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SUSTAINABILITY, EFFICIENCY, AND GOD: Economic Values and the Sustainability Debate

Robert H. Nelson
School of Public Affairs, University of Maryland, College Park, Maryland 20742-1821

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ABSTRACT

Economics is not only a technical subject; it also reflects a strong set of values. The values embedded in the economic way of thinking are often at odds with the way of thinking of biologists, ecologists, and other physical scientists. Economists value nature in terms of its benefits for human consumption and its usefulness in promoting economic growth. Growth is so critical because it can alleviate material scarcity in the world, and poverty is the true source of evil behavior. A recent dissident group of "ecological economists" argues that, rather than growth, a more appropriate goal is sustainability. The conflicting values implicit in mainstream economics and in ecological economics partly reflect deep underlying theological differences. These differences can be traced back to old messages of the Judeo-Christian tradition, now being manifested in secular form.

INTRODUCTION

Economic language is often the currency of contemporary policy debate (71). To say that a policy is economically "efficient" is to make a strong claim for the social legitimacy of that policy, to administer in a secular age what in an earlier time would have been said to be the blessing of God (28). Economists have occupied many important positions in government (67, 84). Key domestic

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agencies such as the Congressional Budget Office and the Office of Management and Budget, and international organizations such as the World Bank, traditionally have employed many economists on their policy staffs. In such positions, economists can exert a significant influence on government decisions concerning a wide range of issues (31), including environmental and natural resource policies that have a major bearing on current sustainability debates.

This chapter examines the value perspective that economists bring to the sustainability issue. Members of the economics profession are by no means monolithic in their views on sustainability, but the value system embedded in the economic approach to public policy tends to lead to a certain way of thinking about environmental and natural resource problems (15, 22, 87). This economic outlook differs substantially from the perspectives of many biologists and other physical scientists.

The subject of sustainability, to be sure, has not been a central concern in the economic literature. Until recently, only a few economists such as Daly (16) had addressed the issue in the terms of the current debate. More recently, in response to wide public interest, some leading figures in mainstream economics have sought to show how sustainability can be understood in economic terms (82). However, it is fair to say that most economists today are still skeptical about whether the concept of sustainability is a useful guide for social action or whether it merits substantial professional attention for policy-making purposes.

Economists as Advocates for a Value System

Economists today increasingly recognize that in social policy matters it is almost impossible to be "value-neutral" (78). In giving policy advice, economists—or any social scientists—will inevitably reflect a set of intellectual constructs and presuppositions that at some level become a matter of faith (88). From the progressive era early in this century, however, economists argued that their policy efforts were those of the value-neutral expert (59). The governing process included two separate realms: objective professional expertise and subjective value systems. The social value judgments should be made by politicians in the democratic process, setting the broad course for society. Economists, along with other expert professionals, should frame the options for consideration and, once politicians had chosen among these options, should assist in the technical tasks of implementation (65). But economists should not seek to press their own values (so the reigning economic orthodoxy went for many years), because that would be an improper role for a professional.

Economists began entering government in large numbers in the New Deal years (1930s) and during World War II (early 1940s). They found, in many cases, that they could not reconcile their actual experiences in the policy world with the norms of proper professional conduct that they had been taught.

Indeed, well before the current discussions of sustainability, many leading policy economists were led to abandon the previous claims to value neutrality. In 1968, Kaysen (37) observed that "the role of the economist in policy formation in these areas is almost diametrically opposite to that envisaged in the formal theory of policy making. . . . He functions primarily as a propagandist of values, not as a technician supplying data for the pre-existing preferences of the policy makers."

Schultze (75) said that "political values permeate every aspect of the decision-making process in the majority of federal domestic programs. There is no simple division of labor in which the 'politicians' achieve consensus on an agreed-on set of objectives while the 'analysts' design and evaluate—from efficiency and effectiveness criteria—alternative means of achieving those objectives." Within this framework, Schultze contends, an economist should act in the policy role as "a partisan advocate for efficiency" (76), which in practice would mean efficiency as determined through the specific value-lens of economic analysis (9).

The experience of economists in government also showed that most of the details of higher economic theory were too far removed from the real world to have practical consequences for policy decisions (80). The statistical results of econometrics were typically too fragile to be relied upon in setting policies affecting millions of people. Instead, a few key ideas—"just common-sense economics ... the kind of basic analytical framework that we all sort of got in Econ. 101," as one former economist with the President's Council of Economic Advisers put it (1)—were the greatest source of economic influence.

