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Missing the Forest for the Trees: Justice and Environmental Economics

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ABSTRACT *The field of environmental economics, while offering powerful tools for the diagnosis of environmental problems and the design of policy solutions to them, is unable to effectively incorporate normative concepts like justice or rights into its method of analysis, and so needs to be supplemented by a consideration of such concepts. I examine the two main schools of thought in environmental economics – the New Resource Economics and Free Market Environmentalism – in order to illustrate the shortcomings of their methods of analysis, taken on their own, and to demonstrate how a consideration of concepts like rights or justice might usefully supplement them.*

KEY WORDS: Justice, environmental economics, market-based regulation

The field of environmental economics has contributed a great deal to our understanding of the nature of environmental problems. It is now common to view the emission of harmful pollutants into the water or air as a negative externality that arises from producers being able to displace the costs of producing a public bad onto uncompensated third parties rather than having to bear these costs themselves or pass them onto consumers of the relevant commodity.[1] Likewise, the overuse of common pool environmental resources is typically attributed to their status as public goods that yield positive externalities (where beneficiaries enjoy some good without paying the costs of its provision), thus producing a 'free rider' incentive that confounds efforts at sustainable management of those resources. According to this account, resource depletion results from improper pricing cues, where proper valuation of a scarce good would have slowed its exploitation and promoted the development of effective substitutes. The economic model enjoys the considerable advantage of parsimony in explaining environmental problems and prescribing policy solutions to them. Indeed, if one accepts the premises and assumptions of environmental economics, then the policy solutions it recommends are compelling

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in their simplicity. Where this approach is often deficient, however, is in its understanding of the social, political and ethical dimensions of the paradigmatic environmental problems of pollution and natural resource depletion. The failure to recognize these dimensions of environmental problems constitutes a decisive shortcoming of environmental economics as a tool of policy analysis, and urges its supplementation by normative concepts in analysing issues and conferring policy prescriptions.

Crucially, environmental economics deliberately purges non-economic values from its analysis, and so cannot incorporate normative concepts such as justice or individual rights within its corresponding policy recommendations. Critics (Sagoff 1988) have amply noted the hegemonic nature of economic theories of value, in which non-quantifiable or otherwise irreducible or incommensurable values are simply not considered within economic analysis. The concept of economic efficiency has likewise been roundly assailed for smuggling exclusionary value assumptions into a putatively value-neutral aggregative decision procedure (Goodin 1992). Libertarian assumptions about the ability of markets to undermine or supercede institutions based on justice or democracy have been subjected to similar criticism, underscoring the need for values other than economic self-interest within society (Ball 2001). Having been aptly chastened by such criticism, some environmental economists have attempted to reconstruct economic models around a more inclusive set of value inputs. Examples include the development of contingent valuation theory or efforts to measure shadow prices of goods that exist outside of the market, and these attempts have met with at least partial success.[2] Though defenders of the economic approach to environmental policy have attempted to reduce such concepts as environmental sustainability and intergenerational justice to economic concepts of 'optimal' distributions of goods (Beckerman 1994), these efforts to include non-economic values within economic analyses are ultimately limited by the occasional incompatibility between economic incentive structures and the demands of justice, as shall be examined below.

As a heuristic and prescriptive device to apply to environmental policy problems, however, environmental economics cannot by itself fully comprehend the nature of such issues without supplementary accounts offered by the normative concepts mentioned above. In this essay, I examine several diagnoses and policy prescriptions issuing from the two leading schools of thought within environmental economics, and suggest how the application of normative concepts might helpfully illuminate and guide in proposing more defensible solutions to several kinds of contemporary environmental policy problems. I examine it first in the context of diagnosing problems and recommending policy solutions to the problem of pollution, and then in its approach to natural resource issues. After an initial sketch of the common elements within the field of environmental economics, I examine both the New Resource Economics and Free Market Environmentalism variants, paying particular attention to several blind spots (around issues of justice or individual rights) that each of these approaches fails to adequately treat in its analysis.

Environmental Economics

An analysis of certain common features within environmental economics can begin to show the deficiencies of the narrow purview of economics in conceiving of environmental problems as cases of inadequate pricing – deficiencies that can be overcome only through the inclusion of normative concepts like rights or justice. First, according to the economic approach, the problem of pollution is purely an economic one: some of the costs of the production process are borne not by the polluting firm, but fall instead on others. A factory producing widgets that dumps waste into a nearby river, thereby causing adverse health consequences for residents who live downstream, is transferring the costs of production onto others rather than incorporating those costs within the price of the widget (through negative *externalities*). The external costs in question are averse to human welfare, but the injury itself is not seen as the problem. Rather, the problem is that the full costs of production aren't taken into account by the polluting firm (that is, externalities exist), and optimum price and production levels are thus based upon incorrect cost curves. The first shortcoming, then, is that environmental economics utterly fails to recognise the moral significance of knowingly causing harm, and misidentifies the nature of the transgression when the acts of one person cause demonstrable harm to another. Small wonder, then, that the economic approach seldom counsels the avoidance of such harm.

Second, economic prescriptions allow for insidious pollution, and even for quantifiable harm to human health as a result of that pollution. Pearce and Turner, in describing the environmental economics approach, describe calls for 'no pollution' as 'illogical' given the laws of Newtonian physics and market economics: 'the laws of thermodynamics imply that there can be no such thing as a non-polluting product. Hence to achieve zero pollution we would have to have zero economic activity' (Pearce & Turner 1990: 64). By itself, this claim is valid (even breathing involves harmful emissions), but the rejection of 'no pollution' claims often gets conflated with the invalid rejection those calling for 'no harm from pollution' (a distinct position, both conceptually and in its policy implications). In fact, the environmental economics school defines 'optimal' pollution levels at that amount of pollution produced by a firm in equilibrium when compensation costs are internalised. The consequences of this definition will be explored shortly, but for now the contrast with a basic principle of non-maleficence should suffice. A rights approach to pollution takes harm as the central criterion for state regulation of environmentally hazardous behaviour, while environmental economics takes inefficiency as the defining feature of state regulation of economic production. Divergent regulatory prescriptions follow.

