

Real People, Real Environments, and Realistic Economics

The wealth and power of humanity in the 21st century could be used to create a far better world.

We write as economists who are troubled by environmental degradation and social injustice, by the wide and growing inequality of wealth and income in America and in the world, and by the harmful impacts of the globalized economy on the natural ecosystems that surround and support human activity. In order to change what is wrong with the economy, we must change what is wrong with economics as it is currently taught and practiced. We are launching a new organization, the Center for the Applied Study of Economics and Environment (CASE&E), to promote a vision of an engaged and realistic economics, in which an understanding of social equity and environmental protection cannot be separated.

In the 21st century, humanity has the collective capability to eliminate hunger and poverty worldwide, to attack lethal diseases instead of each other, and to build societies based on fairness toward others and sustainable relationships to the natural environment. These destinations are both economically feasible and socially attractive, but everyone "knows" that you can't get there from here. The social sciences, above all economics, provide too little guidance for those seeking to transform society, and too much apology for the inequitable and unsustainable world that exists today.

We are among the large number of economists who are unsatisfied with abstract theorizing for its own sake, and unwilling to endorse the conservative celebration of the magic of unregulated markets and the status quo. For us, the choice of economics as a career reflects a desire to understand the system of production and consumption, to explain the inner logic of the workings of markets, and above all to change the economic system for the better. Yet those who come to economics seeking to improve the world often end up disappointed. They enter a shadowy realm of ever-escalating abstraction from which emerges, again and again, a conservative anti-reform agenda.

Today, the unprecedented challenge of global warming has become more than an environmental problem. It is a civilizational challenge. Conventional economic thinking falls far short in envisioning a way through this crisis – or indeed, through other fundamental threats to human health and to nature. In these times, CASE&E believes that economists can and must provide critical skills and new insights. We take as a starting point that any economic analysis of the environment cannot be separated from issues of social justice. We also believe that useful new economic theory will arise only as economists engage with practical, real-world problems.

Where conventional economics goes wrong

Imagine what it would be like if economics stopped asking the wrong questions.

Conventional economics traditionally gives priority to the problem of universal scarcity (which is said to exist everywhere and always, because desires are insatiable), and to the efficiency of unregulated markets. But these are issues of limited real-world importance. The ongoing pace of material accumulation would soon eliminate any scarcity of life's necessities for affluent

societies and even for the world as a whole – save for the fact that economic institutions continually contrive new needs, while systems of unequal distribution reproduce poverty in the midst of wealth. The efficiency of perfect markets, which should be one among many interesting topics in economic theory, has enjoyed utterly disproportionate academic emphasis and relentless exaggeration of its relevance to actually existing, inherently "imperfect" markets.

The economic theory of endless scarcity and perfect markets attaches nearly scriptural significance to Adam Smith's passing mention of the invisible hand. In that now-famous metaphor, Smith explained how private greed, channeled through a competitive market, could contribute to the common good. Much of what is wrong with economics today comes from the disastrous overextension of that metaphor, far beyond its limited domain of validity.

While the mathematical sophistication and technical jargon surrounding this theory have escalated immeasurably since Smith's day, the social content and context of the theory have stagnated or even regressed. The people who inhabit the theoretical world of the invisible hand are stick figures: *homo economicus* is motivated only by selfish, insatiable desires for increased private consumption, lives in a void untouched by social influences and institutions, and remains unaware of the natural environment. Human well-being, in this most asocial of the social sciences, is judged by a narrow utilitarianism, presuming that each individual prefers more private consumption and less work – and that these private, individual preferences are all that matters.

For those trapped within the theoretical frame of the invisible hand, it is virtually impossible to make useful contributions to the discussion of public policy. The questions that matter to real people living in the real economy are centered on market imperfections, institutions, and the environmental and social context within which markets function. Having abstracted away from the vital core of policy debates, economists all too often drift off in either of two unhelpful directions.

On the one hand, the theory of abstract market economies provides ample opportunity for mathematical elaboration. General equilibrium theory, with its rigorous exploration of the (highly unrealistic) special conditions under which the "invisible hand" metaphor is valid, and even more esoteric excursions into game theory, have been followed by waves of abstract mathematical modeling throughout the top journals in environmental economics and other applied fields. On the other hand, the attempt to explain actual social behavior in terms of the theory's selfish stick figures leads at best to quirky insights about micro-effects of market incentives, in the style of the popular book *Freakonomics* – and at worst to policy analyses that reject reforms if they threaten to cause even trivial changes in private consumption.