Cairncross (12) wrote of his long experience as a policy adviser to the British government that it was the economic "way of thinking" that had the greatest impact in the policy-making process. In general, as Weiss (90) wrote, the key policy role of the social sciences was that they provided "the intellectual background of concepts, orientations and intellectual generalizations that inform policy." This economic way of thinking and the value system it represents now put those in the mainstream of the economics profession at odds with many of those most concerned with the sustainability of the world future (64).

In more recent years, some economists have found that even the higher reaches of economic theory are not truly separated from implicit value elements. Extending the thinking of philosopher Richard Rorty (72) into the economic realm, McCloskey (53) has argued that economic theorizing with its scientific claims "promises knowledge free from doubt, free from metaphysics, morals and personal conviction. What it is able to deliver renames as scientific methodology ... the economic scientist's metaphysics, morals and personal convictions"—and, it might be added, in some cases religion as well.

The economist's claims to scientific objectivity are, so McCloskey and others (41) have said, a rhetorical device, not to be taken literally. If not by

explicit calculation, economists are effectively seeking to exclude non-economists from the debate and to stake a claim for political power based on scientific authority. Yet, in regarding the views of economists on sustainability and other issues, it is the value system as much as the technical analysis that drives the conclusions (21, 74).

The Economic Way of Thinking

The value system of economics begins with the fact that economics is a social science, and thus it is about the interactions of people and their welfare. Animals, plants, the physical state of the world, and other material conditions do not enter into consideration, except in so far as they provide a backdrop to human well-being. It is in this sense similar to the biblical view that human beings alone are made in the image of God, and that God created the world out of nothing for his enjoyment and for human use (91).

That is not to say that sustaining nature necessarily commands a low priority in the economic value system. If people derive much pleasure ("utility," to use the economist term) from nature, then preservation of natural conditions may be a high social priority. But it is the fact that people benefit from or choose to protect nature for reasons of their own doing, not the intrinsic necessity of sustaining elements of nature per se, that counts in economic thinking (24).

Another key feature of the economic way of thinking is that the factors entering into human welfare are regarded as substitutable. Thus, no one good or service—no one biological or natural system—has any automatic claims. If any one item is not available for human use in the future, economists expect that people will be able to obtain a suitable substitute. By the essence of its method, economics is concerned with tradeoffs. Given that item A costs so much, economists ask whether more of it will add or detract from social well being, recognizing that producing or maintaining A requires giving up the "opportunity cost" of other items that could be obtained by society for the same expenditure of resources (96).

Another way of saying this is that the economic way of thinking rejects the idea that some things are literally "priceless" (38). Many people will say that preserving a species, saving human lives, or some other goal is beyond any consideration of costs, but economists regard such assertions as a rhetorical and political device. These assertions are claims on resources by partisans of particular causes, rather than a reasonable basis for priority-setting by society. Adding up all the claims made for "priceless" objects, or even for perfectly realizing one goal, economists suggest, could well exceed the total social resources available (69). It is thus not only objectionable in principle, but it may also be physically impossible to realize such demands.

Another important element of the economic way of thinking is that well-being is derived from consumption. The economic world is divided into acts

of production and acts of consumption, and it is only the latter that enter into the "utility functions" by which economists rank one consumption set—and, in the aggregate over all people, one social outcome—relative to another. In policy-making, this outlook translates into opposition by economists to preserving for their own sake particular industries, jobs, communities, and other portions of the physical infrastructure of production. Economists have similarly opposed the many proposals that society should choose a social infrastructure of production—a set of laws, regulations, and other institutional mechanisms—on the basis of the morality of each mechanism.

Economists thus oppose policies to curb speculation, arguing that speculative practices provide socially useful incentives in the market to conserve resources today in order to provide for greater total production in the long run. The wage level is part of the arrangements for production and thus is not itself an item of consumption. Hence, most economists oppose the government interference with market wages that many people have sought on social equity grounds such as the "just wage" arguments of the past or the more recent "comparable worth" claims. Similarly, economists argue that the best way to control pollution is to allow the market system to operate, requiring the creation of formal rights to pollute the environment that could either be sold by the government (i.e. polluters would pay a tax) or transferred into private ownership for market trading (42, 73, 83). Economists have rejected the value objections made by some environmentalists that such a policy would be unethical, amounting to the official sanctioning by government of immoral behavior—analogous to issuing permits for a form of antisocial, if not criminal, activity against nature.

In general, the economic way of thinking argues that public policy should be determined by the end of achieving efficient use of resources to maximize production and consumption, not by the moral desirability of the physical methods and social institutions used to achieve this end.