Finally, the economic account of compensation assumes unlimited fungibility between human health interests and monetary payment that most ethical theories flatly reject (and rightfully so). In other words, monetary compensation (paid by a polluter to victims of pollution-related harm) is regarded as a perfect substitute for human health such that any harm done by a polluter is assumed to be fully remedied

through some compensatory system (or, worse, through a pollution tax that is collected by the state but never offered as compensation to the victim). Once compensated, the sufferer of pollution (or her survivors, in cases of pollution-related fatalities) is assumed to have suffered no net welfare loss in the transaction. Since by definition the level of compensation is set at the quantifiable costs to the sufferer of pollution-induced harms (begging the question by supposing that such costs are indeed quantifiable), that sufferer is assumed to be indifferent between the exposure to pollution plus the compensation check and to no exposure and no compensation (though the latter is often not an option). Financial compensation, in other words, is assumed to serve as a perfect substitute for human health, whether or not the sufferer consents to the exposure of pollution (and consequent health risks) in advance. Severe harm to human health and even death carry no distinct moral status within the economic equation, so long as compensation is provided along standard actuarial schedules. Similarly, irreversible ecological degradation – such as the destruction of critical species habitat or the loss of wilderness to development – are likewise viewed as potentially compensable costs for which the levy of a tax upon those responsible provides an adequate substitute.

From these points of contrast, several other difficulties generally applicable to the environmental economics approach can be identified. First, it relies upon the ability to quantify human suffering from pollution in order to determine the extent of the negative externality to be internalised into the producing firm's cost equation (i.e. through the levy of a tax on pollution). While many (though not all) ethical theories refuse on principle to convert human welfare losses into fiduciary compensation claims (for the substitutability reasons mentioned above), the practical difficulties involved in such an enterprise, if it can be carried out at all, are immense. Assigning relative economic values to the lives or welfare of rich and poor, young and old, male and female, or healthy and disabled, is a project fraught with interminable complications. Basing compensation awards upon lost earnings for victims of pollution entails a bias against those whose work is unpaid or underpaid and those nearing retirement, in effect equating the value of persons with their expected future incomes. Insofar as the 'cost' of pollution depends not only upon the extent of harm that it causes but also upon the prior welfare of its sufferers, the economic approach violates the fundamental ethical proposition of the moral equality of persons. Moreover, it violates basic tenets of distributive justice, prescribing the lowest rates of pollution-related compensation for the world's poorest citizens, thereby implicitly creating the incentive for polluters to locate nearest to those already most disadvantaged, exacerbating existing socioeconomic inequalities.

Common, however, dismisses these objections as 'not actually a problem', thereby revealing the depths of the predicament for the environmental economics approach. 'This is because what matters for determining the socially desirable level of pollution is not the physically measured amount of such, but the affected party's perception of the damage they suffer' (Common 1996: 142). As difficult as it may be to objectively assess the economic value of harm to persons from involuntary exposure to pollution, relying upon subjective measures of that harm multiplies

those difficulties. Persons may be harmed without perceiving that harm (or attributing it to its primary cause) or may perceive harm that cannot be justifiably attributed to a polluter. The ability to perceive harm (and to convert it to an economic value) may be culturally relative and linked to socioeconomic advantage. Economists assume that a mutually agreeable social damage figure can be generated in compensation claims, but by making environmental harm subjective and a matter of the sufferer's 'perspective' (as Common does), it is practically assured that damage estimates will be the subject of bitter, and possibly insoluble, disputes.

In addition, only currently living people can be regarded as being harmed by pollution (and therefore be subject to compensation for those damages), but pollution tends to have the insidious effect of not causing identifiable harm immediately, and then eventually harming persons in combinations of exposure that are difficult to trace to a single source. Pearce and Turner note that in a 'majority' of pollution cases, especially those involving air and water pollution, 'sufferers may be unaware of the source of the pollution from which they suffer, or even unaware that damage is being done' (Pearce & Turner 1990: 76). As a practical concern, social damage estimates are therefore likely to be underestimated, and subject to frequent and expensive legal disputes (whereas economists also assume zero transaction costs in resolving such claims). What's more, effects of pollution are likely to continue to affect people into the future, long after social costs have been estimated and compensation payments have been made, and may affect future generations of persons (none of whom will likely be compensated for their decline in welfare). Finally, diffuse pollutants, combined with the lingering nature of environmental damage done by pollution and the difficulty of tracing the responsible party likely render a justifiable social cost estimate unlikely, to say nothing of the barriers set by limited liability laws designed to protect polluters from just such damage awards. The shortcomings of relying upon conventional US tort law in regulating pollution have been aptly documented (Gaskins 1989), and similar problems must be expected as these problems are translated from tort law into regulatory policy instruments that likewise place monetary value upon involuntary but avoidable human suffering.

Having thus sketched the general approach of environmental economics to understanding environmental problems, I turn now to two sets of policy solutions to those problems. In terms of strategies for overcoming the market failure associated with externalities, environmental economics splits into two distinct schools of thought. The first, drawing principally upon the work of A.C. Pigou (1920), relies primarily upon taxes or subsidies to close the gap between private and social production costs, and has come to be known as the New Resource Economics (NRE). The second, rooted in the theory of R.H. Coase (1988), turns to privatisation of natural resources and, with well-defined property rights and a bargaining process among property owners, assumes that economic incentives will drive resource stewardship. Anderson and Leal (1991) refer to the latter school as Free Market Environmentalism (FME) after a book of the same name. The policy prescriptions of each of these approaches will be examined in turn.

