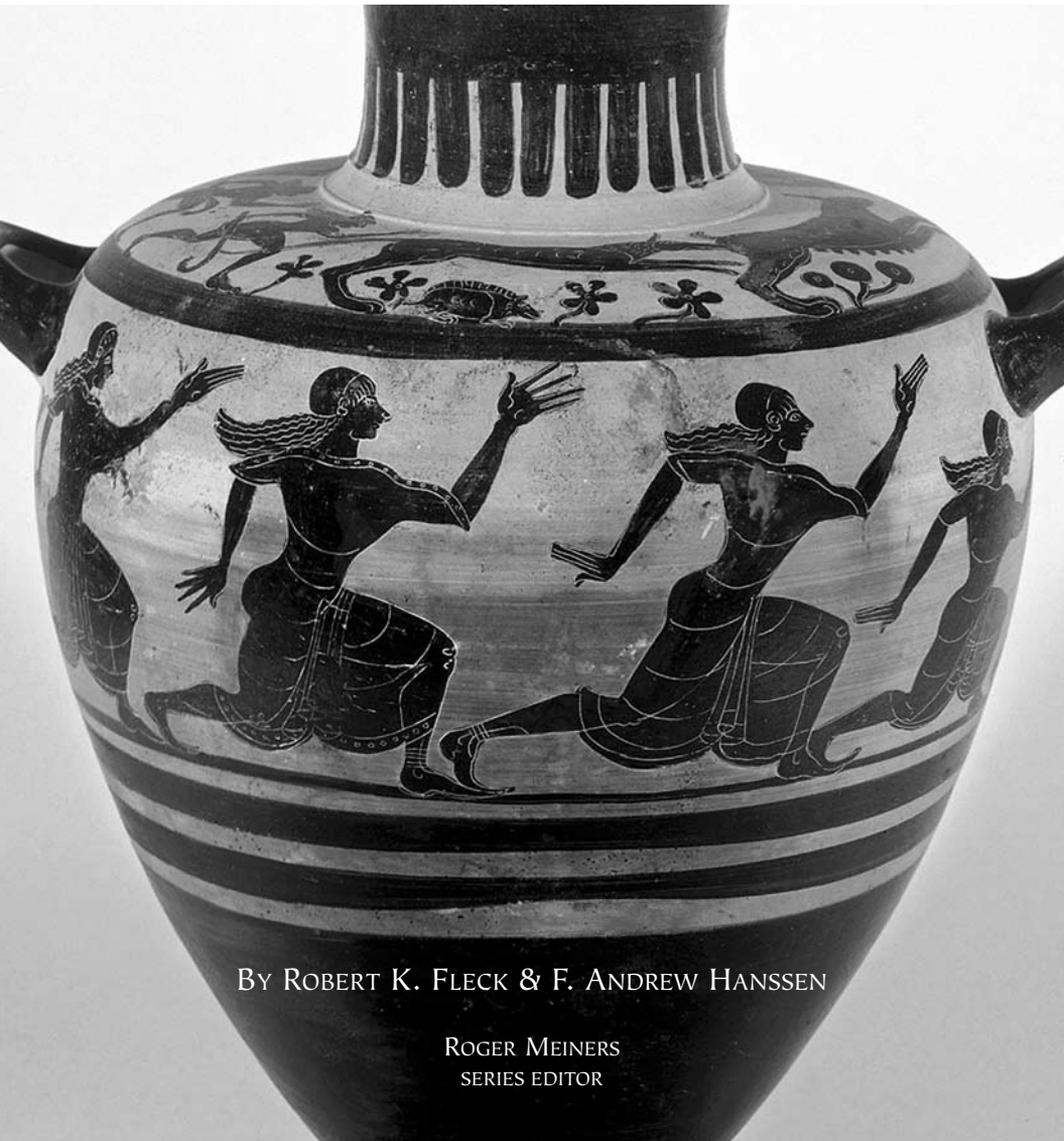


Do Profits Promote Pollution?

The Myth of the Environmental Race to the Bottom



BY ROBERT K. FLECK & F. ANDREW HANSEN

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To the READER

Environmentalists, politicians, and scholars have expressed concern about a potential “race to the bottom” in environmental standards. By this they mean that competition between countries (or states or cities) for firms and investment may lead to excessively lax environmental regulation. In this study, we explain that worries about environmental policy being too lax may be well founded, but not because of a race.

The potential for overly lax environmental standards arises from governments failing to act in the interests of their people—that is, from unrepresentative government. Even if competing for firms, governments that are broadly representative of citizens’ interests will not engage in environmental races to the bottom. By contrast, governments that pay little attention to citizens’ interests (i.e., unrepresentative governments) often implement overly lax environmental standards even if they are not competing for industry firms. Understanding these points is essential for success in addressing environmental problems.