In considering whether current social consumption should be reduced, as some have said, for reasons of sustainability, the economic way of thinking thus finds that there is only one sound reason for doing so. It might be desirable to reduce current consumption, if this reduction will allow for increases in future consumption—either through greater present investment or reduced depletion of existing natural resources. The possibility that consumption should be reduced because the act of consumption is not good for the soul, or is not what actually makes people happy, has no place within the economic value system (64).

To be sure, some economists have found tensions within their own thinking with regard to the presence of these strong value elements. Thus, if society wants to declare that preserving a wilderness should be accomplished, regardless of the costs, or that consumption should be reduced as an ascetic act of

self-denial, then economists should as value-free scientists defer to this choice. However, as noted above, economists in practice act as strong advocates for the values embedded in the economic way of thinking.

In recent years, some economists have sought to reconcile this tension by introducing a new concept of "existence value" (44). The existence value is the amount that a person would be willing to pay simply for the knowledge that a wilderness, an endangered species, a distinctive forest ecology, or some other object exists in the world. In this way, the traditional necessary link in economics between individual benefit and actual consumption would be broken. A person could be said to derive benefit from many things that he or she did not expect ever to experience or consume directly. Economists then propose to calculate and aggregate these individual benefits of existence values in order to derive estimates of total social benefits and costs of particular policy proposals (57).

An active debate has broken out within the economics literature over the desirability and validity of introducing existence values into the repertoire of economic analysis (33). The objections are many, but two practical concerns are particularly telling. First, existence value is sufficiently nebulous that its calculation is subject to very wide ranges of estimates (79), and the credibility of the calculations is often doubtful. Second, existence value is not, in principle, limited to wilderness, endangered species, and other objects in nature, but could be attributed to jobs, dams (a powerful symbol of progress for earlier generations), highways, and indeed virtually any object that is invested with symbolic significance by some member of society. To try to measure in dollar terms the economic magnitude of individual and aggregate social benefits derived from all these symbolic associations would greatly complicate the practice of policy economics. The introduction of existence value, so the critics argue, seeks to expand the scope of the values reflected in economic analysis but in the end threatens to undermine the clarity of the economic way of thinking.

Economic Values and Sustainability

The subject of sustainability is not altogether a new one for economists. Mill, one of the great economists of the nineteenth century, addressed it famously in the following terms (56):

> The preceding chapters comprise the general theory of the economical progress of society, in the sense in which those terms are commonly understood; the progress of capital, of population, and of the productive arts. But in contemplating any progressive movement, not in its nature unlimited, the mind is not satisfied with merely tracing the laws of the movement; it cannot but ask the further question, to what goal? Towards what ultimate point is society tending by its industrial progress? When the progress ceases, in what condition are we to expect that it will leave mankind?
>
> I cannot therefore regard the stationary state of capital and wealth with the

> unaffected aversion so generally manifested towards it by political economists of the old school. I am inclined to believe that it would be, on the whole, a very considerable improvement on our present condition. I confess I am not charmed with the ideal of life held out by those who think that the normal state of human beings is that of struggling to get on; that the trampling, crashing, elbowing, and treading on each other's heels, which form the existing type of social life, are the most desirable lot of human kind, or anything but the disagreeable symptoms of one of the phases of industrial progress.... The best state for human nature is that in which, while no one is poor, no one desires to be richer, nor has any reason to fear being thrust back by the efforts of others to push themselves forward.

Until recently, few other economists sought to consider what a sustainable world might be and what it might mean for social arrangements (63). However, in a 1991 lecture to the Woods Hole Oceanographic Institution, Solow (82) applied the economist's value lens on the world to the subject of sustainability. His conclusions are of particular interest as an illustration of the application of traditional economic values to this subject by a leading contemporary economist (a Nobel prize winner in 1987).

First, Solow acknowledged that, like most economists, he started off skeptically. Even where an effort had been made to develop "carefully thought out definitions and discussions" of sustainability, the fact was that "they all turn out to be vague." Indeed, Solow was of the opinion that "sustainability is an essentially vague concept, and it would be wrong to think of it as being precise." If there were a meaning, it belonged to the realm of ethics rather than science: "It says something about a moral obligation that we are supposed to have for future generations." As long as it is understood as a declaration of a broad social value, sustainability "is not at all useless."

Solow then observed that sustainability cannot literally mean "to leave the world as we found it in detail"—something not only physically "unfeasible" but also "when you think about it not even desirable." He stated that, instead, sustainability must be understood in the terms of "an obligation to conduct ourselves so that we leave to the future the option or the capacity to be as well off as we are." Thus, society is morally obligated to act to ensure that the social welfare of future generations will be at least at the level of the present generation.