New Resource Economics

Proponents of the NRE school have an economic solution to externalities that involves what is called the Pigouvian tax – 'a levy on the polluting agent equal to the marginal social damage' (Cropper & Oates 1992: 680). A tax is levied in the amount of the costs of the pollution's impact on society, internalising the production cost that would otherwise be transferred onto society. With efficiency as the sole consideration (again, the problem of pollution, according to environmental economics, is understood as a pricing/costing failure or inefficiency), the Pigouvian tax is an efficient solution to the problem of negative externalities like pollution, provided that costs of pollution can accurately be measured. The pricing failure can be corrected through such a tax, and the 'optimal' level of pollution can thereby be reached, resulting in a new equilibrium production level where marginal benefits equal marginal costs. The polluter is thereby required to pay the market rate for pollution (or, rather, for its effects), rather than fouling the natural environment for nothing, as before. Any pollution costs deflected outward into society are, in principle at least, reflected back inward through the tax.

Such an approach requires a fairly strong regulatory state, and one that regularly intervenes in the economic activities of private firms to gather data and assess penalties. In fact, it is this need for a strong, centralised, interventionist state apparatus that has made the NRE approach less popular than FME (the current favourite of right-libertarian think tanks and policy wonks), which relies upon minimal state coercion. The difficulty the state faces in performing this information-gathering and regulatory role may, in itself, constitute a decisive objection to NRE. Pearce and Turner explain:

> If the polluter is a firm this may be very difficult because of commercial confidentiality of information. Indeed, many economists consider that the government, as the taxing authority, is in a poor position to extract this information. This *asymmetry of information* between the polluter and the regulator is often regarded as an objection to any form of government intervention. (Pearce & Turner 1990: 85)

Similar informational asymmetries exist in command and control regulation, where state regulators assess fines for failure to comply with pollution emission standards. Compared with the traditional command and control model, Baumol and Oates (1988) have demonstrated that the Pigouvian tax achieves similar pollution levels at a lower cost. Nonetheless, the disincentive to cooperate with state regulators, combined with these informational asymmetries, presents an obstacle for the effective implementation of the tax.

A crucial side question for the Pigouvian tax regards the manner in which property rights are assigned. If the public at large is assumed to have property rights to clean air and water, and a polluting industry must then pay a tax equal to the damage resulting from degradation of that property, then the resulting optimal level of

pollution will be lower than if the property right is assigned to the polluter and the public is required to pay to provide for the technology or decreases in production required to reduce pollution. As Pearce and Turner note, 'the design of pollution tax [*sic*] depends on what view is taken of the polluter's rights to use the environment as a "waste sink"' (Pearce & Turner 1990: 88). The assignment of property rights is taken by economists to be extrinsic to the equation, rather than an issue that economic theory can provide any useful guidance in settling. Nonetheless, the assignment carries with it crucial ethical and policy implications, and must therefore be justified somehow.

Common, in obliquely invoking the language of distributive justice, flatly rejects any 'distributional' polluter-pays principle in which potential sufferers from pollution are assigned a prima facie right against exposure, since 'polluters are not always richer than the sufferers of pollution'. In fact, he argues, distributive criteria cannot be of any use at all in assigning the property right to either polluters or to the public. Instead, 'it must be derived from the view that the act of polluting is morally wrong' (Common 1996: 140). Aside from the obvious point that intentionally causing avoidable harm to others is widely viewed as paradigmatic of moral offence, Common's claim about the need for a moral reason for assigning the property right to the potential sufferer of pollution rather than to the polluter unwittingly stumbles upon a strong objection to the view he advances. Empirically, sufferers of pollution are nearly always among society's least advantaged (although not always, as Common notes), so something like Rawls's difference principle may weigh in favour of assigning rights to sufferers rather than polluters. Otherwise, the effect of antipollution efforts would be to aggravate existing social inequalities, and violate a basic tenet of social justice.

Even without a Rawlsian distributive justice approach, the moral principle to which Common alludes can easily be identified. A basic ethical principle of non-maleficence prohibits any person from intentionally harming another, and requires at minimum that a harmful transaction (such as one's exposure to hazardous pollution created by another) requires both prior consent and compensation. Only by assigning the property right to the potential sufferers of pollution can such requirements be met, lending a compelling non-economic standard to resolving a question that economists struggle to defensibly answer. The justification for regulating pollution in the first place (indeed, the very definition of pollution as a problem demanding some kind of remedy) must be that it harms persons, not merely that it allows costs to be externalised, and this analysis is embodied within the very reasoning wielded by economists (although not often recognised by them). After all, what problem does the externality of pollution pose to society if that pollution doesn't impose some cost (or cause some harm) to others? In short, Common appears simply to misunderstand the nature of justice theory, assuming that the only moral argument to be made on behalf of sufferers entails controversial (and thus invalid) issues of distributive justice, whereas a much more straightforward and uncontroversial claim that the property right ought to be vested in the sufferer of pollution can be made from a standard liberal harm principle.

How might economists attempt to settle the property rights question, given their discomfort with both the distributive justice and ethical criteria presented above? In practice, property rights are frequently assigned to the polluter, but this assignment is arbitrary and indefensible from the point of view of justice. Contingent valuation theory tells us that people require more in compensation for a pollution increase than they are willing to pay for a pollution decrease. Psychologically, this makes perfect sense. If people are assumed to be entitled to a pollution-free environment, and some potential polluter comes on the scene offering to pay people for the right to degrade that environment, then people are likely to ask for a fairly high price in return for transferring that existing property right (thereby accepting less pollution). By contrast, if a polluter is assigned the right to pollute, and nearby citizens are required to buy from that polluter enough property rights to pollution to establish a minimally tolerable living environment (referred to without irony as a 'bribe' in the literature), they are likely to pay less and accept more pollution.

