federal requirements, it is far from clear that states would have followed the California standards.

Third, despite their initially unanimous support, several states have more recently opposed the inclusion of stricter standards in their state implementation plans. Robert V. Percival et al., *Environmental Regulation: Law, Science, and Policy* 340 (Supp. 1995). This state opposition reinforces fears that stricter environmental standards will not occur absent federal requirements.

FN57. More precisely, cleaner air would be more desirable if the incremental benefits of the regulation, such as public health improvement, outweigh the incremental costs, such as the added expense of cleaner cars.

FN58. Vogel also worries trade protectionism might result from a coalition of producers, who gain economic benefits, and environmental groups, who gain the less tangible benefits of stricter environmental controls. Vogel, *supra* note 44, at 20. Bruce Yandle has given the colorful name of "Bootleggers and Baptists" to this sort of coalition, drawn from the groups that supported Sunday closing laws for bars and liquor stores. Bruce Yandle, *Bootleggers and Baptists*, *Regulation*, May/June 1983, at 12, 13. Bootleggers apparently sought to suppress competition for their product, while Baptists opposed sales of alcohol on moral grounds.

FN59. For a standard economic treatment of trade protectionism, see Charles P. Kindleberger & Peter H. Lindert, *International Economics* 107-29 (6th ed. 1978). Foreign producers may also lose their market share, creating the possibility of trade wars and further losses in efficiency.

FN60. More precisely, the cleaner air would be more desirable if the incremental benefits of the regulation, such as public health improvement, outweigh the incremental costs, such as the added expense of cleaner cars.

FN61. Vogel, *supra* note 44, at 20-22; see also Richard B. Stewart, *International Trade and Environment: Lessons From the Federal Experience*, 49 *Wash. & Lee L. Rev.* 1329, 1333-45 (1992) (discussing product/process distinction).

FN62. "Where the statute regulates evenhandedly to effectuate a legitimate local public interest, and its effects on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits." *Pike v. Bruce Church, Inc.*, 397 U.S. 137, 142 (1970). Facially neutral standards may be struck down if their effect is clearly to discriminate against out-of-state commerce. See, e.g., *Kassel v. Consolidated Freightways Corp.*, 450 U.S. 662 (1981); *Southern Pac. v. Arizona ex rel Sullivan*, 325 U.S. 761 (1945).

FN63. The exception would be if the product standard appeared to be a pretext for discrimination against out-of-state articles

of commerce. See *Pike*, 397 U.S. at 142.

FN64. See, e.g., *Oregon Waste Sys. v. Department of Env'tl. Quality*, 114 S. Ct. 1345 (1994); *Chemical Waste Management v. Hunt*, 112 S. Ct. 2009 (1992); *Fort Gratiot Sanitary Landfill v. Michigan Dep't of Natural Resources*, 112 S. Ct. 2019 (1992).

FN65. Article XX of the GATT authorizes measures "necessary to protect human, animal or plant life or health" or "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption." General Agreement on Tariffs and Trade, Oct. 30, 1947, art. 20, 61 Stat. A3, A60-62, 55 U.N.T.S. 187, 262-64. Article XX also bans measures that are an "arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade." *Id.*

The leading case under GATT involved a process standard promulgated by the United States, that attempted to ban imports of tuna that were caught through a process that posed a high risk to dolphins. GATT: United States Dispute Settlement Panel Report on Restrictions on Imports of Tuna, GATT Doc. DS21/R, reprinted in 30 I.L.M. 1594 (1991). The GATT panel report has been understood to permit member nations to regulate products, but not production processes used outside of the nation. See, e.g., Comment, *Legitimizing "Environmental" Legislation Under the GATT in Light of the Cafe Panel Report: More Fuel for Protectionists?*, 57 U. Pitt. L. Rev. 79, 93 (1995).