As noted above, economic thinking considers that there is no reason in principle why any one form of consumption should automatically trump other possible ways of attaining well-being. As Solow said at Woods Hole, "What about nature? ... I think that we ought, in our policy choices, to embody our desire for unspoiled nature as a component of well-being. But we have to recognize that different amenities really are, to some extent, substitutable for one another." If people will feel happier going to baseball games (now and in the future) than visiting wilderness areas, then building baseball stadiums should command a higher government priority. As Solow elaborated, "sustain-

ability doesn't require that any *particular* species of owl or any *particular* species of fish or any *particular* tract of forest be preserved." Unless a species contributes instrumentally to future production and consumption (perhaps by the use of its genetic code), sustainability offers no grounds for the Endangered Species Act, as economists think about the matter.

Solow does not believe that the welfare of future generations can be entrusted simply to the workings of the market. Active government policy intervention might be necessary. Indeed, he urged his audience to think about what government policy measures might be needed to ensure "sustainability as a matter of distributional equity between the present and the future." In this framework, sustainability becomes "a problem about savings and investment. It becomes a problem about the choice between current consumption and providing for the future." And government, as economists have believed at least since Keynes, can play a major role in determining levels of total social consumption and investment. Thus, the issue of sustainability becomes a part of macroeconomics.

To be sure, by this definition, sustainability had never been much of a problem in the modern era and would not be unless future developments cause a drastic reversal of the economic trends of the nineteenth and twentieth centuries. As Solow observed, "you could make a good case that our ancestors, who were considerably poorer than we are, ... were probably excessively generous in providing for us." In other words, past generations saved and invested so much, sacrificing their own consumption for our benefit, that they ironically ended up accomplishing a massive redistribution of income from a relatively poorer group of people in those days to a relatively richer group today. Based on this past precedent, and given the general value presumption in favor of a more equal distribution of income, the current generation perhaps should be looking to increase its consumption, to redistribute income from the richer people expected in the future to those of us who are less well off today.

This economic way of thinking about sustainability obviously is not what many people who now express concern about the issue have in mind. Solow's concerns reflected in part the long-standing interest of economists in the determinants of economic growth. Indeed, early in his career, Solow had been a leading developer of several aspects of "growth theory," which addressed much the same policy questions of determining appropriate levels of investment and consumption over the long run (81).

In policy-making circles, economists have been particularly prominent as advocates for sustained economic growth. The Council of Economic Advisers, the leading vehicle for transmitting the views of professional economists to the US government, was created expressly for the purpose of maintaining full employment and setting the economy on a path of long-run sustained growth (23). The pursuit of growth is one of the principal elements in the economic

value system, one often in conflict with the views of those most concerned today about sustainability.

The Value of Growth

Economic values, some people are sure to think, leave nothing sacred, reduce everything to crass material terms. It is said that "an economist is someone who knows the price of everything and the value of nothing." The economic value system is at odds with important religious traditions, which consider parts of life as transcendent, above the daily routine of production and consumption. When economists come to apply their economic way of thinking to marriage, for example, it is treated as a contractual relationship to be negotiated to serve the individual advantage and convenience of each party (7).

Indeed, thinking economically does not come naturally to most people. The economics profession expects that instilling the way of thinking of economics will require long and intensive training, typically requiring many years of graduate school. This is not a matter of the analytical complexity of the subject. As noted above, the practice of policy economics depends mostly on a firm grasp of a small number of fairly elementary principles. Rather, absent regular reinforcement, the policy analyst is likely to slip into modes of thought grounded in value traditions that inject a greater element of the sacred—the priceless—into the affairs of mankind.

Indeed, a lifelong professional commitment to the practice of economic values depends on a strict discipline that might be described as requiring a certain religious zeal of its own (25). Not all economists are comfortable describing the matter in such terms, but many have observed that the value system of economics, like most value systems, shares important qualities with religion (28). In the case of economics, the theological elements remain implicit, as are almost all the important values that underpin the economic way of thinking. At the heart of the religious side of economics is a conviction of the powerful value gains of economic growth. Economists might be said to be the "priesthood" for a secular religion of growth (85).