This is not merely a technical problem of measurement that might be overcome by more sophisticated methods, though innovative efforts to properly account for environmental values show some promise. For example, economists have attempted to quantify the value of environmental goods (like ecosystemic health) and bads (like species extinction) through surveys and other methodological instruments in order to make more accurate 'full cost' analyses of the effects of environmentally destructive but economically productive decisions, and such efforts may partially correct the bias toward economic goods (and against environmental ones) inherent in cost-benefits analysis, and thereby remedy part of the problem of calculating Pigouvian taxes. Nonetheless, conceptual problems remain with such approaches, given their aim of generating putatively objective policy solutions from largely subjective (and non-quantifiable) data. As Sagoff argues, efforts to develop 'shadow prices' of non-economic goods (for example, through contingent valuation) commits a category mistake: 'the analyst asks of beliefs about objective facts a question that is appropriate only to subjective interests and desires' (Sagoff 1988: 94). The application of a Pigouvian tax depends upon ascertaining some matter of fact about the value of some unit of avoided pollution, but the price associated with this value varies widely depending upon whether one asks the polluter or the sufferer of that pollution (or, in what comes to the same, whether one assigns the property right to the one or the other). There simply is no such matter of fact to ascertain, so policy makers are faced with the difficulty of deciding to whom the property right will be assigned. Though economic theory lacks an adequate justification for one alternative over the other, the policy implications of this decision are potentially immense.

Insofar as economic output is likely to be higher if the right is assigned to the polluting industry (whether from more stringent standards for anti-pollution measures or from higher compensation claims for sufferers), efficiency considerations give that option an edge. From the standpoint of justice, however, the way in which the property right is assigned makes all the difference. Sagoff, arguing against the environmental economics approach in general, notes that sufferers of

pollution have no option for injunctive relief, but are instead left only with compensation for damage suffered. He asks:

> Are polluters free to pollute or are individuals free to enjoin pollution? Anyone who takes liberty and property seriously must defend the right of injunctive relief in nuisance cases. Anything less simply gives polluters the power of eminent domain over any persons or property they wish to violate or invade. (Sagoff 1992: 220)

That a 'right to pollute' can exist not only contradicts basic intuitive ideas about justice, but also gives the polluter a substantial (if morally indefensible) legal advantage against would-be advocates of environmental sustainability. In short, no theoretical approach that grants polluters a right to pollute can claim to institutionalise environmental aims without doing substantial violence to those very objectives.

Given the centrality of a harm principle like that articulated by J.S. Mill within liberal theories of legitimate state coercion,[3] environmental regulations designed around the protection of human health ironically are often opposed by some contemporary inheritors of Mill's liberal tradition, many of whom regard antipollution laws rather than involuntarily assumed health risks as the more significant intrusions upon individual liberty. As Machan points out, other libertarians reject on principle the environmental economics approach to trading off human health for compensation, since libertarian theory (as well as much of US tort law) treats pollution as a kind of trespass. 'No one has a right to benefit from acts or practices that violate the rights of others. Just as the sexual needs of some potential rapist do not justify raping someone, so the economic needs of some potential polluters do not justify pollution' (Machan 1984: 98). To allow polluters the right to deliberately harm persons, Sagoff argues, is to 'destroy the meaning and substance of property rights' (Sagoff 1992: 220). Neo-Lockean libertarians like Nozick take self-ownership as fundamental to any further property rights, and prescribe limits to property where its acquisition harms others. When it comes to environmental regulation, however, the self-ownership argument frequently gets trumped by ideological commitments to a minimal state.

Considerations of distributive justice likewise indict the use of the Pigouvian tax for determining 'optimal' levels of pollution. Optimal pollution typically involves enough pollution to harm people, but not so much that compensation becomes prohibitively expensive. From the polluter's point of view, it is economically efficient to locate a polluting facility away from large concentrations of people (and thus frequently in more environmentally sensitive areas), so that minimal compensation will be required for pollution released into the environment. Failing that, incentive structures recommend locating facilities close to those populations that would be cheapest to compensate for their adverse health consequences from pollution. Based on such incentives, it is no accident that hazardous polluting facilities tend to be located near the socioeconomically disadvantaged (though such siting decisions occasionally do result in accidents, as the residents of impoverished places like

Bhopal are well aware), who are typically politically powerless, least educated about the harmful effects of pollution, most easily manipulated by promised of jobs in polluting facilities, and whose lives and health carry a lower 'objective' value in actuarial tables based on potential lifetime earnings. Where the affected public has access to top-notch legal representation, optimal pollution may approach zero emissions, but it becomes much higher where compensation can be more cheaply made or could be delayed for several years by staying away from population centres altogether.

While considerations of justice would certainly claim harm to persons as a relevant fact, contrary to mere considerations of efficiency, the differences don't end there. The efficient outcome, then, results from the imposition of the Pigouvian tax, which internalises the costs of pollution on society within the production process itself. The polluting firm no longer benefits by distributing these costs on society at large. What about those victims of the pollution whose health is adversely affected by it? Does efficiency demand that they be compensated for the damage they suffer? Oddly and perversely enough, they do not.

> For if victims are compensated for the damages they suffer, they will no longer have the incentive to undertake efficient levels of defensive measures (e.g., to locate away from polluting factories or employ various sorts of cleansing devices). As is clear in the preceding formulation, the benefits in defensive activities are private in nature (they accrue solely to the victim that undertakes them) and, as a result, economic efficiency requires no incentives other than the benefits they confer on the victim. (Cropper & Oates 1992: 681)

That is, providing compensation to a victim for health damage done by pollution removes their incentive to move to a safer neighbourhood. If some damage award were made to the victims, they may prefer to avoid moving expenses and simply remain where they are, suffer the consequences, and collect the compensation. Should they elect to move away, the benefits of that relocation would accrue entirely to them, so their lower health bills would be enough to compensate them for their moving expenses. The efficient Pigouvian tax, then, is collected by the state but not distributed to those harmed by the pollution.