The greatest policy innovation of 20th-century economics rested on a sharp break with the classical theory of the market economy. Combining common sense and elegant logic, John Maynard Keynes created a new macroeconomics and demonstrated that deficit spending can be a sensible cure for high unemployment. The modern welfare state, embodying Keynesian macroeconomics in practice, directly ameliorates economic inequality, by reducing unemployment and providing other social economic benefits.

But in the 1980s, as the conservative Reagan and Thatcher counterrevolution attacked the political legitimacy of the welfare state, economic theory banished the Keynesian understanding of unemployment and deficit spending to the periphery of academic life. A new fundamentalism claimed that any intervention in the wondrous mechanics of private markets was doomed to failure; naïve, misguided liberals could only make things worse by legislating and regulating.

Eclecticism characterizes the leading edges of economic theory today. The fundamentalism of the 1980s could not be sustained. The simplistic, unrealistic assumptions and the increasingly caricatured persona of *homo economicus* have begun to collapse of their own weight. But there is no clear alternative in sight, no new synthesis with a different message about the world. The appearance of models with new behavioral postulates, and analyses of the economics of limited and asymmetric information, may create a misleading impression of pluralism. General equilibrium theory and the political prescriptions of laissez-faire policy are not simply equal voices in a crowded field of competing frameworks; they remain considerably more influential than others. While avant-garde theory has moved on to new complexities, old models and metaphors of perfect market outcomes remain firmly entrenched in the application of economics to policy problems, including the environment.

Economics and the environment

Imagine that the environment was a central concern of economics.

In the early years of the 21st century, the worsening environmental crisis cannot be treated as something secondary and "external" to the understanding of economics and society. Global climate change threatens humanity as a whole; toxic hazards are differentially dumped on the poorest and least powerful; rivers, endangered species, and entire ecosystems are at risk. We propose to make such issues central to our understanding of the present and our agenda for the future.

Modern environmental economics began with the early 20th-century work of Arthur Pigou, who developed the analysis of externalities. His name is attached to the traditional policy proposal, "Pigouvian taxes" on polluting activities, equal to the value of the damages. But Pigou made it sound too easy to solve the problem. His analysis of a single externality implied that environmental damages occur one at a time, and that they are rare enough to allow the creation of individual taxes to address each one. He also assumed that there was a known or knowable monetary value to each such externality, and deduced that there was an optimal, frequently non-zero, level of damages that society should accept.

This Pigouvian analysis is overwhelmed by the real-world complexities of externalities: in practice, industrial systems cause numerous, interacting health and environmental damages, many of which are vitally important but impossible to price. The common but narrow vision of environmental policy, based on "getting the prices right" and then letting markets work their magic, is hopelessly inadequate to the challenge of controlling climate change and leaving a sustainable world for our children and grandchildren. There are principles at stake throughout the realm of environmental policy that defy monetary calculation: many people flatly reject the idea

that the optimal level of extinction of species, or of public exposure to nuclear waste, should be anything but zero.

Pigouvian taxes do embody the important principle that polluters should pay for the damages they inflict on society. But in both law and economics, a more conservative analysis has gained popularity. Legal scholar Ronald Coase argued that taxes and regulation might be unnecessary, since under some circumstances polluters and those harmed by pollution could engage in private negotiation to determine the appropriate compensation. While Pigou's examples of externalities often involved simultaneous harms to large numbers of people, Coase's examples tended to be localized, individual nuisances, where one person's behavior disturbed the immediate neighbors. The image of environmental externalities as localized nuisances serves to trivialize the real problems of widespread, collective threats to health and nature. Creative alternative readings of Coase have been suggested at times, but the dominant interpretation of his work has provided an intellectual basis for the retreat from regulation.

Two major trends have characterized the ongoing development of mainstream environmental economics. First, more and more market-oriented policy instruments and proposals have emerged. The opposing straw man, "command-and-control" regulation, has become a moving target. The market-based critique of regulation originally entailed advocacy of Pigouvian taxes; now it frequently involves rejection of taxes as well in favor of tradable emissions allowances, as in the US system for sulfur emissions trading.