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“The ability to vote a bad government
out of office is enough.”
—Karl Popper

Do Profits Promote Pollution?

The Myth of the Environmental Race to the Bottom

ROBERT K. FLECK AND
F. ANDREW HANSSEN

INTRODUCTION

The prospect of a “race to the bottom” in environmental policy has a powerful hold on the public mind. The idea is this: Firms prefer low levels of environmental regulation. Residents want their jurisdictions (countries, states, cities) to attract firms because firms provide jobs. As a result, jurisdictions compete for firms by offering weak environmental standards. Firms invariably gravitate toward the jurisdiction with the *weakest* environmental standard. All jurisdictions, therefore, end up offering the weakest environmental standard, even though each jurisdiction would benefit if all jurisdictions set higher standards.

On the surface, the idea has appeal. The basic premise appears reasonable—firms prefer to operate where costs are lower, and complying with

environmental regulations may be costly. Furthermore, environmental disasters have occurred in some of the countries to which capital has been flowing. Consider, for example, China, the current poster child for bad environmental policy. Chinese environmental standards are appallingly lax and multinational firms have been flocking to China. Ergo, China suffers from an environmental race to the bottom.

Yet most economists demur, instead arguing that neither theory nor evidence supports the existence of a race to the bottom in environmental policy. Are economists simply turning a blind eye to competition's harmful effects, as they are often accused of doing? Maybe, but let us think a bit further. Consider China once again. Nearly all serious economists agree that environmental conditions in many parts of China are appalling, and that many Chinese suffer greatly as a result. But have China's bad environmental policies been motivated by a "race to the bottom" to attract multinational firms? The answer is no. Rather, the culprit is something altogether different—the fact that the Chinese government is freely able to enact policies counter to the desires and interests of its own people.

In this article, we will explain why economists find the idea of an environmental race to the bottom so implausible (even with respect to badly polluted countries like China). We will then show that at the root of most environmental problems, one finds not a race, but rather a government that is able to ignore the wishes of its people. Our goal is to convince readers that anyone concerned about the environment should focus not on combating apocryphal races (which are simply not happening), but rather on pushing governments to take the interests of their citizens into account when enacting environmental (and other) policies.

While persuading unrepresentative governments to engage in representative policy making is an ambitious task, the payoff—in reduced environmental degradation and increased social well-being—is potentially enormous. We cannot, of course, provide any simple recipes. However, we will outline a framework which can be used to think about the problem.

OVERVIEW AND ANALYSIS OF THE “RACE TO THE BOTTOM” ARGUMENT

The race to the bottom argument turns critically on the assumption that environmental standards are of paramount importance in firm location decisions. In fact, environmental standards matter less to most firms than do such things as taxes, quality of infrastructure, distance from suppliers and customers, and, especially, the quality of the workforce. Of course, environmental standards may matter greatly to certain firms—specifically, highly polluting firms (toxic waste disposal units, giant hog farms) for whom complying with environmental regulations is very costly. But highly polluting firms are not what most jurisdictions wish to attract, and the prospect of drawing a giant hog farm (for instance) is unlikely to spark a race to the bottom.²

By contrast, the quality of the workforce is almost always critical—labor is by far the most costly input for the average firm.³ And the need for a high quality workforce will directly influence what type of location a firm chooses. Quite obviously, workers prefer clean, beautiful settings to polluted, ugly ones. Consequently, a firm will find it easier to attract good workers if it locates in a clean, beautiful place.⁴ Firms thus have a strong incentive to choose locations with good environmental conditions.

This is not a new phenomenon. During the industrial revolution, firms operating in unpleasantly dirty cities had to pay wages higher than those paid by firms located in the cleaner, more pleasant countryside.⁵ In the mid-20th century, the impetus to clean up Pittsburgh, the most notoriously polluted U.S. city at the time, came not from environmental groups, but from firms (including those in the steel industry) who found it difficult to hire good managers given Pittsburgh’s dirty condition.⁶ Not surprisingly, scholars analyzing modern data find that people place great value on living in a clean environment.⁷

In short, firms are *not* inexorably drawn to locations with weak environmental standards. Quite the contrary: Firms have a clear, profit-motivated reason to seek stringent environmental standards if stringent standards are what prospective employees prefer. In other words, firms need not be enlightened (or have any concern other than for profits) in order to care about the condition of the environment. In well-governed countries, workers can freely change both place of residence and employer, and will do so in order to pursue more attractive working conditions. Workers' desires thus influence firms' desires, and if workers strongly prefer a clean environment, so, for the most part, will firms.

