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PERILOUS LINKS BETWEEN ECONOMIC GROWTH, JUSTICE AND ECOLOGY: A CHALLENGE FOR ECONOMIC PLANNERS

By Norman J. Faramelli *

During 1970 the ecological crisis was brought before the American public via television, magazines, newspapers, and other media. Despite the widespread publicity and rhetoric, the problem grows worse. The events following Earth Day (April 22), such as the summer smog along the East Coast, have offered vivid proof that our quality of life is still rapidly deteriorating.

In theory, everyone wants a clean environment. But the idea posed by *Life* magazine and others that “Ecology is everybody’s issue” is misleading. There is a widespread illusion that at last we have found a real national issue that is noncontroversial, and hence, we act as if a clean environment can be obtained without cost. We forget the law of both the ecologist and the economist: “There are no free lunches”; someone will pay for environmental quality.

Environmental quality can be achieved by either expansive applications of pollution control technology, or by a long range reduction in the production of material goods. In either case there will be severe repercussions on the poor. The neglect of the poor, and the impact of specific ecology solutions on them, are among the weakest links in the ecology movement. Thus, the relationship of ecological responsibility to economic justice needs to be explored.

**SHOULD ALL CONSUMERS PAY EQUALLY FOR POLLUTION CONTROL?**

If the management of a chemical or power plant installs expensive pollution control equipment, it can do one of three things
to cover expenditures: (1) raise the price of the product, (2) appeal for a government subsidy, or (3) reduce corporate profits. Capital expenditure in pollution control equipment is basically an investment in non-productive devices. Given our current accounting procedures, such a venture increases the cost of production. We have for years assumed that disposal of waste into the air or waterways is free. The ecological costs have seldom been calculated, let alone included in the costs of production. To do any of the three items will tend to slow down consumption and attack our cherished sacred cow—an increasing standard of living. Raising the price of a product will surely reduce the amount that a family can buy. The price increase is tantamount to a sales tax—a regressive form of taxation that hurts the poor most severely when imposed on necessities. All people pay the same amount per unit although some can afford to pay more and others cannot.

The federal subsidy also does not come free of charge, because the taxpayer will ultimately pay it, even if by a progressive income tax. Any tax credits offered to industries for cleaner effluents are really another form of subsidy for pollution control. The third alternative—lowering the corporate profits—seems unlikely, given the power, prestige of, and lack of public control over large corporations. If profits were somehow substantially reduced, however, industrial expansion would slow down and unemployment would rise. Of the three alternatives, the first seems to be the most likely. Yet increasing the price of the products—such as after-burners on automobiles, increased electric power rates, etc.—will affect the poor most severely, unless we make special allowances or adopt new pricing mechanisms.

Economic and distributive justice must be integral to all ecology debates. To have economic justice and ecological sanity we might have to radically revamp our pricing structures. For instance, we now pay less for additional units of power consumption, which means that the tenth electrical appliance is cheaper (per kilowatt hour) to operate than the first. We are enticed into consuming increasing amounts of electric power and this, in turn, increasingly contaminates the environment. In order to preserve a sound environment with economic justice, the basic units of power should be offered at the cheapest rates. Then a graduated price scale might be imposed on additional amounts so that the ninth appliance (e.g., a freezer) will be more costly to operate
than the first (e.g., a refrigerator). The inversion of rate structures would discourage profligate use of power.

**Economic Growth and Environmental Destruction**

An increasing Gross National Product (GNP) has functioned in American society like a God concept does in a religious society. In a word, Americans worship economic growth. Yet increased economic growth which comes about by increased material and power consumption is always accompanied by increased pollution. Our perennial faith in the "technical fix" to solve all of our pollution problems is being shattered. That is, there are limits to technology; we produce new problems faster than we solve old ones. Many ecologists believe that we must begin to deal with root causes, and not symptoms. And a perpetually increasing consumption level of power and material goods, compounded by the population explosion, are the root causes.

Ecologists, who challenge the concept of perpetually increasing material economic growth, are being joined by a host of others. For instance, former Secretary of Interior Stewart Udall speaks freely of the madness involved in equating the GNP with national well-being. The geologist Preston Cloud, speaking to the last meeting of the American Association for the Advancement of Science in Boston, remarked that, "Growth is a Trojan horse, with the diplomatic privileges of a sacred cow." The biologist Rene Dubos has pointed out the insanity of such a notion as: "Produce more than you consume, so that you can consume more." There is a serious question whether ecological constraints will allow economic growth to increase indefinitely. Although the idea strikes at the heart of Keynesian economics, it is being espoused by physical, biological, and social scientists who are not known as alarmists.

Before proceeding further, it should be specified that not all economic growth results in pollution. Increased sales in pollution control equipment and gains in the "service" sector also increase the GNP. But growth in sectors that cause vast pollution should be restrained. Hence, the issue is not one of economic growth versus no growth, but what kind of economic growth.

In the short run, we can conceive of an American economy with substantially less pollution which has an even higher GNP than we now have. This can be done by curbing polluters, installing extensive pollution control equipment, and, perhaps, increasing
the jobs in the public and service sectors. Of course, some polluting industries would be so taxed that they will not survive, but other new industries will thrive. Hence, as long as we consider the United States alone in the short run, it is conceivable that the overall economic growth may soar while we produce considerably less pollution than we now have. It is conceivable but, given our current economic structures and the lack of public control over private corporations, it is not likely. As we shall see, any optimism is short-lived when we view the problem on a global scale.