In practice, it has become common for the polluting industries themselves to receive almost all of the allowances (97% in US sulfur trading; more than 99% in the EU carbon trading scheme), as a free gift from the public. This is the "polluter pays" principle seen through the looking glass: society instead is paying the polluters to reduce their emissions. Market-based policies can play a useful role in reducing the costs of environmental protection, and can in principle be reconciled with equity concerns, but in recent years the adoption of market-based policies has disguised a further redistribution of resources in favor of corporate polluters.

Second, a cottage industry of estimating the monetary value of externalities has emerged out of lawsuits and debates over environmental damages – above all, from litigation over the 1989 Exxon Valdez oil spill. Only a small part of the valuation process involves goods and services that literally have prices, such as the loss of fishing and tourism incomes following an oil spill. More often, valuation rests on very indirect inferences (the value of a park must be at least as great as the amount of money people spend to visit it) or on questionnaires asking hypothetical questions about "willingness to pay" for things that obviously have no prices (how much would you be willing to spend to protect the existence of whales?)

Methodological research has highlighted numerous pitfalls and problems with such estimates. Avoiding the known sources of error in the valuation field has become increasingly costly and difficult. As a result, it has become common to engage in "benefits transfer," modifying and applying published valuation estimates from more-or-less related studies in order to avoid the expense of a new state-of-the-art survey. The US Environmental Protection Agency's cost-benefit analysis of the standards for arsenic in drinking water assumed, for example, that the

value of a nonfatal case of bladder cancer equaled the value of a case of chronic bronchitis found in an earlier study, merely updated for inflation since the original research.

Another school of thought, known as ecological economics, has emerged in the last 20 years, creating a helpful but partial alternative to standard environmental economics. Ecological economists have appropriately insisted that the economy is embedded in, and cannot escape dependence upon, natural ecosystems. Nature provides many essential services and inputs to the economy; by analogy with physical capital, ecosystems can be described as embodying "natural capital." Ecosystems include complex webs of interdependence, and many environmental problems are likewise interdependent. There are critical thresholds beyond which irreversible damages occur – and the world is fast approaching these thresholds.

Ecological economists have advocated and publicized these thought-provoking ideas, and they have built an academic society and an important journal. CASE&E seeks to move these concepts into the real-world arena, emphasizing analytical links between social equity and the protection of natural capital, and developing new theory as it arises from practical applications.

Cost-benefit analysis versus environmental protection

Imagine that economic analyses supported sensible environmental policies.

No example better illustrates how narrow, technocratic, ideologically-driven economic analysis has supported the agenda of big business than recent federal cost-benefit analysis of environmental and health and safety regulations. Tolerated at arms length during the Clinton years, cost-benefit analysis was uncritically embraced by the Bush-Cheney administration. EPA and other agencies have to submit regulations to the Office of Management and Budget (OMB) to have their economic analyses approved; the monetized benefits of a proposal have to exceed the economic costs in order for it to be accepted. OMB can and does reject regulations on grounds of deficient economic justification, regardless of the environmental or other merits of the proposals.

This fig leaf of academic authority conceals a naked assault on protection of health and the environment. There is no economic crisis of unbearable regulatory costs, no trail of jobs and businesses destroyed by overzealous command-and-control environmental policies. The Clean Air Act and the Clean Water Act, the signature laws of 1970s environmental protection, have saved thousands of lives annually, forced an immense reduction in exposure to lead and other crippling pollutants, and undone much of the previous damage to the Great Lakes and countless other waterways -- all at entirely affordable cost, and despite the total absence of cost-benefit analysis throughout the drafting and implementation of the laws.

Cost-benefit analysis adds up costs and benefits to everyone in society, counting all dollars the same and thus ignoring equity and distributional questions by design. A \$1001 gain for a major corporation at the expense of a \$1000 loss for one of its janitors counts as a desirable improvement in cost-benefit terms. (Defenders of this practice point out that the corporation *could* compensate the janitor, making everyone better off -- but they count it as a net benefit to society even if, as usual, no compensation is paid to the losers.) Moreover, cost-benefit analysis

implicitly values at zero everything that cannot be monetized, no matter how qualitatively important it may be. As a result, there is constant pressure to concoct imaginary prices for even the most inherently priceless values.