A REVIEW OF ECONOMIC MODELS

The preceding discussion suggests that environmental races to the bottom may be less plausible than they first appear.⁸ We can be more precise if we turn to economic theory. A number of economic models have been developed to analyze races to the bottom (and related issues). Taken as a whole, these models predict that environmental races to the bottom are unlikely *unless citizens are poorly represented by their governments*. We will now review three of the most relevant of these models.

Charles Tiebout's (1956) model illustrates how the fact that individuals can move to new places when confronted by policies they do not like helps promote the optimal set of public policies. To take a simple example, suppose there are two people, one of whom values public parks while the other does not. As long as the two people are *mobile* (able to move between jurisdictions)—a central assumption of Tiebout's model—both can obtain the policy they wish. The person who values parks moves to a jurisdiction with more parks and higher tax rates (in order to maintain the parks). The person who does not value parks moves to a jurisdiction with no parks and lower tax rates (because no parks need be maintained).

Tiebout's model is quite straightforward, but nonetheless elucidates two very important phenomena. First, when residents are mobile, jurisdictions either offer the desired mix of policies or lose people to alternative jurisdictions that do. Second, because people differ in the policies they desire, not every jurisdiction need offer the *same* policies (the same environmental standards, for example). Indeed, the "sorting" described by Tiebout is likely to lead to different environmental standards being enacted in different places, each with the support of its citizens.⁹ This is quite contrary to the idea of a race.

William Fischel (1975) extended Tiebout's analysis to take the location decisions of firms into account. In the Fischel model, when firms manufacture goods, they create pollution which falls entirely within the jurisdiction where the firm is located and affects all residents equally. Firms are willing to pay a jurisdiction for the right to locate and pollute within its borders.¹⁰ No jurisdiction will allow a firm to pollute unless the firm pays a fee at least equal to the environmental damage it causes.

Sorting then ensues: Jurisdictions with residents who value environmental quality highly will allow few polluting firms and receive little in payments, while jurisdictions with residents who care relatively little about environmental quality will accept many polluting firms and receive more in payments. Both sets of residents end up with the (differing) policies they prefer. As in the original Tiebout model, the fact that residents can move to other jurisdictions if made unhappy ensures enactment of the desired policies. The fact that different jurisdictions enact different policies enables a larger number of people (with differing policy preferences) to be made happy.

The assumption that residents are mobile is central to the results of the Tiebout and Fischel models, and to the fact that in neither model is there a race to the bottom. By contrast, Wallace Oates and Robert Schwab (1988) assume that residents *cannot* move between jurisdictions. In this case, a race to the bottom *can* ensue.

In the Oates and Schwab model, a firm employs the residents of the jurisdiction in which it locates, so that residents receive higher wages if a firm chooses to locate in their jurisdiction. Jurisdictions compete for firms by setting taxes and environmental standards. A jurisdiction makes its residents best off if it competes for firms by lowering taxes, not by lowering environmental standards. However, if a jurisdiction decides to establish higher tax rates regardless, it must compensate the firm by enacting environmental standards below the level preferred by its residents (or else the firm will choose a lower-tax location). Why would a jurisdiction choose higher taxes if it must then establish an environmental policy that residents like less than the higher tax revenues? A plausible reason is that policy makers benefit from the taxes even though residents do not. At the extreme, what Oates and Schwab call a tax might be termed a bribe.

Thus, competition for firms may indeed lead to overly lax environmental standards, as the Oates and Schwab model demonstrates, but only if the two following conditions hold: 1) policy makers do not act in the interest of their citizens, and 2) the citizens cannot easily move to another jurisdiction. If residents can either leave or “throw the rascals out,” policy cannot differ by too much from what the residents desire. But when residents can neither leave nor replace self-serving government officials, bad policies—including sub-optimal environmental standards—are likely to follow. The root cause of the Oates and Schwab race is bad (unrepresentative) government, and bad government can persist only if people are unable to leave.¹¹

UNREPRESENTATIVE GOVERNMENT AND BAD ENVIRONMENTAL POLICY

Consider what is perhaps the most obvious example of bad/unrepresentative government in recent history: the Soviet Bloc. The Soviet Union and its communist “allies” were notorious both for

their undemocratic ways and for their aggressive attempts to prevent people from leaving. The two went hand in hand—the communist governments treated their citizens so badly that only walls and machine guns prevented a mass exodus.¹² If ever one would predict bad environmental policy, it would be in these circumstances, and communist countries had disastrous environmental records. Given that these were centrally planned economies, competition for firms—i.e., a race to the bottom—certainly does not explain the communists’ appalling environmental record.¹³

A large number of systematic empirical analyses have come to the same conclusion: Bad/unrepresentative governments implement bad environmental policies. One of the first researchers to test this idea was Roger Congleton (1992). He writes:

The essential difference between authoritarian regimes and democracies is their decision-making procedure. Democracies make policy by counting the votes of ordinary citizens or their elected representatives. Authoritarian regimes only take account of the ‘votes’ of an unelected elite, in the limit the ‘vote’ of a single ruler. (413)

Because an authoritarian regime need consider only the wishes of an unelected elite (in the limit, a single ruler), it can get away with allowing far more pollution than the broader public would choose. Congleton analyzes a sample of 118 countries, and finds that more authoritarian countries are significantly more likely to establish weak environmental standards, and substantially less likely to sign international environmental treaties. Congleton concludes, “The empirical results support the contention that political institutions largely determine environmental regulation, rather than technological aspects of pollution control or market structure” (421).

Barrett and Graddy (2000) examine the relationship between civil and political liberties and several pollution measures in a number of countries. The authors write:

As nations become richer, their citizens demand that the non-material aspects of their standard of living be improved. But if this reasoning is correct, then the observed levels of environmental quality will depend on more than a nation's prosperity. They will depend also on citizens being able to acquire information about the quality of their environment, to assemble and organize, and to give voice to their preferences for environmental quality; and on governments having an incentive to satisfy these preferences by changing policy, perhaps the most powerful incentive being the desire to get elected or re-elected. In short, they will depend on civil and political freedoms. (434)

Barrett and Graddy find that increases in civil and political liberties improve environmental performance, though the results vary somewhat with the particular pollution measure being investigated.¹⁴

Finally, unrepresentative governments tend to do a poor job of establishing and protecting property rights (rulers may arbitrarily confiscate land, for instance). The poor enforcement of property rights creates the incentive to use natural resources inefficiently, and environmental degradation may follow. Consider logging. In countries where ownership of land and trees is insecure, there is an incentive to log immediately (while one can obtain the lumber) rather than waiting until the optimal moment (by which time one may have lost control of the land or someone else may have cut down the trees). Similarly, there is little incentive to preserve a forest or to replant logged trees if one expects the land may be taken away suddenly. In his study of the causes of deforestation, Robert Deacon (1994, 414) writes:

Many observers have attributed this shrinkage [of forest cover in some countries in recent years] to population growth, the process of economic development, and

misguided government policies. Much of the economic literature on deforestation stresses different factors—the importance of property rights and the role of ownership security in promoting conservation of forests and other natural assets.

Deacon conducts a statistical analysis of 120 countries, relating deforestation to the security of property rights, population pressure, and income growth. He finds that both population pressure and insecure property rights cause deforestation, and that the effect of population growth is greatest where property rights are insecure.¹⁵

In short, a large body of evidence links the quality of the environment to the quality of government. Governments that fail to represent their citizens' interests enact lax environmental policy, for reasons that have nothing to do with a race to the bottom.¹⁶

TOPICS FROM CURRENT POLICY DEBATE

A race to the bottom in environmental policy is thus unlikely in theory and undemonstrated in practice. Where extremely lax environmental policies are enacted, the root cause is primarily that government officials can ignore the wishes of their citizens. To drive this point home, we will discuss several policy issues where environmentalists mistakenly attribute poor environmental outcomes to races to the bottom when the real culprit is unrepresentative government.¹⁷

MOVEMENTS OF CAPITAL TO POLLUTION HAVENS

In recent years, environmentalists have focused attention on alleged “pollution havens”—countries that set very low environ-

mental standards in order to attract investment. Pollution havens are the logical result of an environmental race to the bottom. Yet there is little evidence that pollution havens exist. Again consider China, the country most often called a pollution haven. As Dean, Lovely, and Wang (2005) show, firms from developed countries (Organisation for Economic Co-operation and Development) engaging in joint ventures with Chinese partners tend to locate in provinces with relatively *strict* environmental standards (because such places tend to have skilled workers). In other words, western firms are attracted by *stringent* environmental standards. This holds true even for joint ventures involving highly polluting industries. Thus, although the different parts of China may compete against each other for foreign investment, setting low environmental standards is not the means by which they compete. Low environmental standards actually repel, rather than attract, firms from wealthy countries. The same phenomenon has been documented for other parts of the world—flows of capital are, at most, weakly attracted to low environmental standards.¹⁸

Again, we are not claiming that developing countries have only minor pollution problems—they often have major problems, but those problems do not arise from efforts to attract foreign investment. Indeed, it is easy to see why serious pollution problems would repel investment. Most obviously, water pollution is a major cause of death in developing countries around the world. As the World Bank (2005, 10) reports, “Lack of clean water and basic sanitation is the main reason diseases transmitted by feces are so common in developing countries. In 1990, diarrhea resulted in 3 million deaths, 85 percent of them among children. In 2000, 1.2 billion people still lacked access to a reliable source of water that was reasonably protected from contamination.” The presence of feces in drinking water clearly arises from something other than an effort to attract foreign capital and entrepreneurs. After all, entrepreneurs will generally prefer clean water for themselves and their (otherwise frequently ill) employees.

