

Report from the Center for

# PHILOSOPHY & PUBLIC POLICY

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## The Costs of Clean Air: How Much Should They Count?

To make its research easily available to a broad audience, the Center for Philosophy and Public Policy publishes a quarterly newsletter: *QQ—Report from the Center for Philosophy and Public Policy*. Named after the abbreviation for “questions,” *QQ* summarizes and supplements Center books and working papers and features other selected philosophical work on public policy questions. Articles in *QQ* are intended to advance philosophically informed debate on current policy choices; the views presented are not necessarily those of the Center or its sponsors.

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The enormously popular Clean Air Act of 1970 is up for revision, and in the process our national commitment to reduce air pollution is undergoing reassessment. The Act, as amended and implemented, has set standards for seven widespread harmful pollutants. These standards establish maximum allowable levels of air pollutants, which, “allowing an adequate margin of safety,” are required to “protect the public health,” including vulnerable segments of the population, such as the young, the infirm, and the elderly. The current law does not permit pollution control to be balanced against the costs of enforcement and compliance—public health is not to be compromised to achieve economic goals.

A proposed amendment to the Clean Air Act would require pollution-imposed health risks to be assessed in the context of the—often very high—costs of reducing those risks. The public health would be protected from “significant risk” of adverse effects, where risks are measured against a broader economic background. Standards would no longer be set to protect the entire population—however vulnerable—against any risk—however small or expensive to correct.

Public opinion, as canvassed in a recent Harris poll, strongly resists proposed changes in the Clean Air Act that are perceived to relax existing federal standards on air pollution. Harris asked his sample this question: “The Clean Air Act does not permit the consideration of costs when setting standards for the protection of human health. The Reagan Administration is considering asking Congress to require that pollution standards designed to protect human health be relaxed if the costs are too high. Do you favor or oppose relaxing

pollution standards affecting human health if the costs are too high?" By a hearty 65 to 32 percent, a substantial majority declared themselves opposed to any weakening of human health standards on grounds of economic costs.

The controversy over the Clean Air Act raises questions about the role that risk assessment and cost-benefit analysis should play in the political process. No one seriously disputes that costs must at some stage be considered in implementing legislative decisions. The argument centers on the manner in which they are to be considered. Should costs be tallied up after we have reached a consensus on our common goals and are seeking how best to achieve them? Or is consideration of economic costs an essential component in the choice of these goals themselves? In what way and to what extent does our national commitment to clean air depend on how much clean air *costs*?

### The Clean Air Act: Costs and Benefits

By almost all accounts, the Clean Air Act has been successful in reducing air pollution. Impressive reductions in the absolute level of the controlled pollutants occurred during the 1970s, and these levels are even more impressive if we compare them to what they would have been today without any such law.

Levels of carbon monoxide, sulfur dioxide, and total suspended particulate emissions have all dropped dramatically since the passage of the Act. Economist Myrick Freeman of Bowdoin College offered congressional testimony that, based on EPA data on air quality trends, there has been an estimated 20 percent average improvement in air quality since 1970.

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*\$21.7 billion in benefits outweighs \$17 billion in yearly costs of pollution control. On these calculations, the United States is ahead to the tune of \$4 billion dollars a year in fighting against air pollution.*