In a survey of leading American economists, Baumol (6) was asked not long ago to explain why he had decided to enter the profession. He replied "I believe deeply, with Shaw, that there are few crimes more heinous than poverty. Shaw, as usual, exaggerated when he told us that money is the root of all evil. But he did not exaggerate by much." The source of evil, as Baumol sees it, is poverty, and poverty can be solved by growth. In finding the solution for evil, economists are addressing a subject that has also been central to the history of religion. Economists are, in effect, expressing a secular faith. This "economic theology" might be regarded as one belief system within the larger "religion of progress," as it has been described, that has characterized much of the thinking of the modern age (11, 45).

Marxism, socialism, capitalism, virtually all the major systems of economic thought of the past 200 years, are particular branches of this modern religion of progress (60). Schumpeter (77) once wrote of "the gospel of Marx." These secular religions differed on the specific details of how economic growth would be realized—they sometimes even fought wars with one another over the details of economic interpretation, much as Christians warred over the details of interpreting the Bible—but they found no disagreement that satisfying all real material needs would greatly transform the world for the better. For them, the explanation for why people cheat, lie, steal, and otherwise behave badly is the pressure of material deprivation. In other words, poverty is the original sin, and the road to secular salvation is economic growth that eventually ends scarcity and banishes evil.

As the most influential economist of the twentieth century, Keynes (40) in 1930 predicted that, with existing rates of economic growth, the world would have all the material goods it needed within 100 years. Like many ordinary people, Keynes regarded the economic value system as a crass and lower species of morality that should be abandoned as soon as sufficient material advance made this possible. A sustained commitment to economic progress would mean that "we shall be able to rid ourselves of many of the pseudo-moral principles which have hag-ridden us for two hundred years, by which we have exalted some of the most distasteful of human qualities into the position of the highest virtues. We shall be able to afford to dare to assess the money-motive at its true [base] value." If people kept the faith and bore with the current situation, the maintenance of rapid economic growth would fairly soon lead mankind "out of the tunnel of economic necessity into daylight"—to a new heaven on earth. It is probably fair to say that the sustainability concerns of today were never taken as a serious problem, if considered at all, by Keynes.

In America the economics profession emerged during the progressive era, as part of the broader progressive aim to create the necessary social instruments for the scientific management of society. Progressivism has been described by historians as "a secular Great Awakening" that sparked "a moral fervor that had all the earmarks of a religious revival" (13, 29). The message of this secular religion was yet another economic theology, described by historians as the "gospel of efficiency" (34). Waldo (89) would observe that, in the progressive era, "it is yet amazing what a position of dominance 'efficiency' assumed, how it waxed until it had assimilated or overshadowed other values, how men and events came to be degraded or exalted according to what was assumed to be its dictate."

In progressive religion, efficient and inefficient become in essence moral categories, the test of whether an action serves an ultimate purpose. It is similar to the distinction between good and evil in Judeo-Christian religion. Efficiency could be so exalted because, if economic growth is the road to secular salvation,

the valid test of whether an action contributes to the salvation of humanity is whether it is efficient.

It is no coincidence that the emergence of sustainability as an issue comes at a time when faith in economic progress is waning. Indeed, to declare that an action is sustainable seems today to be serving a function similar to declaring it efficient in the past. In neither case is it meant to be a precise statement about the consequences of the action (70). Pezzey (68) surveyed the definitions given in his review of writings on the subject of sustainable development, and found more than 50 concepts. In practice, virtually every group in society today seems to think that there are valid grounds for regarding its activities as a genuine key to realizing a sustainable future. For example, reflecting the all-purpose term of approval that sustainability has become, the President of the National Coal Association (46) recently declared that "in reality, our 250-year supply of coal is the only domestic source of energy that meets the definition of 'sustainability.' ... Without a doubt, the catalyst for a stable U.S. economy under sustainable development is an abundant and secure energy supply," led by coal.

In current discussions, to say that an action is sustainable is, in essence, to declare that it is socially legitimate. Terms such as "providence" in the medieval era, "natural law" in the Enlightenment, "efficiency" in the progressive era, and now "sustainability" at the end of the century, tell us more about our basic value systems—the gods we worship and who must bless our actions—than they do about the character of any specific action so described.

The shift from efficiency to sustainability no doubt reflects in part the moral disappointments of the twentieth century, relative to the hopes for economic progress that were widely shared at the beginning. The economic advances promised were, on the whole, realized in the western world. Yet, contrary to the basic assumption of all the various branches of the religion of progress, a whole new order of material abundance did not seem to change the basic moral and spiritual condition of the world. Indeed, the record of the twentieth century would be filled with world wars, genocides, prison camps, nuclear bombs, and many other dismal objects and events. Instead of leading to a secular salvation, science and technology seem to have magnified the powers of destruction, causing some economists to fear that economic efficiency was making the arrival of a terrible new hell on earth as likely as heaven on earth (8).