So why are pollution problems so often severe in rapidly growing economies such as China's? Because even when unrepresentative governments deliver jobs, they do not necessarily deliver the policies their citizens want. In China, most people have benefitted greatly from the country's economic growth (which has been possible only because China improved its economic policies).¹⁹ But China's people would also benefit from the improved environmental policies that more representative government would bring. As the *Economist* (2004a) explains:

China is using its natural resources to lift the living standards of its people as rapidly as possible—as the developed world did (and still does). . . . [The] concern is political: in democratic countries, affluence leads to demands for a cleaner environment. In China, there is no mechanism for people's wishes to influence government policy directly, unless (and until) the Communist Party loses its grip on power.

INTERNATIONAL TRADE

Many environmentalists have expressed concern that a race to the bottom will be spurred by international trade. Some of these arguments simply miss the point.²⁰ However, even where the environmental effects of trade are cause for concern, the problem is not a race.

Consider, for example, the widely expressed worry that international trade promotes deforestation in third world countries. As explained earlier, forests tend to be over-harvested where property rights are poorly defined—even people who prefer standing forests may engage in logging (without replanting) if they believe that someone else will log the forest anyway. It is true that increased trade can sometimes make things worse—if property rights to trees are poorly defined, and international trade increases the rate at which forests in timber-exporting countries are being cut (by increasing

the price exporters receive for timber), deforestation may follow. However, the root problem is not trade. Indeed, when property rights are secure, the higher price of exported timber brought about by trade gives loggers an additional incentive to *conserve*, to ensure the survival of their forests by not overharvesting and by planting new trees.²¹

Environmental problems also result from what economists term “externalities”—costs that are “external” to the decision maker, and therefore not taken into account.²² In plain language, there will be too much pollution when those choosing the level of pollution do not weigh the full effects. Externalities may arise in the production of commodities; for example, upstream logging can affect downstream residents by increasing flooding and/or decreasing water quality, and the destruction of forests can reduce habitat for birds that migrate from different countries.

If an increase in international trade increases logging in the presence of externalities, the corresponding rise in environmental damage may more than offset the benefits from the increased trade. But to address the problem, it is again essential to recognize that the root cause is neither a race to the bottom nor international trade, but the fact that some of the costs are external to the decision maker.²³ In this instance, the “unrepresentativeness” of the policy making is due to the fact that one jurisdiction can shift costs to another—the citizens of the polluting jurisdiction may fully support the policy (since they do not bear the costs).

Resolving problems arising from externalities requires mediating between populations with differing interests, something we will discuss in more detail in the next section. Simply attempting to reduce competition for firms or restrict trade can easily increase, rather than decrease, environmental degradation—prohibiting imports (or increasing tariffs) generally raises domestic production of the otherwise-imported goods, and domestic production may create greater environmental damage than would production elsewhere.²⁴ Indeed, perhaps the most careful study yet done on

the link between trade and environmental conditions finds that free trade is good for the environment (Antweiler, Copeland, and Taylor 2001). Hence, restricting trade for a foolish reason (e.g., out of fear of a race to the bottom in environmental regulation) will likely worsen environmental conditions.

ROLE OF SPECIAL INTERESTS

Environmental problems may also occur when policies are enacted to favor special interests. Consider, for example, the promotion of exports. Environmentalists have expressed concern about export subsidies, and with good cause. Carl Pope (2002), executive director of the Sierra Club, provides a clear explanation of how environmental degradation can result from a free trade agreement that prohibits the payment of cash subsidies to producers of exports, but does not prohibit implicit subsidies through excessively lax environmental standards.²⁵ This is a valid concern, but one must think carefully about the real source of the problem.