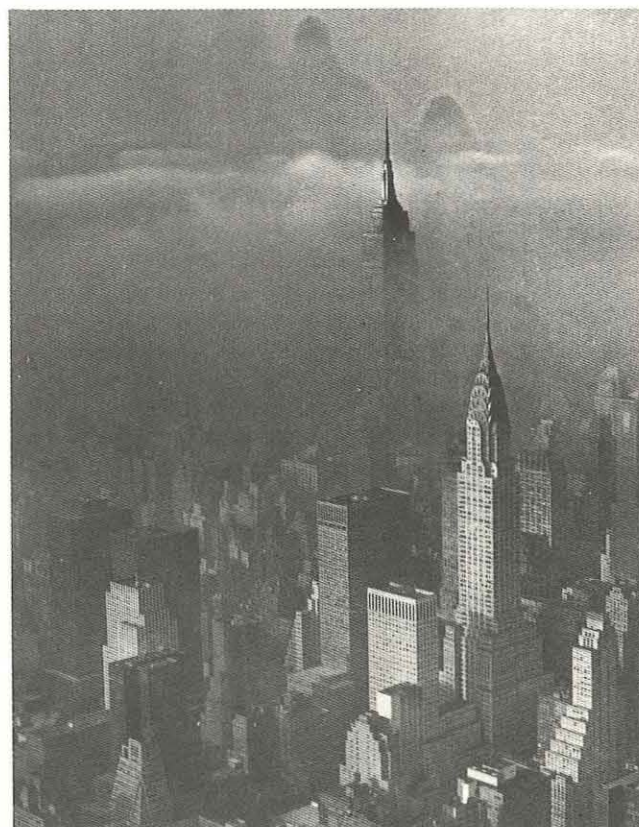
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Improvements in air quality, however, have not come cheap. The Clean Air Act cost business an estimated \$16-\$17 billion in 1978, with annual costs by 1987 estimated at \$37.5 billion. The Council on Environmental Quality estimates that cumulative air pollution reduction expenditures from 1978-1987 will total \$279 billion. As Everett Dirksen once noted, a billion here and a billion there soon start to add up to real money.

Have the costs outweighed the benefits? Freeman calculates that a 20 percent improvement in air quality would result in a reduction of mortality between .2 and 2 percent per year. This means a reduction of

mortality between 2,780 and 27,800 deaths per year, with a most likely value of 13,900 deaths avoided in 1978 alone. But how are we to put a price tag on each of these lives? What are 13,900 lives supposed to be worth, and to whom?

Economists try to answer this question by figuring out how much individuals are willing to pay for small reductions in their probability of dying within certain time periods. People are willing to pay various amounts to increase their odds of living longer, and from empirical estimates of their willingness to pay economists compile a value of statistical life—varying, according



Credit NAPCA/National Archives

to Freeman, from roughly \$300,000 to almost \$5 million. If a reasonable intermediate value is an even million, then the "monetary benefits of reduced mortality due to the control of particulates and sulfur compounds lie in the range of \$2.8 billion to \$28 billion per year."

Adding in the economic benefits of reduced health risks (savings in hospitalization, doctors' fees, lost wages) and benefits from reduced crop losses, etc., Freeman arrives at a total estimated benefit of between \$4.9 billion and \$51.1 billion. The most reasonable mid-range estimate of \$21.7 billion in benefits outweighs the \$17 billion in yearly costs of pollution control. On these calculations, the United States is

ahead to the tune of \$4 billion dollars a year in fighting against air pollution.

What if these calculations had turned up a top-heavy ratio of costs to benefits instead? Indeed, Freeman's data suggest that the net benefits of automotive emission controls are vanishingly small. The Harris poll indicates that the American public would continue to endorse the Clean Air Act even if the balance sheet had looked quite different. Are the American people simply irrational in this respect? Certainly most Americans are not willing to spend relatively minor amounts to purchase all sorts of other protec-



Credit Billy Davis, Louisville Courier-Journal/National Archives

tions of health and safety, such as smoke detectors, for example. Millions continue to pay for the privilege of fouling their own lungs with cigarette smoke. Yet they are resolved to hold the line on pollution *regardless of cost*. Is it irrational to choose policies whose economic costs may exceed their benefits?

### Counting Costs First

Lester Lave, Senior Fellow at the Brookings Institution, insists emphatically that "the benefits of cleaner air must be weighed against the costs of achieving it." He joins many industry groups in charging that the lack of cost-benefit analysis in setting

pollution standards has resulted in control levels that are unrealistically and senselessly strict. In testimony before the House Subcommittee on Health and the Environment, he claims, "When regulations have the effect of closing a plant or preventing construction of a new one, it is foolish to pretend that costs of abatement should play no role in setting standards."

Lave argues that "the notion implicit in the 1970 Clean Air Act Amendments is that a level of quality can be found which will protect the health of even the most sensitive groups." Yet health studies since 1970 strongly suggest that there is no threshold concentration below which exposures are safe. It can be extremely expensive for industry to remedy very small excesses of certain pollutants or to ensure that even atypical segments of the population are protected. On Lave's view, "A more realistic and honest approach is to acknowledge that air quality in an industrial society will occasionally deteriorate to the point where some sensitive individuals will suffer. The issue is how to balance the discomfort and perhaps even serious risk to these people against society's desires for inexpensive products and a growing economy." Risk assessment analysis may aid us in this balancing, so that expensive over-regulation can be avoided.