Predictions of Environmental Collapse

On the failure of the twentieth century to live up to the early hopes, there are few dissenters. Yet most economists continue to regard the continued pursuit of economic growth as an appropriate policy goal, even while they have lowered their expectations for the consequences. Perhaps heaven on earth will

not be reached by this route, but one can still reasonably hope, most economists believe, for a better future (4, 86).

Some economists outside the mainstream, however, have recently banded together in a new subfield of "ecological economics" that is prepared to reach more radical conclusions (14, 43). In favoring the application of a new criterion of sustainability to public policies of all kinds, ecological economists in some cases argue that the whole world faces serious economic and social disorders of various kinds, if there are not drastic changes in basic social and economic arrangements to curb or even reverse growth (10, 27).

This concern, to be sure, is at least as old as the beginnings of the industrial revolution. In perhaps the most famous answer of all, Malthus (50), a leading economist of his time, contended that population growth was sure to outrun available food supplies. Later in the nineteenth century, Jevons (36), another prominent figure in the history of economic thought, argued that coal was certain to run out in England, and no other energy substitute would be available to sustain the existing standard of living. When such concerns emerged again in the United States in the late 1960s and early 1970s, it was at first physical scientists who typically pressed the case (20).

More recently, the United Nations Educational, Scientific and Cultural Organization (UNESCO) published a set of explorations from the field of ecological economics on the subject of sustainable development. As Mayor (52) summarized the overall conclusion: "unless development is distinguished from economic growth, the turn-off towards sustainable development will be missed." Time is running short to avert grave environmental and social damages to the very fabric of the earth because "too many warning signs have already been ignored suggesting that, in North and South alike, we are moving in the wrong direction and that there may be few, if any, short-cuts back."

The Report of the World Commission on Environment and Development (93) in 1987 indicated that the total world economy might have to grow five to ten times its current size. Without such growth, the poor of the world would be unable to come up to the living standards of existing developed nations, leaving the world with unacceptable long-run inequalities. The editors of the UNESCO report found (27), however, that an attempt to achieve "anything remotely resembling" this magnitude of economic increase would "simply speed us from today's long-run unsustainability to imminent collapse" of the world environment. It would be essential to achieve a future "pattern of development without throughput growth." To avoid the permanent maintenance of large disparities in income between rich and poor countries, the scale of economic activity of rich countries would have to decline (27): "[E]cological constraints are real and more growth for the poor must be balanced by negative throughput growth for the rich." It would also be necessary to accomplish major transfers of income from rich to poor countries as well as to shift the

relative magnitudes of production. Other major institutional changes, including sharp curtailments in world trade, would also be necessary conditions to achieving a sustainable future (18).

The Mainstream Economic Critique

In applying the lens of economic analysis to such forecasts of looming environmental destruction, mainstream economists have responded with considerable skepticism (5). They point out that the prices of most minerals and other natural resources have shown a fairly consistent trend of decline for about a hundred years (3, 94). In the short run, at least, rather than shortages, an excess of food and minerals and associated employment losses and other disruptive economic transitional effects have been the greatest policy concerns of many world governments (92).

The existing trends in environmental degradation are less favorable, but awareness of the environmental problem is more recent, and institutional adaptation can be expected to occur slowly. As the economic way of thinking sets the framework of analysis, the "sink capacity" of the environment has, in effect, been treated as a free good in a large commons (32). The development of regulatory and pricing mechanisms to bring access to the commons under control is only about 25 years old in economically advanced nations and has just begun in most less developed countries.

Reflecting this economic perspective, the World Bank (92) states that "the environmental debate has rightly shifted away from concern about *physical limits* to growth toward concern about incentives for *human behavior* and policies that can overcome *market and policy failures*." As economists explain, "the reason some resources—water, forests, and clean air—are under siege while others—metals, minerals, and energy—are not is that the scarcity of the latter is reflected in market prices and so the forces of substitution, technical progress, and structural change are strong."

In the 1980s, deregulation of oil and gas ended the "energy crisis" of the 1970s, after some unsatisfactory earlier attempts by governments to apply price controls and other regulatory mechanisms. Current anxieties about an environmental crisis and the policy responses of many world governments to environmental problems, many economists think, are in a category similar to that of the 1970s mishandling of energy problems. If the political hurdles can be overcome, environmental problems should be amenable to the same types of pricing and market solutions as the energy crisis (2, 30, 66).