Should polluting industries be granted a right to pollute the air and water, and in doing so subject others to adverse health consequences unless those others are willing and able to compensate them for the cost of pollution-reducing efforts? By almost any conceivable standard of social justice, people should not be blackmailed into having to accept pollution costs unless they can afford to pay enough to avoid them. On this problem, Goodin compares pollution taxes to the medieval practice of selling religious indulgences, suggesting that 'we might be reluctant to let one person's environmental quality be determined, in part, by another's unwarranted riches' (Goodin 1998: 242). By defining the problem as one of economic efficiency, the environmental economics approach cannot articulate any unique problem with creating a right to pollute (and thus to harm), and indeed it recommends doing so for reasons of

efficiency. The moral and intellectual poverty of analysis in focusing exclusively upon efficiency is perhaps most evident in this case, which offers what may be a decisive reason to prefer instead an account of the problem of pollution that recognises some unique role for harm to persons. At the very least, the implication for the location of polluting facilities near the socioeconomically disadvantaged ought to cast serious doubt upon the palatability of the environmental economics worldview.

Compensation and the decisions that surround it are severed from considerations of redressing actual harm, but concern themselves rather with relative levels of political power among potential victims. The effects of this dynamic in practice commonly entail the least advantaged in society having little choice but to accept polluting industries near them, despite full knowledge that they will ultimately suffer health consequences as a result. Often called the NIMBY syndrome (for 'not in my backyard'), the consequences of assigning environmental bads to the lowest bidder (or least powerful) raise obvious objections from the point of view of distributive justice. Again, considerations of efficiency alone implicitly recommend targeting the disadvantaged for environmental harm because they are the least able to resist, and the cheapest to compensate (or, rather, the cheapest Pigouvian tax, since the tax revenues are never distributed to the victims of pollution). This outcome is not merely a disturbing theoretical possibility, but an actual and well-documented by-product of economic reasoning in siting decisions for polluting facilities.[4] One need not embrace the Rawlsian difference principle in order to condemn this recommendation, which appears more cynical than prudential, and yet can be viewed as a direct consequence of the manifestation of this form of analysis in contemporary public policy.

Free Market Environmentalism

Free market environmentalism follows the basic premise of NRE – that pollution is an externality that needs to be reintroduced into the production process – but argues instead that privatisation of nearly all natural resources is the best means to the end of attaining optimal pollution. Anderson and Leal, the original and leading proponents of FME (although the idea has attracted many followers), base their theory upon the Coase theorem, which translates the Pigouvian tax into a bargaining situation between rival holders of property rights, as described by Pearce and Turner (1990: 17):

> According to Coase, given certain assumptions the most efficient solution to pollution damage situations is a bargaining process between polluter and sufferer. Each could compensate the other according to who possesses property rights: if the polluter has the right, the sufferer can 'compensate' him *not* to pollute; if the sufferer has the right, the polluter can compensate him to tolerate damage.

From this theorem, along with a neo-Darwinist account of how altruistic tendencies have been eliminated from the human gene pool through natural selection (they

write, 'as survival rewards species that successfully fill a niche, increased wealth rewards owners who efficiently manage their resources'), Anderson and Leal (1991: 6) seek a policy means of promoting resource stewardship that doesn't rely on people's good intentions. As they describe their project, 'instead of intentions, good resource stewardship depends on how well social institutions harness self-interest through individual incentives' (ibid.: 4).

Perhaps the element of FME that has attracted the most attention and support is its rejection of the state as an effective actor in managing the natural environment and its resources. For Anderson and Leal, the problem is one of information: 'it requires a giant leap of faith to assume that man's ability to accumulate and assimilate knowledge is so refined that he can centrally manage the economy or the environment for himself and for all other species' (ibid.: 5) Thus, they argue, not only should national forests, national parks, and other public lands be privatised, but so also should property rights to the air, drinking water, rivers and oceans, and atmosphere. The motivation of property owners is assumed to be the same, regardless of their identity. 'Whether these rights are held by individuals, corporations, non-profit environmental groups, or communal groups, a discipline is imposed on resource users because the wealth of the owner of the property right is at stake if bad decisions are made' (ibid.: 3).

As an example of how effective FME incentives work, the authors cite the privately managed lands held and protected by The Nature Conservancy, but argue that similar stewardship incentives would exist if the property owner was instead Pacific Lumber, ExxonMobil, or a venture capital holding company. Private property owners, by definition, are assumed to have a vested fiduciary interest in maintaining their land's economic value over time; an interest that the state, with its diffuse ownership and lack of economic incentives, is assumed to lack. The possibility that private land owners may also have an economic interest in the short-run exploitation of resources contained on their land, to its long-run detriment and to the detriment of society at large (although not to the bottom line of its owners), simply does not occur to the authors, despite numerous real-world examples to the contrary.

Privatisation promotes stewardship, then, because there can be no externalities if all resources are held privately. To illustrate, consider Hardin's famous 'Tragedy of the Commons' (Hardin 1968: 1243–1248). In Hardin's parable, the common pasture was overgrazed by the self-interested, rational herdsmen, precisely (to follow the FME logic) because the land was commonly held. Had the pasture been subdivided and apportioned among the various herdsmen, each would have an incentive not to overgraze, since each would bear the full costs of any degradation of their own grazing lands. Although Hardin suggested regulation ('mutual coercion, mutually agreed upon') as a solution to the tragedy of the commons, Anderson and Leal reject governmental solutions to environmental problems. In place of regulation is the self-interested behaviour of property owners, who must bargain with each other to maintain the value of their own property. In the case of grazing land, privatisation gives each an economic incentive to maintain the productive capacity of the land, whereas common ownership had just the opposite incentive structure. To prevent

the tragedy of the commons, then, according to Anderson and Leal, the commons must be abolished. That is, FME maintains that the solution to all environmental regulatory problems must start with full privatisation, where all goods exist within the pricing structures of a market.

A property rights approach to environmental policy may not be as efficient a means to stewardship of natural resources as advertised by Anderson and Leal, some critics aptly allege. Others attack the very notion that efficiency ought to be the primary standard for evaluating environmental policy. Sagoff, for example, suggests that 'the more efficient markets become, the more quickly they can turn America into a shopping mall and nature into a theme park' (Sagoff 1992: 212). By making efficiency the 'main goal' of environmental policy, he argues, noneconomic values of environmental goods are discounted, and high-intensity economic uses are encouraged. The result of such incentives is not the kind of stewardship that conservationists would recognise, but rather 'the kind of stewardship that permits any amount of strip mining, clear cutting, erosion, or degradation that produces a profit that, if invested, would generate more income than would practices of conservation' (ibid.: 222).