FN66. See, e.g., 42 U.S.C. s 7411 (Clean Air Act restrictions on emissions from new stationary sources); 33 U.S.C. s 1311 (Clean Water Act effluent limitations); 42 U.S.C. s 6921 (Resource Conservation and Recovery Act limits on generators of hazardous waste). Similarly, the workplace safety protections under the Occupational Safety and Health Act, including the protections against exposure to toxics, would be process standards not subject to the California effect. 29 U.S.C. s 655(b)(5).

FN67. See, e.g., 42 U.S.C. s 7409 (Clean Air Act setting of national ambient air quality standards); 33 U.S.C. s 1313 (Clean Water Act water quality standards); 42 U.S.C. s 9621 (Superfund cleanup standards).

FN68. See *supra* note 65.

FN69. 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, 1244-53 (1995) (explaining lack of protection of wetlands if left to local or state governments).

FN70. More precisely, if there is a high elasticity of demand for sales of the product in-state, then the strict standard will be less effective at generating the California effect.

FN71. This statement would hold true if the California law applies only to sales of the product within California. The California effect could remain more environmentally effective if any product used in California had to comply with the standard--for example, if cars were required to pass a special California inspection. Post-purchase inspections, however, apply to only a small subset of all products such as cars.

FN72. Residents of New York City and many of its suburbs are within a short distance of New Jersey or Connecticut.

FN73. Oil Pollution Act of 1990, Pub. L. No. 101-380, s 4115, 1980. The Act requires a phasing-in over a number of years of double hulls for all tankers shipping oil into the United States.

FN74. Examples of products meeting these stringent conditions may include consumer products with labelling requirements, or state-imposed maximums on pesticide residues.

FN75. If the strictness were inefficient, for example, because the protectionist costs outweighed the environmental benefits, then relaxing federal minimum standards might be desirable.

FN76. 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, 1375 n.9 (1995) (listing provisions).

FN77. There is one scenario, which seems unlikely to occur, where federal minimum standards could impede beneficial competition to strictness. Suppose that a state enacts a strict product control, perhaps a seven on a scale of one to ten. Suppose further that the federal government enacts a weaker standard, such as a five. It is possible that the coalition supporting regulation would be able to enact the seven compared to a status quo of no regulation, but that the coalition would fail to enact the regulation when compared with the somewhat strict federal standard of five. In this scenario, the existence of a minimum federal standard would indeed result in a less-strict state standard. Even if this somewhat surprising scenario were to exist, however, the federal minimum standard would still be preferable if the benefits of a nationwide standard of five outweighed the costs of one or more states failing to enact stricter standards.

FN78. Revesz, *supra* note 3, at 1211-12. He continues that "federal regulation aimed at dealing with the asserted Race to the Bottom, far from correcting evils of interstate competition, is likely to produce results that are undesirable." *Id.* at 1212.

FN79. *Id.* at 1244.

FN80. *Id.* at 1214.

FN81. *Id.* at 1214-15.

FN82. *Id.* at 1216.

FN83. It takes a bit of imagination to explain how the states suddenly come into competition with each other. The simplest possibility is that the states were previously subject to a federal minimum standard. Or perhaps changed circumstances have recently brought the states into a greater degree of competition, such as when certain sorts of factories become able to relocate at low cost.

FN84. Revesz assumes for expositional convenience that the total number of firms in the industry remains fixed, i.e., no new firms are created in response to the lower environmental standards. This assumption is discussed further *infra* text accompanying notes 103-04.

FN85. See James W. Friedman, *Game Theory with Applications to Economics* 39 (2d ed. 1990) (defining dominant strategy). To see why the lower standard is a dominant strategy, assume that State One keeps its standard at seven, the optimal level. State Two will then rationally cut its standard to four. State Two will benefit because, under the assumed payoffs, it gains more from having extra factories and having lower compliance costs than it loses by having dirtier air. In the alternative, if State One cuts its standard to four, then State Two will nonetheless choose the same, low standard. Otherwise, it will lose its factories to State One. State One faces the same payoffs, and so it will also choose the lower standard.