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### Counting Costs Later

Opponents of the ambitious use of risk assessment and cost-benefit analysis in setting clean air standards raise a series of troubling questions about the kind of balancing Lave endorses.

*How are costs, risks, and benefits supposed to be counted?* Freeman in his testimony translated costs and benefits into exclusively monetary terms, assigning dollar values to death and debilitating illness, even to the aesthetic pleasures of increased visibility and glimpses of bluer skies. This allowed for easy computations and clear comparisons. But the choice of money as a common metric to measure dissimilar risks and rewards is unsatisfactory to many who believe that it misrepresents the way in which these risks and rewards matter to us.

Douglas MacLean, Research Associate at the Center for Philosophy and Public Policy, notes that the use of money as a common yardstick to measure the costs and benefits of risk reduction involves a serious distortion. (Portions of MacLean's congressional testimony on risk assessment and the Clean Air Act appear

## Risk to Individuals, Risk to Society

The following discussion is excerpted from the testimony on risk assessment and the Clean Air Act presented before the Subcommittee on Health and the Environment of the House Committee on Energy and Commerce, by **Douglas MacLean**, Research Associate at the Center for Philosophy and Public Policy.

...The attraction of risk assessment is that it appears to be impartial and all-encompassing. For this reason, it appears to be an ideal basis for making choices and forming policies. It is important to realize, however, that not just any determinate and impartial decision mechanism, applicable in all situations, is rational or desirable. . . .

It is no great achievement merely to cook up a technique that will churn out decisions. The trick is not only to find one that treats all values fairly, since decisions that ignore all values are partial to none; the trick is to make decisions after weighing different values with the requisite sensitivity. We must be concerned with *how* a risk assessment incorporates values. . . .

Rights and justice are examples of values that express *social ideals*. As citizens, we want our laws and social institutions to acknowledge and recognize such values, because we want to live in a society that is regulated by the principles that these ideals imply. But we also want to see somehow expressed at a social level other ideals, which encompass a broad range of moral, aesthetic, and other values.

Social ideals are distinct from *individual preferences*, . . . those things we want for ourselves or for personal reasons. Individual preferences also reflect moral, aesthetic, and other values, but what we

want or value personally can be distinguished logically from what we can agree that we should want or value as a society.

The use of risk assessment can illustrate this distinction in a dramatic way. Risk assessments commonly report regular and predictable health effects to a large population in terms of the probability of risk to an average individual. To an individual, the outcome is hypothetical: he or she may or may not be killed or made to suffer as a consequence of air pollution. But for the society as a whole, the outcome may be accurately predicted statistically for the population at risk. At this level, for some hazards, (one element of) chance gives way to certainty.

Thus, there are two different questions an individual may confront: the first is whether the risk is personally or rationally acceptable to an individual; the second is whether the overall outcome is socially acceptable. It is not irrational, however impractical it may be, to regard the health effects to the nation—the numbers of lives we know will be lost or made less productive—as unacceptable, even if the risk to any individual is small. It is neither irrational nor uncommon to take a political stand on an issue that will have little effect on one's personal welfare.

To say that the controversy over the Clean Air Act is political, not technical, is at least in part to call attention to this distinction. Risk assessments that interpret hazards as risks to an individual cannot address the political issues that are raised by conflicting social ideals. To use such risk assessments to set air standards is to decide that these social ideals shall not be taken into account. Whether or not it is reasonable to make such a decision, it is certainly not neutral, objective, or uncontroversial. . . .

above). To rely on an economic measure "is to decide in advance that only economic preferences shall count in setting policies." It is to treat all reasons for holding various political convictions as economic preferences, weighted by how much we are willing to pay for them. But conflicts about clean air are conflicts about our values and ideals, and these must be judged on their merits, whatever we might be willing to pay for them.

Perhaps costs and benefits can be measured against some non-monetary standard. But MacLean cautions that *any* quantifiable common metric faces this same problem. "To choose any method of measuring in advance . . . is to choose to favor some values and to ignore others." We defend our political goals for a multiplicity of reasons, and each kind of reason must be taken seriously if we are to be fair to all.