At issue are the noneconomic values that green theorists advocate as relevant inputs to environmental policy decisions (including recreational and scientific values, which are difficult to quantify, as well as aesthetic, ecological, and habitat values, which may be impossible to gauge), but which cannot be recognised by the bargaining situation among property holders imagined by Anderson and Leal. The authors assume that any natural object that yields welfare for persons, or serves human preferences, must be a commodity which can be owned and traded, whereas green theory often assumes the opposite; that many environmental goods can only be goods if they are accessible to all, and are threatened when they become the property of a few. The FME approach thus falls victim to one of the central shortcomings of the economic approach noted above: in assuming unlimited fungibility between environmental and economic goods, it tacitly endorses the destruction of those goods whose value is not captured within market prices and privileges commodity production over more ecologically sound uses of natural resources. Even if all environmental goods could be subject to market incentives (as FME proponents recommend), its fundamental commitment to maximising gains from privately-held assets dooms this approach to endorsing the unsustainable and often irreversible conversion of natural resources into economic ones.

As an example of the incentive structures created by FME, consider Anderson and Leal's case study of timber clear-cuts in the Kingston Plains region in the American upper Midwest during the latter half of the nineteenth century. Virtually all of the old-growth timber in the region was harvested but not replanted, and much of the land, in the authors' words, 'never recovered' from the ecological damage of this high-impact method of logging which removes virtually all vegetation from an area, leaving nothing to prevent against soil erosion or provide shade for regrowth. 'Efforts have been made to replant the area, but the soil is too infertile and sandy. It took hundreds of years for the original forest to grow, and it will take hundreds of

years for the area to recover' (Anderson & Leal 1991: 47). The authors anticipate the obvious objection from environmentalists, asking 'whether the Great Lakes timberlands were wasted in terms of aesthetic or environmental values that are not included in commodity considerations' (ibid.: 45) Their answer, however, is a resolute negative.

> Had the income from selling those trees been invested in bonds or some other form of savings at the time, it would now be worth approximately $110,000 per acre, or $2.8 billion for the forty square miles. If the trees had been left standing, would the benefits derived over the past one hundred years from preserving land for wildlife habitat, hiking, and other environmental amenities have been worth forgoing the benefits society received from logging? (ibid.: 47)

Because the current value of that timber, as measured by growth in the bond market, now far exceeds what anybody would be willing to pay to protect the land against the devastating clear-cuts (a counterfactual possibility at this point, since the damage has already been done), the authors conclude that 'harvesting the trees was the correct choice'.

The economic reasoning may be impeccable (although not all economists accept it), but objections to it are easily lodged on other grounds. Based on the logic of the argument, it follows that nearly all natural resources should be exploited by their owners now rather than sustainably managed over time, because the proceeds from their sale would appreciate more quickly in financial markets than does, for example, a maturing stand of timber. Nonrenewable resources, like oil and minerals, quite clearly ought to be exploited within limits only based upon the price-deflating supply considerations of overproduction. Responding to the environmentalist complaint that 'we cannot put a "price tag" on wilderness,' the authors reply, 'the fact remains that when government declares millions of acres off-limits to development there are opportunity costs in terms of foregone minerals, motorized recreation, and other uses valued to individuals' (ibid.: 83). The authors don't merely subjugate the 'aesthetic and environmental values' they mention to commodity value, but ignore them altogether. Unless a good can be assigned a market price, the authors reason, it cannot coherently be said to have value. If it has a price, by this analysis it can and should be bought and sold (and sooner rather than later, given discounting of future benefits and opportunity costs of foregoing interest accumulation). As Sagoff remarks, 'that a policy could be good or bad in any other sense, for example, morally, aesthetically, culturally, legally, or politically, would be a surprise to them' (Sagoff 1992: 221).

Another criticism of the FME model is implicit in the authors' justification of the clear-cuts in the Kingston Plains. Anderson and Leal claim that 'society' benefited by some $2.8 billion by logging those lands, but did society indeed benefit? To suppose so is to ignore all distributive criteria for costs and benefits. Even supposing that the proceeds from the timber harvest were invested in the bond market (they could, conversely, have been invested in the stock market, vanishing in the crash of

1929, or lost in conspicuous consumption), the benefits of the activity were likely to be highly concentrated while the costs are widely dispersed. Some descendent of a nineteenth-century timber baron may have a sizable trust fund from that logging, but hundreds or thousands of people have been denied the ability to enjoy those forests, and that number will continue to grow centuries into the future. That is to ignore the other benefits of wilderness preservation or even sustainable forestry, like habitat protection, prevention of soil erosion, water purification, and so on. To assert that 'society' benefits merely because a small subset of society might potentially have enjoyed a financial windfall is to ignore the distribution of costs and benefits, and to mistake 'society' for a few of its elites.

Even in the aggregate, it is difficult to see how society could have benefited. Despite the fact that the timber was on public lands, the government received only $20 per acre from the sale of timber from those forests. By contrast, the current value (given a century of capital accumulation from the invested proceeds) of that timber sale netted $110,000 per acre for the private timber companies that were allowed to denude it. It may be true that the accumulated gains from logging the Kingston Plains now exceeds the value of those lands, but only if one ignores the decrease in value of those publicly-owned lands that resulted from the timber sale and subsequent decision not to replant. Presumably, giving away a $110,000 asset for $20 ought to count as a $109,980 loss on the balance sheet, to be weighed against any private gains on the plus side of the ledger. Moreover, had the forests not been clear-cut a century ago, the value of that timber would today be worth considerably more than its harvest and sale commanded a century ago (to say nothing of the $20 paid for it), while the land instead is now worth very little. Clearly, the government itself didn't benefit, but rather saw a sharp depreciation in the value of its lands after the harvests (and one that hasn't reversed since).