FN86. An alternative to the federal minimum standard is to have the states compact to set the optimal standard. High transaction costs, however, will prevent many desirable agreements between the states from being reached. See, e.g., Richard B. Stewart, *The Development of Administrative and Quasi-Constitutional Law in Judicial Review of Environmental Decisionmaking: Lessons from the Clean Air Act*, 62 *Iowa L. Rev.* 713, 747 (1977) (discussing high transaction costs in bargaining among states).

FN87. Revesz, *supra* note 3, at 1238-42. Wallace E. Oates & Robert Schwab, *Economic Competition Among Jurisdictions: Efficiency Enhancing or Distortion Inducing?*, 35 *J. Pub. Econ.* 333 (1988).

FN88. Revesz makes two assumptions that I also adopt here. First, he assumes that government regulation will be needed to reach the optimal level of pollution reduction, because the transaction costs of bargaining among the many firms and many breathers will prevent effective private contracts from being negotiated. Revesz, *supra* note 3, at 1214 n.6. Second, Revesz focuses on the level of pollution control, rather than on the type of regulation, such as command-and-control regulation, taxes, marketable permit schemes, or other regulatory strategies. *Id.* at 1214 & n.7. Although the type of control is a central debate in much of environmental law, it is relevant to this Article only to the extent that the choice between state and federal standards has a systematic effect on what types of controls are used. Such systematic effects may exist, and further research may reveal them. This Article, however, adopts Revesz's assumption that we can examine the strictness of controls without discussing which types of controls are employed.

FN89. *Id.* at 1214.

FN90. The model assumes that capital is perfectly mobile, but that labor is immobile and will remain in the jurisdiction. It also assumes that there is full employment, and additional capital leads to higher productivity and thus higher wages. The results remain essentially the same if the full employment assumption is dropped, in which case higher levels of capital can lead to an increase in the number of jobs in the state.

FN91. Oates & Schwab, *supra* note 87, at 339.

FN92. *Id.* at 342.

FN93. Revesz, *supra* note 3, at 1241.

FN94. *Id.* at 1242.

FN95. As explained below, they have omitted much that is crucial by assuming away measurement and public choice problems. The focus here, however, is on an analytic gap: Revesz suggests a game-theoretic market failure in the prisoner's

dilemma and refutes the possibility of the dilemma by referring to a model that assumes away all game-theoretic interactions.

FN96. See Russell Hardin, *Collective Action as an Agreeable N-Prisoners' Dilemma*, reprinted in *Rational Man and Irrational Society?* 123-35 (Brian Barry & Russell Hardin eds., 1982).

FN97. Revesz, *supra* note 3, at 1233-35.

FN98. It is true that sophisticated economists have constructed game-theoretic models in which overall efficiency is enhanced when a nation pursues something less than pure free trade. See, e.g., Laura D'Andrea Tyson, *Who's Bashing Whom?: Trade Conflict in High-Technology Industries* 258 (1992) (discussing advantages of some unilateral trade measures). These "fair trade" models are different, however, from a prisoner's dilemma model. The predominant point of the economists' strategic models is to promote free trade. Limited protectionist measures are generally justified, if at all, in order to induce other nations to come closer to a free trade regime. *Id.* at 254 (the United States "should adopt only approaches that encourage competition and trade.").

FN99. Revesz discusses this monopoly aspect of the state, *supra* note 3, at 1233-35.

FN100. Gains from competition can also result from economies of scale in production. These gains from competition will be offset by gains from centralization, such as economies of scale in environmental regulation. In light of the technical complexity of many environmental laws, regulatory economies of scale are likely to be substantial. See Daniel Esty, *Environmental Federalism*, *Mich. L. Rev.* (forthcoming 1996) (describing substantial economies of scale in environmental regulation).