Subsidizing exporters is generally a very poor—and unrepresentative—policy (benefitting the politically influential exporting industry at the cost of greater harm to the broader public), and for other countries to respond with subsidies of their own just makes things worse for their own people. Thus, the root of the problem is not a race, but a government that caters to special interests rather than representing the general interests of its citizens. The best response is, as Pope recommends, to prohibit export subsidies of all kinds.²⁶

Just as promoting exports can harm the environment, so can restricting imports. For example, past protection of the U.S. automobile industry from (mostly Japanese) competition left American consumers not only paying more for cars (both domestic and imported), but buying cars that used more gasoline than the (Japanese) alternatives, thus harming the environment.²⁷ Ironically, one of the most vocal proponents of protectionist policies of this type was Congressman Rich-

ard Gephardt, whom some have lauded as an environmental hero.²⁸ Yet Gephardt obtained his fame by leading the charge against Japanese manufacturers of fuel-efficient cars, thereby preventing American drivers from buying automobiles that would better conserve gasoline. Those who truly value the environment should be skeptical of protectionist measures promoted under the auspices of a “blue-green” coalition; i.e., blue collar workers and green environmentalists (e.g., Pope and Wage 2001). An advocate of industry-friendly protectionism is no environmentalist, and true environmentalists should not allow their misplaced fears about trade-induced races to draw them into environmentally harmful alliances.

POLLUTION STANDARDS IN THE UNITED STATES

Concern is also expressed that races to the bottom may arise in purely domestic settings. Consider, for example, water pollution standards in the United States. Should the federal government set national-level standards and/or establish guidelines for state-level policy? The answer depends on the nature of the problem—standards set solely by states may be too lax if some or all of the damage done by water pollution can be shifted to other states. For instance, residents of Oklahoma recently complained that waste from Arkansas chicken farms is fouling the Illinois River watershed, which is a major source of drinking water for Oklahoma.²⁹ Thus, Oklahoma would benefit from stronger environmental policies in Arkansas. However, the issue once again is not a race to the bottom, but rather the fact that the government of one state (Arkansas) weighs only some of the costs (i.e., only the *in-state* harm of pollution) when deciding how much pollution to allow. Society as a whole will gain if policy makers in Arkansas consider *all* the costs when setting policy, and this is true regardless of whether Arkansas is “racing” to attract firms (it would be true even if Arkansas were a hermit kingdom, completely isolated from the rest of the world except for its water flow).

What if water pollution remains entirely within state boundaries? Some environmentalists have worried that states will race to the bottom when setting pollution standards for “isolated, non-navigable intrastate waters.”³⁰ However, if the bodies of water are located entirely within the state, the pollution will harm residents of the state that sets the policy. And if the harm from the pollution is large (and in many cases it may be), residents are likely to oppose allowing it. Only if residents are poorly represented—if elected officials can act counter to the wishes of their constituents—will federal policy be needed.

WHAT CAN BE DONE TO IMPROVE REPRESENTATION IN GOVERNMENTS?

We have argued that environmentalists should stop worrying about races to the bottom and, instead, focus their attention on improving the responsiveness of governments to the interests of the people. One key task is to increase the influence of the disenfranchised, especially in the developing world. Many environmental organizations already place great emphasis on this essential, albeit very difficult goal.³¹ Those efforts deserve applause for many reasons—one of which is that they will improve environmental quality. Because we have little to add on that front, we will focus instead on a related (albeit more narrow) issue: the advantages and disadvantages of alternative ways of democratic decision making.

Economists and political scientists agree that the effective organization of government decision making requires balancing two needs: 1) encouraging politicians to represent their constituents, and 2) effectively managing externality problems. It would, of course, be nice if one could rely on democratic elections to choose politicians who act only in the general interest and set policy with all costs and benefits in mind, but that is an unrealistic expectation even

for representative governments.³² Thus, one must choose between imperfect alternatives when considering governing institutions. In balancing the two needs mentioned above, an important choice is the degree of decentralization in decision making. Because local levels of government are often better linked to constituent interests, while higher levels of government are typically better placed to address externalities, the optimal degree of decentralization depends on the nature of the problem: Is the concern poor representation of constituents at the national level, or is it local jurisdictions ignoring the costs they impose on other jurisdictions?³³

These tradeoffs demonstrate why haphazardly blaming races to the bottom for environmental problems can be counter-productive. To take a concrete example, consider public forest land. Economists and environmentalists agree that the U.S. Forest Service has often badly mismanaged national forests (at times spending the public's money to cut down trees!).³⁴ Evidence amassed in several studies suggests that at least some state governments manage state forest land much better than the federal government manages federal forests.³⁵ It would be a big mistake if, out of misguided concern about a race to the bottom between states, control of state forests were transferred to the federal government. Of course, in cases where one state's policies affect another state's forests—such as in preserving habitat for migratory species or regulating airborne pollution—the federal government may indeed have a role to play (at a minimum, by providing a clear set of rules under which states can negotiate and enforce agreements to preserve habitat and prevent excessive pollution).

CONCLUSION

Environmentalists, politicians, and scholars often express concern about “races to the bottom” in environmental standards. In this paper, we have argued that worries about environmental

policy being too lax may be well founded, but not because of a race. Rather, the potential for overly lax environmental standards arises from governments failing to act in the interests of their people—that is, from unrepresentative government. Even if competing for firms, governments that are broadly representative of citizens’ interests will not engage in environmental races to the bottom. By contrast, governments that pay little attention to citizens’ interests often implement overly lax environmental standards, even if they are *not* competing for firms.