Is there some other sense in which society could be said to have been the recipient of some aggregate benefit? Anderson and Leal claim a positive relationship between national income and environmental health, noting that 'it is no accident that less developed countries have more pollution, lower health standards, and more environmental hazards' (Anderson & Leal 1991: 171). As previously observed, however, the relationship between income levels and environmental health is a complicated one, as illustrated by the critical responses to the sustainable development movement, and the authors may here have mistaken cause for effect. More likely, poor nations have more environmental problems because rich ones have exploited their resources. One cannot plausibly claim that wealth created by resource exploitation actually *benefits* the environment. If the assumption is that greater economic resources can be substituted for the loss of a healthy forest without a decline in human welfare, then the authors encounter substitutability objections noted above. If their claim is, as it appears to be, that logging the Kingston Plains to the point where the land would be barren for centuries had some positive effect on environmental health in the region, then it seems plainly false.

With regard strictly to aggregate economic benefits to society, an alternative economic measure of environmental costs and benefits to society has been proposed

by Daly and Cobb, who argue that social welfare cannot be accurately measured by indices like GNP, but must instead look at Hicksian income. The Hicksian index, measuring 'maximum sustainable consumption', is at least a closer indicator of social welfare than is GNP, and provides 'a practical guide to avoid impoverishment by overconsumption' (Daly & Cobb 1989: 89). Even better would be an index that could account for the depletion of natural capital like forests or mineral deposits, but these are 'among the most difficult categories to measure' and thus yield a less reliable comparative figure. At least with regard to Anderson and Leal's claim about net social benefits from the Kingston Plains logging, Daly is justifiably sceptical. 'If the marginal production benefits of growth are less than the marginal environmental costs made necessary by the production increase', he writes, 'then growth as currently measured is making us poorer, not richer' (Daly 1992:180–181). One must, it seems, examine the distributive consequences of environmental degradation, in addition to any costs or benefits which accrue in the aggregate, at least if social justice is to be a relevant consideration.

Other problems plague FME policy prescriptions, once they are taken from the pages of economics journals or think tank policy prescriptions and applied on the ground. Weale points out that FME calculations 'typically ignore certain crucial features of policy implementation, for example transaction and information costs' (Weale 1992: 161). Assuming zero transaction and information costs in a contentious legal battle where large damage awards are at stake is a serious oversight. In addition, as Pearce and Turner note, the FME solution 'does not apply under imperfect competition', which makes the assumption of perfect competition a useful fiction for economic models but 'remote from describing the real world' (1990: 74). Nonetheless, this assumption persists among advocates of FME. Common, for example, describes the bargaining situation that would result under FME with a dispute over water pollution in a privately held lake. He writes, 'with an explicit declaration of property rights in favour of the firm or the users of the lake, both parties can bargain in certain knowledge that legal action would produce certain consequences'. Because each party to the dispute would know precisely the extent of her property rights, 'legal action will become unnecessary'. Costly litigation, we are led to assume, will not be a transaction cost in FME bargaining, so long as property rights are specific enough. Although Common resides in less litigious Great Britain rather than lawsuit-happy America, the hope that he expresses about cost-free dispute resolution seems unduly optimistic.

What if, to borrow Common's example, a polluting firm obtained property rights to the lake with the express intention of using it as a waste sink for by-products of its production processes? The FME assumption is that privatisation of the property rights to the lake generate incentives to conserve environmental resources, so that their value can be maintained over time, but in the case of a polluter 'owning' an adjacent lake, it is difficult to identify the origin of this incentive. Unless the depreciation of the lake over time vastly exceeded the lake's utility as a waste sink that could absorb externalities (external costs, that is, in the sense that the set of sufferers from a highly polluted lake is likely to include others besides the lake's owner), the

incentives would clearly be to exploit and pollute the environmental resource. Indeed, the preponderance of 'brownfields' on abandoned industrial property across the United States demonstrates in practice the mistaken association between property rights and strong incentives to conserve the environmental integrity of that property.

Pearce and Turner note several other weaknesses of the FME model, as it might potentially be applied to real world environmental concerns. First, they note, the bargaining solution could not effectively work given 'open access' resources like air and water, since 'in such cases it is not clear who would bargain with whom since no one individual has an incentive to reduce his or her access to the resource'. Recall that FME bargaining requires unambiguous property rights, and air and water cannot as easily be fenced as can land. In addition, the use of FME bargains between polluters and sufferers could lead to industry making threats to pollute a profitable industry. The authors suggest that 'if a sufferer compensates a polluter because the polluter has the property rights, it is open to other "polluters" to enter the situation and to demand compensation'. The fact that few such bargains actually occur in the real world, the authors speculate, reveals theoretical weaknesses as well as practical obstacles (like transaction costs, lack of information, poorly defined property rights, and so on) that suggest that 'the Coase theorem is not rooted in real-world economics' (ibid.: 76–77).

Conclusion

Fundamentally at stake in this debate over FME and NRE is not so much which is the more accurate economic theory, but the proper role politics, ethics, and the state ought to play in environmental regulation. For Anderson and Leal, the state lacks the requisite knowledge and administrative capacity to regulate through command and control regulation, and so is given the Hobbesian role of recognising and enforcing property rights between private parties. Economists prefer models in which unpredictable or controversial variables are not determinate in the equation, and so the contingencies of democratic politics are left outside of the FME system. As Weale suggests, the FME approach essentially moves environmental regulation from the public to the private sphere, and in doing so 'the hope is to take the determination of obligations and interests out of the contentious realm of public debate and into the supposedly uncontentious area of private contractual and tort adjudication' (1992: 164). Democratic politics, as many have remarked before, is a highly inefficient means of decision making and dispute resolution, and Anderson and Leal, above all, are concerned with efficiency rather than other political values such as equity, legitimacy or transparency. However, the effort to expel politics, ethics and the state from the regulatory process in the name of efficiency, property rights and free markets, merely moves those elements to another stage in the process.