Monetized estimates of benefits are complicated and often meaningless distortions of the true value of human life, health, and the natural environment. What does it mean to say, as the Clinton-era EPA did, that a human life saved by regulations should be valued at \$6.1 million? That estimate was based on intricate inferences about small differentials in the wages paid for dangerous jobs. Was it really appropriate to reduce the value of a life to \$3.7 million, as the Bush administration subsequently did? That estimate is based on answers to hypothetical questions about what people would pay to avoid low-probability risks of death under carefully contrived circumstances. Neither alternative even begins to convey the way that most religious and ethical beliefs view the sacredness of human life, nor the way that legal systems hold people responsible when they cause the deaths of others.

Toward an alternative, in theory and practice

Join us in creating a better economics of the environment, in academia and in public policy.

The problems that have come into such painfully clear focus under the Bush-Cheney administration will not be automatically washed away by a different election result. When the opportunity for new policies arises, the sensible alternative is not just to raise the benefit estimates, for example by restoring the \$6.1 million value of a life, and then repeat the cost-benefit analyses. To do so would still leave environmental protection hostage to technical disputes over the minutiae of valuation. Recent cost-benefit controversies have demonstrated that partisan dispute cloaked in technical jargon mystifies and excludes almost everyone, but does not reach "objective" agreement among the rival analysts. To a remarkable extent, the methodology is the message – and the cost-benefit message, even with \$6.1 million per human life, is not a positive one for people or for nature.

We have launched the Center for the Applied Study of Economics and Environment (CASE&E) to create and promote a more far-reaching alternative approach. We see the need for better theory and research within the economics profession, and for more proactive involvement in policy development, through dialogue and cooperation with environmental advocates.

The creation of a better theory of economics and the environment is a work in progress, with many questions yet to be answered. Briefly, we propose four organizing principles for a new, pro-environmental economics.

1. Equal rights to health and environment.

A fundamental principle is that everyone has an equal, democratic right to enjoy access to health and nature. This is a break with the status quo on several levels. In economic theory, it challenges the narrow utilitarian framework of valuation based on willingness to pay, and the presumption that valuable resources should always be distributed through the market. The work

of Amartya Sen is particularly relevant here, suggesting standards of welfare that transcend the boundless acquisitiveness of *homo economicus*. The theory of public goods, all but abandoned in recent years, needs to be revived and reoriented to address the core question of rights.

In political economy, the principle of equal rights raises the question of who benefits from the existing unequal distribution of resources, and who has the power to shape the debate over distribution. Would a world of equal rights invest more effort in preventing pollution and finding safer substitutes for things that no one wants in their own backyard? A new political economy, rooted in concern for environmental justice, is needed. This will have little in common with the cynical and misnamed "public choice" theory with its presumption that the public sector is inevitably a den of rent seeking and corruption. In fact, it is the public sector's over-reliance on privatization and deregulation in recent years that allowed the colossal rent-seeking of the likes of Halliburton and Enron. The remedy is stronger oversight by a revitalized public sector.

2. Investment, opportunity, and stewardship.

The environmental agenda is not just about protection, but also about investment in natural and human assets. The ecological economics emphasis on natural capital is relevant here, especially when extended to incorporate an understanding of the crucial role played by low-income rural communities that depend most directly on nature. Recent work has highlighted development strategies based on building natural assets, democratizing access, and defending the commons. While protecting the environment, at the same time such strategies can create individual and community opportunities for employment growth and poverty reduction.

With well-designed programs and regulations, there is no trade-off between environmental and economic well-being. This basic finding needs to be elaborated and widely publicized. Investment should be understood in long-range, socially oriented terms (think of children's education, not market speculation); it includes stewardship over the local, national, and global commons, which must be managed for the benefit of all, including future generations as well as the present. The well-known and inescapable paradoxes that result from discounting the future at any fixed, positive rate must be addressed, and alternative approaches to the economics of the future must be adopted. The basic algebra of present value, as currently understood and taught to economic students everywhere, instead dismisses the urgency of long-term concerns such as climate change.