Focusing on root causes can help promote solutions that actually improve the environment. The need is certainly great—the world has a multitude of serious environmental problems, and each year many people die as a result of lax environmental policy. Blaming a race to the bottom pushes attention away from where it should be: on governments that fail to represent the interests of their citizens.

NOTES

1. Remarks at the commemoration of the 50th anniversary of the World Trade Organization.

2. Competition among jurisdictions to *avoid* these kinds of businesses often leads to a race to the top (also known as NIMBY—“not in my backyard”). Interestingly, some states have, in response to local opposition to unpleasant but necessary activities (e.g., landfills), adopted laws allowing the state to override local efforts to prohibit such activities (Fischel 2001, 179–81). This is, of course, the antithesis of regulation by higher levels of government being necessary to prevent a race that induces a local lowering of environmental standards.

3. Compensation of employees is the largest component of input costs for the economy as a whole, and particularly for some of the most important sectors of the economy—private goods-producing

industries, private services-producing industries, and information/communications/technology-producing industries (see Howells, Barefoot, and Lindberg 2006).

4. The idea that people value attractive settings very highly is, of course, something widely recognized and emphasized by environmentalists. Notably, the “wealth of nature” literature suggests that communities should treat the natural beauty of their locations as economic assets that can generate wealth (e.g., Rasker, Tirrell, and Kloepfer 1992; Power 1996).

5. See, e.g., Williamson’s (1982) calculations of the degree to which higher infant mortality in cities required employers to pay higher wages in order to attract workers.

6. See, e.g., Fischel (2001, 167–70).

7. See, e.g., Chay and Greenstone’s (2005) estimates of how much home buyers value air quality.

8. It is worth noting that economists have established the plausibility of races to the bottom in other policy arenas, simply not with respect to *environmental* policy. For example, when setting welfare policy, jurisdictions often face an incentive to establish ungenerous standards, so as to encourage welfare recipients to move to other jurisdictions (and to discourage potential welfare recipients from moving in). This was an important issue in the 1996 debate over welfare reform (e.g., Rosen 2005, 176). However, environmental policy differs in a crucial way from welfare policy: While ungenerous welfare standards *benefit* the residents of the jurisdiction enacting the standards (by lowering welfare expenses and thus taxes), lax environmental standards *harm* the residents of the jurisdiction enacting the standards (by making the air or water dirtier). The fact that residents suffer directly from the harm caused gives them a strong incentive to oppose excessively low environmental standards. (Indeed, as mentioned earlier, residents often have a NIMBY incentive to set *high* local environmental standards in order to shift pollution to other jurisdictions.)

9. Tiebout’s model thus makes it clear that the existence of dif-

ferent environmental standards in different places is not *prima facie* evidence that one place (e.g., the locale with the weaker standard) has gotten it wrong.

10. In the context of the race to the bottom arguments, one could interpret the “payment” as a certain number of jobs.

11. More generally, the ability of people to move to a well-governed country prevents their rulers from governing too badly (Fleck and Hanssen 2006).

12. See, for example, Hirschman (1993, 179), who points out that East Germany lost 15 percent of its population to West Germany between 1949 and 1961, before finally investing—massively—in devices intended to prevent emigration (including the Berlin wall).

13. On environmental problems in the Soviet Bloc, see, e.g., Sachs (1995). On the economics of centrally planning, see, e.g., Kornai (1992).

14. There is similar evidence with respect to corruption. In their study of 63 countries, Fredriksson and Svensson (2003) find that more corruption is significantly associated with lax environmental regulations.

15. There are a number of other studies that reach similar conclusions. For example, Southgate, Sierra, and Brown (1991) find that security of land tenure has a negative relationship to the rate of deforestation in Ecuador. Anderson and Lueck (1992) show how the productivity of land on Indian reservations depends on the type of tenure; In short, where a fuller set of property rights can be held by individuals (rather than by more bureaucratically controlled trusts), land use is more productive.

16. Norton (2002) makes a similar argument in his analysis of the potentially adverse effects of population growth, showing that economic institutions have a much bigger influence on environmental degradation than does population growth per se, and that good institutions (i.e., good government) serve to mitigate most negative consequences of population growth on the environment.

17. To keep our discussion at manageable length, we restrict

ourselves to issues that have received attention from mainstream environmentalists (all the following examples have been gleaned from the Sierra Club's websites).