Likewise with the Pigouvian taxes prescribed by NRE; the application of economic instruments to public-policy issues misguidedly uses Occam's razor to slice away controversial claims about justice or individual rights, but in the process

relies upon unjustified and often indefensible value assumptions that are masked as economic efficiency or assumed away by the myth of the invisible hand. It is simply impossible to design a regulatory scheme around Pigouvian taxes without grappling with the difficult question about the assignment of property rights and the acceptability of compensation for involuntarily received pollution-related hazards, but economic theory too often rejects normative concepts because they don't fit easily within economic models. Ignoring or explaining away these problems does nothing to minimise them, but only diminishes the value of economic analysis itself. In general, some of the policy instruments of both NRE and FME may well provide effective policy solutions to contemporary environmental problems, but these theories fare far better when limited to policy instruments to be chosen as appropriate means to addressing a previously defined problem than as a definition of that problem. Without some notion of distributive fairness, market-based solutions to environmental problems are likely to create winners and losers without proper attention to notions of desert or equity. In short, without the normative lens of political theory, economics, while tremendously beneficial in generating action-guiding policy proposals, is insufficient in providing all relevant information to bear for those charged with building a just and sustainable society.

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Notes

1. The economic approach can apply as much to public entities that operate outside of market forces as to private companies operating in a market. For example, the military is one of the largest polluters of the world's air and water. From the economic perspective, they can get away with often flagrant polluting activities because their privileged position means they need never bear the full costs of their destructive behaviour. The critical shortcoming of the environmental economics approach lies not in its reliance upon pricing within existing markets, but in its reduction of all environmental regulatory problems to market-based imperatives such as internalizing costs and benefits or ensuring that all goods and bads are allocated solely on the basis of the willingness of their recipients to pay for their enjoyment or avoidance.
2. For a thorough critique of the use of contingent valuation theory and shadow pricing of non-market goods, see Sagoff (1988), especially pp. 74–98.
3. In *On Liberty*, Mill explicates the principle that harm to others is a necessary but insufficient condition for state interference in individual action. He famously argues: 'That the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant' (Mill 1972: 78). Though Mill's harm principle is sometimes taken as a straightforward moral principle of non-maleficence, it ought properly to be read as a political principle of state interference, in which some economic activity that results in harm to another's interests (e.g. one shopkeeper lowering her prices, resulting in another shopkeeper going out of business) is nonetheless allowed. Though Mill's extensive discussion of this principle complicates the regulation of pollution where individual acts

produce only imperceptible effects on others, his classic formulation of the harm principle would recommend state interference in any case where a Pigouvian tax might be levied, since palpable harm is a precondition for such a tax.

4. On the topic of environmental justice see, for example, Bullard (1994), US General Accounting Office (1983), and United Church of Christ Commission for Racial Justice (1987).

References

Anderson, T. & Leal, D. (1991) *Free Market Environmentalism* (Boulder, CO: Westview Press).

Ball, T. (2001) Imagining Marketopia, *Dissent*, 48(3), pp. 74–80.

Baumol, W. & Oates, W. (1988) *The Theory of Environmental Policy*, 2nd ed. (Cambridge: Cambridge University Press).

Beckerman, W. (1994) Sustainable development: is it a useful concept?, *Environmental Values*, 3, pp. 191–209.

Bullard, R. (1994) *Dumping in Dixie: Race, Class and Environmental Quality* (Boulder, CO: Westview Press).

Coase, R.H. (1988) The problem of social cost, *Journal of Law and Economics*, 3, pp. 1–44.

Common, M. (1996) *Environmental and Resource Economics: An Introduction* (Essex: Longman).

Cropper, M. & Oates, W. (1992) Environmental economics: a survey, *Journal of Economic Literature*, 30, pp. 675–740.

Daly, H.E. (1992) Free-market environmentalism: turning a good servant into a bad master, *Critical Review*, 6, pp. 171–184.

Daly, H.E. & Cobb, J.B. (1989) *For the Common Good* (Boston: Beacon Press).

Gaskins, R. (1989) *Environmental Accidents: Personal Injury and Public Responsibility* (Philadelphia, PA: Temple University Press).

Goodin, R. (1992) *Green Political Theory* (Cambridge, MA: Polity Press).

Goodin, R. (1998) Selling environmental indulgences, in: Dryzek, J. & Schlosberg, D., (Eds), *Debating the Earth*, pp.237–254 (Oxford: Oxford University Press).

Hardin, G. (1968) The tragedy of the commons, *Science*, 162, pp. 1243–1248.

Machan, T. (1984) Pollution and political theory, in: Regan, T. (Ed.), *Earthbound*, pp. 74–106 (Philadelphia, PA: Temple University Press).

Mill, J.S. (1972) *Utilitarianism, On Liberty, Considerations on Representative Government*, ed. H.B. Acton (Rutland, VT: Everyman's Library).

Pearce, D.W. & Turner, R.K. (1990) *Economics of Natural Resources and the Environment* (altimore, MD: The Johns Hopkins University Press)

Pigou, A.C. (1920) *The Economics of Welfare* (Lndon: Macmillan)

Sagoff, M. (1992) Free-Market versus libertarian environmentalism, *Critical Review*, 6, pp. 211–230.

Sagoff, M. (1998) *The Economy of the Earth* (Cambridge: Cambridge University Press).

United Church of Christ Commission for Racial Justice (1987) *Toxic Wastes and Race in the United States* (New York: United Church of Christ).

US General Accounting Office (1983) *Siting of Hazardous Waste Landfills and Their Correlation with Racial and Economic Status of Surrounding Communities* (Washington, DC: General Accounting Office).

Weale, A. (1992) Nature versus the state? Markets, states, and environmental protection, *Critical Review*, 6, pp. 153–170.