3. Complexity, uncertainty, and the need for precaution.

Our task is to understand the linkages between natural and economic systems, which exhibit complex threshold effects, dangers of irreversible damages, and interactions between global changes and place-based, location-specific effects. Complexity and nonlinear dynamics, areas of important recent innovations in the natural sciences, pose a challenge to standard economic models that has not yet been fully absorbed. Dependence on initial conditions, a hallmark of many nonlinear systems, undercuts standard approaches to econometric analysis and model estimation. The work of the Santa Fe Institute is just beginning to explore the implications of these methodological paradoxes for economics.

As a result of both natural and economic complexity, policies that address individual externalities in isolation are typically inadequate. Instead, a systems approach is essential. Complete knowledge of the economics/environmental system, or even of important major subsystems, is impossible to achieve. Decision-making under uncertainty is the norm rather than the exception. Under these conditions, the precautionary principle provides a superior alternative to the spurious precision of risk assessment and cost-benefit analysis. There is a rigorous academic case for decisions based on the credible worst case outcomes, when – as usual – probabilities of potential harms are unknown. There is also an intuitive popular appeal to the precautionary approach: much of the environmental legislation of the 1970s and 1980s can be interpreted as precaution applied to serious but uncertain risks and hazards.

4. The good life and the limits of efficiency.

What is the economy for, anyway? For many people, the good life is not just about individual material wealth but also about open space, time, family, community, life meaning, and stewardship. The theory of public goods is again important to rebuild, since so many things that matter are not individual commodities. It is absurd to try to attach monetary valuations to priceless values, or to view all the multiple facets of life through the distorting lens of the market. Market efficiency, as conventionally defined, measures only a small subset of the human values related to the economy.

Today there are structural obstacles to securing and enjoying nonmarket values. The institutionalized rat race of the American economy guarantees insecurity, inequality, and status rivalry for all. It forces people to produce, earn, and consume more and more in order to maintain basic levels of security and care for themselves and their families. The rat race is doubly destructive: it traps and frustrates people who would prefer more social welfare and less private accumulation; and it damages nature through its ever-escalating levels of resource use, pollution, and waste. The result is a world of too many lawns and not enough parks, too many health insurance adjusters and not enough primary care providers – a social disease described brilliantly by Thorstein Veblen at the beginning of the 20th century, and by John Kenneth Galbraith at midcentury, and now overdue for a re-examination.

Our goal is not just to understand the world, but also to help change it for the better. A fierce and long-standing partisan battle is now raging over environmental policy, and over questions of equity and distribution of resources in general. Conventional economics has become a powerful force in this battle, a leading ideological justification for doing less rather than more to protect both people and nature.

One of the most effective aspects of the contemporary right-wing message is the false claim of economic necessity: environmental protection allegedly will throw people out of jobs, destroy communities, and exacerbate poverty because it interferes with the market. A successful response requires real economic analysis, not just public relations. Grassroots organizations, formed around local environmental struggles, find themselves up against slick, professional consultants and experts who wield economic ideology as a powerful weapon. Environmental

advocates have to be able to fight fire with fire, numbers with numbers, bad theories with good theories.

To address that need, CASE&E is seeking to organize economists to engage and work with environmental groups. Our initial agenda includes:

- the creation of internships, summer training institutes, and dissertation support, in order to encourage graduate students and young researchers to relate their professional work to the needs of environmental advocates;
- a web-based directory of economists open to collaboration with environmental groups, to aid such groups in finding consultants and advisors; and
- the development of task forces of economists working on issues such as climate change, to produce analyses supporting active environmental protection and to challenge the public misperception that a monolithic, conservative position is held by "the economics profession" as a whole.

Please join us if you are working as an economist, and you agree with our short statement of basic principles:

- A clean and safe environment is a birthright of every person. It is not a commodity to be distributed on the basis of purchasing power, nor a privilege to be distributed on the basis of political power.
- Safeguarding the natural environment is inseparable from promoting social justice. Without a fair distribution of wealth and power, neither the free market nor government regulation will guarantee environmental quality and human well-being.
- Today's environmental challenges demand new thinking. By engaging with real-world problems economists can help craft effective solutions and build a more just and sustainable future.

To these ends, we are committed to assisting democratic and participatory decision-making in public policies for the environment and natural resources.

For more information, see our website at www.case-and-e.org