Defenders of risk assessment as an analytical tool seem sure that various risks at least can be measured and compared in terms of the probability of their occurrence and the severity of their negative effects. But even if the level of risk could be scientifically determined, MacLean challenges the assessor's assumption that "the level of risk is all that matters to people and that the kind or nature of risk is not a relevant factor." People value very differently risks they choose themselves (cigarettes) and risks that are imposed on them by others (acid rain, deterioration of the ozone layer).

Research Associate Mark Sagoff, of the Center for Philosophy and Public Policy, notes that while we fear some risks, we *resent* others. In a book in progress, he explains why people may protest certain smaller risks

while tolerating other, seemingly more serious threats. "We resent risks imposed upon us, as members of the public, by those who seek, in doing so, to achieve economic ends. We resent these risks because, in being subjected to them, we are treated not as persons, that is, as ends in ourselves, but more as a mere means for the production of some economic good, such as overall efficiency or utility." Risk assessment has no quantitative tools for distinguishing resentment from other, non-morally motivated sources of opposition to risk.

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*Risks and benefits to whom?* Even if cost-benefit analysis were successful in totaling up the sheer quantity of relevant risks and benefits, this would still leave out another matter of prime importance from the point of view of justice. It matters who gets the risks and who gets the benefits. It can be argued that relaxing environmental standards to improve the benefit-cost ratio does not really reduce costs but instead shifts them—away from the corporations who produce the pollution to their victims who suffer from it. Costs are transferred from powerful industries to those least able to defend themselves from hazards in the air they breathe.

Risk assessment methods, furthermore, tend to lump different individuals or groups together and give estimates of the risk to some average, statistical person. But because health effects are concentrated in certain more vulnerable groups of the population, statistical averages, according to MacLean, "mask what may, in fact, be sacrificing some people or groups for the economic benefit of others."

*Can costs be traded off against rights?* Many people believe that air that is safe to breathe is a right of all citizens, a minimal demand which they are entitled to press against potential polluters. But if clean air is indeed a right, then, MacLean points out, "the economic consequences of clean air must be balanced against other economic considerations with extreme caution. Moral rights, according to most popular conceptions of rights, are not a special kind of economic consideration, but rather a way of protecting certain values from being tyrannized by the laws of the marketplace." Just as we outlaw child labor or chattel slavery without first reckoning the costs and benefits of these institutions, so we may want to pass laws protecting

the purity of our physical environment, without first deciding whether or not it is more efficient to allow a certain number of elderly citizens, or young children, to die.

*Do we want to rely on cost-benefit analysis to make our political decisions?* Finally, risk assessment and cost-benefit analysis seem unable to deal adequately with our social and political ideals. And the controversy over the Clean Air Act is essentially a political debate. In MacLean's words, "The argument is not about how we make our trade-offs, but how we set our goals . . . . At this level, beliefs and ideals should be considered on their merits so that a collective goal can be established. The trade-offs and confrontation with economic realities come later. This distinction is crucial. Only if it is respected can we maintain our values and ideals for what they are in a world where economic facts are all-pervasive and trade-offs inevitable."

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Few would deny that cost-benefit analysis and risk assessment can be enormously useful for choosing the most cost-effective means of achieving our common goals—after these goals have been independently determined. Defenders of the Clean Air Act in its current form argue that we should first form our political ideals, first set our standards for individual and community health and safety, and introduce considerations of cost only at the state of implementation. As Nicholas Ashford of M.I.T.'s Center for Policy Alternatives warns, "Cost-benefit analysis can be a useful tool," but it should not be pressed into inappropriate service "as an indiscriminate, decision-making rule." First we affirm our shared values, and only then do we investigate the financial or technical feasibility of realizing them. Risk assessment can help us look more clearly at the economic implications of our decisions about the air we all must breathe. But it does not seem that it can make those decisions for us.

The Center for Philosophy and Public Policy is initiating a major research project on the philosophical and ethical basis for assessing the risk and safety of alternative social decisions. A special portion of this project is focused on airborne risks. The research is directed by Dr. Douglas MacLean and Dr. Mary Gibson under a grant from the National Science Foundation. The first working paper from this project, "Risk and Consent: A Survey of Issues for Centralized Decision Making," by Douglas MacLean, is available from the Center for a postage and handling charge of \$2.50. To order, see p. 15.