18. See, e.g., Dean, Lovely, and Wang's (2005) review of the literature and Smarzynska and Wei's (2004) analysis of 25 countries in Eastern Europe and the former Soviet Union. Also see Antweiler, Copeland, and Taylor (2001).

19. China's earlier economic policies were, of course, disastrous. For example, the Great Leap Forward caused such a dramatic decline in food production that millions died from starvation between 1959 and 1961 (see, e.g., Li and Yang 2005).

20. For example, Stephen Mills (2004), who directs the Sierra Club's international programs, writes: "Because the United States has been relatively successful in promoting conservation efforts at home, it has exported much of the environmental burden caused by its high levels of natural-resource consumption to developing countries. These countries—and the communities within them—are less capable of resisting exploitation, which causes a race to the bottom to attract foreign investors regardless of their environmental or labor policies."

Note that Mills seems to imply that *high* standards in the United States cause a race to the bottom in other countries. But this makes no sense—the logic of the race to the bottom argument posits that higher standards in the United States *reduce* the pressure on other countries to lower their standards.

21. Chichilnisky (1994) provides a detailed analysis of how the failure to establish property rights to natural resources can influence trade patterns and lead to undesirable environmental outcomes.

22. Any good introductory microeconomics textbook will explain externalities (e.g., Landsburg 2005).

23. For a recent study of how property rights and international trade affect rates of deforestation in different countries, see Ferreira (2004).

24. In addition, restricting competition for capital will gener-

ally reduce the demand for labor in poor countries and, thus, harm workers in those countries.

25. In Pope's words, "The WTO system is biased. It favors the least environmentally protective methods for countries seeking to increase the market share of their producers." (Pope 2002, 62–66) 63) Note the parallel to the Oates and Schwab model, in which a government lowers environmental standards for a firm instead of reducing the tax rate on the firm. In the scenario described by Pope, a government lowers environmental standards for a firm because the government cannot subsidize the firm with cash.

26. Many other criticisms of international trade are voiced by environmentalists, and most rest on misunderstandings of basic economics. Frequently, the arguments are based on the premise exporting is desirable and importing is undesirable. This premise is plainly incorrect, as any good introductory economics textbook will demonstrate (e.g., Landsburg 2005). Note, for example, that complaints about the harm that inexpensive imported corn does to Mexican farmers (e.g., Mills 2004) generally ignore the benefits of inexpensive corn to the many Mexicans who eat corn. In another example, the Sierra Club (1998) purports to explain "supply" and "demand" in the international timber market, but demonstrates only a complete misunderstanding of supply and demand models.

27. For example, the so-called "Voluntary Export Restraints" (VERs) initiated in 1981 reduced imports from Japan, increased sales of American cars, and raised prices paid by consumers (see, e.g., Berry, Levinsohn, and Pakes 1999). The VERs also led to an increase in the horsepower and size of Japanese cars sold in the United States (see, e.g., Feenstra 1988).

28. Writing in *Sierra Magazine*, McManus (2002) describes Gephardt as one of the "champions of environmental laws." Also see, e.g., Sierra Club (2001). *The Economist* (2004b) summed up Gephardt as follows: "For much of his career, Mr. Gephardt was America's foremost protectionist."

29. See the *Economist* (2005).

30. For example, Sierra Club, Maine Chapter (2005) states: “The CWA’s [Clean Water Act’s] federal floor levels the playing field’ and prevents the proverbial race to the bottom’ so that states that do act to protect their waters from pollution and destruction are not placed at a competitive disadvantage by those states who choose not to do so.”

31. See, for example, Sierra Club (2005). It is important to note that even in democracies, those who do not vote will generally be less well represented than those who do—see Hamilton (1993) on the relationship between who votes and who bears the costs of hazardous waste facilities.

32. Even well-intentioned politicians must pay more attention to those within their jurisdictions than to those without (otherwise, the politicians will not be in office for long).

33. For more on this issue, see, e.g., Rosen’s (2005) Chapter 20 or Oates (1999). See also Adler (2001), who examines wetlands protection and concludes that even when interstate externalities are present, state-level action may be sufficient to overcome them.

34. See, e.g., O’Toole (1988), Leal (1995), and Sedjo (2000).

35. Leal (1995) compares the management of state forest land in Minnesota and Montana to the management of federal forests in those states and finds that the state forest lands are far better managed. State politicians have more reason to be concerned with bad policy in state forests, and the reason is straightforward. When it comes to, say, building excessive logging roads through forests, Montanans care far more about wasting Montanans’ money in Montana forests than they care about wasting other taxpayers’ money in Montana forests. This is not to say that state forests (or more generally state lands) are uniformly well managed, but it is clear that anyone concerned with the management of public lands should consider *both* the advantages and disadvantages of assigning management responsibility to more localized levels of government.

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