FN101. In the Oates and Schwab model, labor is considered immobile, so wages would not necessarily equalize across states. Oates & Schwab, *supra* note 87, at 337. Even if this assumption is relaxed, labor likely takes far longer to move than capital. Similarly, the quality of the environment is not traded and so would not necessarily become the same in each state. What would come into equilibrium is the cost to a factory of entering each state, taking into account the wages, taxes, and level of environmental controls in that state.

FN102. The Oates and Schwab model focuses on the utility of citizens in the jurisdiction who receive wages and breathe air. *Id.* at 338. If one considers instead the firms' profits, a logical assumption for the island jurisdiction is to assume that the owners of the firm are in the jurisdiction. Any monopoly rents gained by the state are thus taken from citizens of the state, hardly the recipe for a net gain (unless one adds the special assumption that the marginal utility of a dollar to shareholders is lower than the marginal utility of a dollar to workers). The contrary assumption, that owners are from outside the jurisdiction, would come very close to contradicting another assumption of the island model, which is that capital is immobile. Put another way, it is bizarre to assume that the capital comes from outside of the island but is not permitted to enter or leave the island.

FN103. Revesz initially assumes that the level of pollution reduction does not affect the total number of firms in the market. Revesz, *supra* note 3, at 1214. He later relaxes that assumption, but discusses only that new plants will be sensitive to smaller differences in the costs of compliance among states than existing plants. *Id.* at 1221. The discussion here shows that Revesz's conclusions about the efficiency of competition becomes stronger once existing firms can expand or new firms can be created in response to reductions in environmental regulations.

FN104. This discipline imposed on the island jurisdiction by the reduction in number of firms is somewhat obscured in Revesz's account, which assumes that the number of firms is fixed for both the island and competitive jurisdictions. His account makes the somewhat implausible assumption that existing firms are willing to switch jurisdictions due to small changes in environmental standards, but lower environmental standards do not induce any new firms to enter. Revesz, *Id.* at 1214. Under such assumptions, the efficiency gains from the expansion of existing firms or the creation of new firms will not occur. More generally, if the competing jurisdictions are such that there are no economies of scale and no comparative advantages, there will not be the usual gains from trade.

Where these usual gains from trade are absent or small, there are interesting models that show that a given competitive situation can be less efficient than having barriers to trade. See, e.g., James R. Markusen et al., *Competition in Regional Environmental Policies When Plant Locations Are Endogenous*, 56 *J. Pub. Econ.* 55 (1995); James R. Markusen et al., *Environmental Policy when Market Structure and Plant Locations Are Endogenous*, 24 *J. Envtl. Econ. & Mgmt.* 69 (1993). As Revesz correctly points out, however, the strategic interactions described in the models show specific situations where competition is less efficient than other rules, but do not show any other regime to be systematically superior to competition. Revesz, *supra* note 3, at 1244.

FN105. Revesz, *supra* note 3, at 1221-22.

FN106. Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 *J. Pol. Econ.* 416 (1956).

FN107. See Alvin K. Klevorick, *The Race to the Bottom in a Federal System: Lessons from the World of Trade Policy*, in *Constructing a New Federalism*, *supra* note 37, at 177, 180, citing Truman F. Bewley, *A Critique of Tiebout's Theory of Local Public Expenditures*, 49 *Econometrica* 713 (1981).

FN108. Oates & Schwab, *supra* note 87, at 350-51. Revesz does explore one of these scenarios, the possibility of suboptimally high taxes on capital. Revesz, *supra* note 3, at 1241-42.

Oates and Schwab are consistently more careful than Revesz in their claims about the implications of the model. They observe: "The results of the analysis are admittedly somewhat mixed." Oates & Schwab, *supra* note 87, at 350. Their ultimate conclusion is also more carefully hedged: "For instances of relatively homogeneous communities where the benefits and costs of public programs are clearly understood and where public decisions reflect the well-being of the jurisdiction's residents, the analysis indicates that outcomes will tend to be roughly efficient." *Id.*

FN109. Revesz, *supra* note 3, at 1244.