In the economic way of thinking, more economic growth rather than less will be the answer to a large class of environmental problems. Higher incomes both create stronger public demands for environmental amenities and help to bring about a more sophisticated political process that will respond effectively and rapidly to growing public demands for environmental amenities. On the

whole, experience has shown that the higher the income of a country around the world, the lower the level of air, water, and other pollution and in general the higher the quality of the environment for human use (92). The quality of the environment is yet another example of the general economist view that growth will be the answer to the problems of the world.

Underlying Moral Elements

There is no way in principle to resolve the question of whether existing rates of economic growth can continue for the foreseeable future without creating unacceptable environmental stresses. Economists can point to the 200-year history of mistaken predictions of food, energy, timber, and other dire crises sure to occur in the near future. Yet, the fact that these predictions essentially all proved wrong does not guarantee that they must always be erroneous. In the end, it comes down to a matter of judgment, based on the weight of the evidence available, and which risk seems greater—the risk of making major sacrifices today that prove to be needless, or the risk of not taking precautions, and then later generations possibly suffering the consequences.

Moreover, complicating the matter, as in most controversies involving economists, further powerful value elements underlie the discussion, revolving around the merits or lack of such in the value system implicit in the mainstream economic view (17, 19, 26, 95). The value system of most economists regards the environment as a factor of production. Labor and capital have long received attention from economists as key factors of production. Land and natural resources were also recognized many years ago as significant factors, although regarded as playing a declining role in a modern economy. It is only recently, however, that economists have come to regard the sink capacity of the environment as yet another input that must be allocated among industries through the same supply and demand mechanisms and incentives that control the use of any factor of production.

In thus treating the environment as a "commodity," the economic way of thinking is offensive to many religious traditions. Many could be given, but consider one example, the tradition of Protestantism. In the sixteenth century, one of the founders of the Protestant faith, Calvin (39), stated that God "brought forth living beings and inanimate things of every kind, that in a wonderful series he distinguished an innumerable variety of things, that he endowed each kind with its own nature, assigned functions, appointed places and stations." As a result, it is possible for us to enjoy "a slight taste of the divine from contemplation of the universe."

Calvin then, and other Protestants up to the present day, regarded nature as a manifestation of the presence of God in the universe, a source of religious enlightenment and spiritual inspiration (61). A wilderness area is a cathedral of sorts, because it allows a person to derive spiritual inspiration by coming

into the close presence of the divine in the world (58). To put a wilderness area to use—to regard it as a factor of production—is to deface a church. The same ethic may extend to many other aspects of nature (54). Nature must be preserved because it is a part of "the Creation." To put a price on nature is to put a price on something that belongs to God.

To say that human beings can remake the world in the place of God, that they can redo the creation, would have been declared a heresy 500 years ago. Today, a journal of environmental opinion merely observes that with their values "economics, and economists, are traditional enemies of the environment" (48).

The Biblical Treatment of Sustainability

The very subject of the sustainability of current society also is hardly a "value-neutral" question. Implicit in the mainstream economic devotion to eliminating poverty through growth and progress is an essentially Christian way of regarding the world: The record of all human history is a gradual advance from a degraded condition to a future in which happiness and spiritual contentment will reign. The question of the sustainability of society also has powerful religious overtones and comes up many times in the Bible. Genesis, Chapter 6 in the King James version, notes that "men began to multiply on the face of the earth, and daughters were born unto them." We learn shortly thereafter that God, looking down on the spread of mankind over the earth, was mightily displeased with this and other elements of his Creation—that "the wickedness of man was great in the earth." Indeed, God's displeasure was so great that he resolved to "destroy man whom I have created from the face of the earth; both man, and beast, and the creeping thing, and the fowls of the air." It was, to use a more contemporary language, a negative verdict on sustainability.

In a recent translation of the Bible, the same verse is given in present-day English. God is said to be displeased with the fact that "now a population explosion took place upon the earth." As a result of this and other signs that human beings are failing to fulfill his intentions, he resolves to "cover the earth with a flood and destroy every living being." He recants later only to the extent of allowing Noah to save two of every species, as the Endangered Species Act today seeks to sustain the animal heritage of the earth in the face of the unsustainable spread of population and economic development.

After the Creation, the question of sustainability appears for the first time, in the Garden of Eden, where Adam and Eve lived in harmony and bliss but could not sustain this condition; instead they were cast into a world of pain and suffering when they succumbed to the temptations of the devil. Later books of the Old Testament are filled with other places and societies that, owing to their wickedness, suffer the wrath of God. This divine retribution usually takes

the form of an environmental disaster—if not a great flood, then famine, drought, pestilence, or other natural calamity. The greatest environmental threats with respect to the spread of greenhouse gases and resulting global warming are today seen—perhaps coincidentally, perhaps not—in terms of many of the same consequences: the onset of flooding, famine, drought, pestilence, and other natural catastrophes.

In our secular age, people are not likely to speak in mainstream policy circles of the "wickedness" of mankind. Yet, among radical members of the environmental movement, who express the strongest doubts about the sustainability of our current civilization, there is a strong sense of current human depravity. Brower, perhaps the most prominent environmentalist of the past 50 years, argued in his standard "sermon" that "We're hooked. We're addicted. We're committing grand larceny against our children. Ours is a chain letter economy .... When [such] rampant growth happens in an individual, we call it cancer" (55). Foreman, the founder of the radical environmental organization Earth First, views human beings as the "cancer of the earth" (49).

These, to be sure, are extreme views. Yet, large numbers of people today do believe that the moral condition of the world is bad and getting worse. In secular circles, while people no longer typically believe in divine retribution, they often do have a sense that some form of disaster might be a consequence of the many transgressions of human beings against one another, against other species, and against the earth. These expectations of punishment seem, in many cases, to take the same forms as the expectations of God's imposition of a severe justice in the Bible—the arrival of environmental calamities.

Perhaps what we are seeing in current discussions of "sustainability" is the reappearance in secular form of an old biblical message of great power in the history of western civilization. The biblical messages were, of course, delivered by priests, ministers, and other clergy. Today, the discussions of sustainability are carried on mostly by biological, physical, and social scientists. But, as many commentators have noted, scientists in the modern age have, in many respects, taken the places of the priesthoods of old (51).

The Bible, of course, is filled with messages of hope and redemption as well as of the wrath of God being visited upon the earth. And today as well, both messages can be found within the broad field of economics. The mainstream economic view of the world holds out a path to heaven on earth through further economic growth; a minority economic prophesy warns that current human failings will bring on great natural calamities and perhaps hell on earth.

This is not, of course, to say that the conflicting visions of economists—which themselves mirror divisions of opinion covering much wider groups in society—are matters of values and morality alone. Far from it. But it would also be most naive to think that economics is a matter of objective facts and scientific laws alone, unaffected by moral judgments.

CONCLUSION

The positivist philosophy that dominated so many fields in the twentieth century was responsible for the idea that value questions and scientific questions are essentially separate domains. Thus, government was portrayed by progressive political theorists as consisting of two strictly separate domains of "politics" and "administration." Economists portrayed their efforts as taking exogenously given social values and then determining the policy actions that would serve these values in the most efficient way possible. Philosophers for many years neglected ethical subjects and confined their studies to linguistics and other narrowly drawn topics that were particularly amenable to specific analytical methods. Only theology sought to maintain a grand world view, but theological studies ranked low in the academy, mirrored in governing circles by the virtual exclusion of religious considerations as legitimate elements of the public policy debate.

All this has been breaking down in the final quarter of the twentieth century. The old formal dichotomies of fact and value, politics and administration, science and religion are collapsing (35). In matters of governance, perhaps the one greatest contribution to this breakdown was Lindblom's (47) classic article in the field of public administration on "The Science of 'Muddling Through.'" As Lindblom pointed out, the political process could seldom supply the values in advance to guide professional administrators. Instead, politics and administration, objective and subjective elements, were thoroughly interwoven in the making of government policy. The values of society were not set in advance; instead, the values could only be realized after the fact. It was through the very process of making administrative decisions that society often discovered what it believed about its own values.

Today, basic questions of growth, of efficiency, and of sustainability and others that society confronts are also inseparable mixtures of value and scientific elements (62). As Lindblom said, we mostly muddle through in trying to deal with this blend, to uncover which is which, and to decide how the two should be combined, as be combined they must. Indeed, few philosophers now would say that science is "scientific" in the sense used in the first half of the twentieth century. Whenever science is applied to real world questions, it supplies its own lens on the world, which in the end might aptly be described as its own theology.

What is most remarkable, and is still not adequately appreciated, is the degree to which our current economic policy debates owe their assumptions and moral perspectives to the Judeo-Christian heritage (60). If they are outwardly secular, it takes only a slight probing below the surface to find major biblical elements. Sustainability is perhaps a new word, but there is no more value-charged question in the writings of the Bible. To ask whether a society

is sustainable is to ask whether its people are living according to God's commands.

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