FN110. See *infra* text accompanying note 138.

FN111. See *supra* text accompanying notes 28-32.

FN112. My own inclination, for instance, is to be somewhat optimistic about the usefulness of cost/benefit analysis as an aid to decision in a variety of institutional settings. At a minimum, there is merit in systematic and informed attempts to assess the consequences of different policies.

FN113. The following modest claims about cost/benefit analysis suggest some of the gaps between the assumptions and how states would actually make decisions about environmental law. First, cost/benefit analysis is expensive and time-consuming to conduct. A full cost/benefit analysis will not be available for each state decision about how to change environmental laws and write permits for each facility. Even if by enormous effort our best experts could come up with consensus estimates, that is far from the practice in state environmental agencies. Second, there are numerous "inferential bridges" where reasonable people differ about how to move from one step in the cost/benefit process to the next. See, e.g., Percival et al., *supra* note 56, at 521 (discussing some 50 steps in risk assessment process at which choice is required among scientifically plausible assumptions). Third, the problems of valuation are more acute in environmental law than in many other areas, because such a large fraction of the issues involve items for which there is no available market price--the benefits of clean air, pristine locations, preservation of species, etc. The debates about contingent valuation, and about whether to use willingness to pay or willingness to accept, are simply two of many deep disagreements that exist about how to measure citizens' preferences about the environment. Finally, an additional layer of disagreement exists about whether the preferences of current citizens is the normatively correct desideratum of environmental law.

FN114. Indeed, there is a strong argument that people usually will not have pre-formed preferences on a topic such as how they would trade a particular likelihood of higher wages against particular sorts of new pollution in their state. See, e.g., Cass R. Sunstein, *Endogenous Preferences*, *Environmental Law*, 22 *J. Legal Stud.* 217, 247-53 (1993).

FN115. Oates & Schwab, *supra* note 87, at 350.

FN116. For one discussion of how greater slack produces more acute public choice problems, see Michael E. Levine & Jennifer L. Forrence, *Regulatory Capture, Public Interest, and the Public Agenda: Toward a Synthesis*, 6 *J.L. Econ. & Org.* 167 (1990).

FN117. Market failures arising from strategic interactions often exist in the absence of public choice problems, such as where individuals rather than states are the players involved in strategic interactions. Strategic interactions are included within the public choice discussion here in order to highlight the ways that strategic interactions can contribute to the failure of decisionmakers to follow citizens' preferences.

In considering the effects of public choice problems, the analysis here applies both to particular and general aspects of environmental law. The particular aspect refers to the siting of individual firms. A firm might receive a package of incentives to attract or retain a particular facility, including environmental permits for that facility. The general aspect refers to the promulgation of environmental rules of more general applicability, such as a state-wide limit on emissions from a type of facility. Some public choice problems arise especially in one setting or the other, but the tendency to under-protect the environment can occur in either or both ways.

FN118. The economic theory on which Revesz relies "holds that the socially optimal level of pollution reduction is the level

that maximizes the benefits that accrue from such reduction to the individuals who breathe the polluted air, minus the costs of pollution control." Revesz, *supra* note 3, at 1214 (emphasis added). Revesz assumes, for purposes of his analysis of the Race to the Bottom, that there are no interstate externalities. *Id.*

FN119. See, e.g., Henry Butler & Jonathan Macey, Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority, in *Constructing a New Federalism*, *supra* note 37, at 23.

FN120. See generally Edith Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony, and Inter-Generational Equity* (1989) (arguing that intergenerational equity requires national and international responses).

FN121. See generally Esty, *supra* note 100.

In addition, it is worth making explicit how the existence of externalities is itself an implicit form of public choice failure. Economists are generally ready to acknowledge that costs incurred outside of the jurisdiction will be heavily or entirely discounted by decision-makers in the jurisdiction. Revesz follows this pattern, assuming that costs incurred within the state are perfectly reflected in the state's decisions, but that costs incurred outside of the state are given no weight at all.

FN122. For an illustration of how cohesive groups can contribute to the Race to Laxity in corporations law, see generally Jonathan R. Macey & Geoffrey P. Miller, *Toward an Interest-Group Theory of Delaware Corporate Law*, 65 *Tex. L. Rev.* 469 (1987).

FN123. See generally Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (1965).

FN124. See Laurence H. Tribe, *Technology Assessment and the Fourth Discontinuity: Limits of Instrumental Rationality*, 46 *S. Cal. L. Rev.* 617, 622 (1973) (explaining how unquantified, or "soft" variables, are given less weight in decision-making process).

FN125. The incentives of political decision-makers may also tend to produce environmental law. Daniel Farber, for instance, believes that politicians seeking credit for being "environmentalist" have been an important force in enacting federal environmental laws. Daniel A. Farber, *Politics and Procedure in Environmental Law*, 8 *J.L. Econ. & Org.* 59, 78 (1992).

FN126. The discussion here has focused on the relative inability of states to measure the effects of negotiations with firms, or to prevent state decision-makers from ineptly or corruptly making bad deals. The inept or corrupt administration could continue to a greater extent than in corporate markets, because there is not the market discipline of insolvency.

There is no similar systemic worry that a subset of states would be extremely protective of the environment, due to over-valuation of the environment or capture of government by pro-environment interests. In that instance, firms would move their facilities to other states that more accurately measured the tradeoff between wages and the environment. The nationwide level of pollution and wages would remain roughly at the equilibrium level.

FN127. See *supra* text accompanying notes 97-104.

FN128. The assumptions are that firms would profit more in the absence of environmental controls and would expand their level of production.

FN129. A prisoner's dilemma may "actually" exist in the sense that a well-informed expert would find the payout matrix to be in that form.

FN130. Revesz writes: "Environmental advocates who believe in both the Race to the Bottom and NIMBY ought to have the burden of explaining why interstate competition can sometimes produce suboptimally lax standards, whereas at other times it can lead to suboptimally stringent standards." Revesz, *supra* note 3, at 1219 n.24. The discussion here shows that the paradox disappears once public choice effects are included in the explanation of both the Race to the Bottom and NIMBY.

FN131. As discussed above, *supra* Subsection IV.B.1, the externality turns out to be a public choice problem, in which the preferences of relevant people outside of the jurisdiction are assumed to have no effect within the jurisdiction.

FN132. An additional aspect of NIMBY, not yet addressed, is the distributional effect of siting decisions. Revesz follows the usual economic practice of focusing on efficiency, on the implicit assumption that distributional problems can be addressed separately. One notable effect of repealing federal standards, however, would be to put new pressure on the states to attract and site industrial facilities. Unless distributional issues are well addressed in that process, the findings of the environmental justice movement suggest that new sitings will place disproportionate burdens on people of color and poor communities. See, e.g., Richard J. Lazarus, *Pursuing "Environmental Justice": The Distributional Effects of Environmental Protection*, 87 *Nw. L. Rev.* 101 (1993).

FN133. Public choice and related institutional issues are likely to be especially different at the national and supra-national levels.

FN134. Revesz, *supra* note 3, at 1211-12.

FN135. See *id.* at 1244.

FN136. The effects can be undesirable if the costs of protectionism outweigh the environmental benefits.

FN137. NIMBY can lead to a desirable outcome to the extent that the public choice bias toward protecting the environment offsets an otherwise-existing public choice bias toward development.

FN138. Levine & Forrence, *supra* note 116, at 191-94. A complementary theory is provided by Daniel Farber, who emphasizes the role of entrepreneurial politicians who wish to be considered "environmentalist." Farber, *supra* note 125, at 78. These entrepreneurial politicians have a particular electoral incentive to be seen as environmentalist when environmental issues become salient.

[Return to the Peter Swire Publications Page](#)