ECONOMIC GROWTH AND EMPLOYMENT LEVELS

If it is necessary to cut back in material production, there will be serious repercussions on the poor and lower income groups. Those who have doubts about this should observe the rising unemployment which is a result of our current attempt to "cool off" an inflationary economy. Also, most industrialized nations finance their poverty programs via incremental economic growth, or a growth dividend. A growing economy means a bigger slice of the pie for everybody. More growth means more jobs for all, especially the poor and lower middle income groups, and more public funds available to finance welfare programs, without further tax increases. In a word, we are addicted to the "trickle down theory;" i.e., everyone must receive more if the poor are to receive more. That this theory has not been fully effective in ending poverty is irrelevant; it has not been a total failure. The poor may not have been helped appreciably by economic growth, but they certainly will suffer acutely if the growth rate declines. This paradox, which can lead to a host of questions about the structural injustices in our economic system, cannot be pursued at this juncture.

These effects on the poor and lower middle income families are most severe in an automated society. For years there has been a stalemate in the debate, "Does automation produce or reduce jobs?" The experts have argued on both sides of the issue. But from the maze of data some clear trends are discernible. During the Eisenhower years when economic growth was slow, unemployment rates soared (3% in 1953 to 5% in 1960). From 1962–68, a period of economic growth, the unemployment rates dropped from 5.6% to 3.5%. Such statistics led proautomation experts to claim that automation produces more jobs, as long as economic growth is sustained. But if the ecological problems are
as serious as many believe, then that provisional clause "as long as economic growth is sustained" radically alters the debate. For automation always increases productivity, i.e., units produced per man hour. If automation did not, it would be senseless to add new machinery. With a stagnant growth rate and increasing productivity, the logical result must be higher levels of unemployment.

As our society becomes more industrialized, there is a shift from the "goods" to the "service" sector. As productivity increases due to automation more jobs will be available in the service sector. However, reliance on the service sector to take up all of the economic slack is another myth. With a slow industrial growth rate, the entire economy will slow down. Hence, the problems of unemployment that will result from the slowing down of economic growth, the necessity of an adequate guaranteed annual income for all, and the need for a redistribution of national income must be included in all serious ecology debates.

A Long-Range, Global View

Thus far, our discussion has touched only on domestic aspects of the problem. When we consider ecology on a global basis the links between ecology and economic justice become even more pronounced. The ecological crisis is a global phenomenon; it is occurring on a planet that has a three billion year history, and, hopefully, a very long future. Hence, the problem of economic growth in the United States must be seen from a long-term, global perspective. The view presented below will be based on two premises, one from thermodynamics, and the other from social ethics:

1. The second law of thermodynamics imposes physical limitations on pollution that ever increasing material growth does not respect; and
2. Even if the United States could have an ever expanding economy with reduced pollution, there is no way to achieve it and still attain a just distribution of material and energy resources on a global basis.

1. The first argument is simple. We cannot sustain infinite material growth (with resulting pollution) in a finite biosphere. The only analogue I know of infinite growth in a fixed field is the cancer cell, and we all know what eventually happens to the fixed field. The second law of thermodynamics states that energy cannot be converted from one form to another without a heat loss;
or, there is no machine that can operate at 100 percent efficiency. Stated another way, increasing energy requirements always means increasing pollution.

The problem is complicated by the compound interest law involved in economic expansion. A 4 percent per year increase in economic growth is a constant percentage of a bigger and bigger aggregate. For example, there are numerous forecasts that state that power consumption in the United States will double every ten years. As a starter, let us consider the first ten years. If the total pollution from power generating facilities is cut in half, while the total amount of power is doubled, at the end of ten years we essentially are where we started, and this means a lot of pollution. If you take the second, third, and fourth decades, the problem is enormously compounded. Even with new sophisticated pollution control devices, infinite material growth, which produces small amounts of pollution per unit of production, will eventually result in a contaminated biosphere.

Some will say that we should have faith in a "technical fix" or the dictum "technology will save us." Although there is a promising future for new recycle industries, pollution control and pollution monitoring devices, technology has its limitations. Despite our advances in technology there seem to be no signs that the second law will be reversed, and to believe that it will requires more faith in technology than is warranted. Furthermore, for those who have implicit faith in technical fixes, remember the Torrey Canyon episode where the detergent that was used to "fix" the oil spill did more damage to marine life than the oil.

2. If, perchance, the United States could have an expansion of material growth without contaminating its own life support systems, the global economic injustices would still continue and probably worsen. Hence, the issue of economic or distributive justice is at stake. Today, the United States with roughly 6 percent of the world’s population consumes around 40–50 percent of the non-renewable resources utilized each year. According to some estimates, by 1985 the United States will have about 5 percent of the world’s population and will consume around 55–70 percent of those resources in order to continuously increase its “standard of living.” These figures depict a condition that is as immoral as it is insane. By any criteria of distributive justice, to have so few people consume such a disproportionate share is immoral. And to think that we will get away with it is insane. In
order to preserve such inequities we will need an even bigger military-industrial complex then we now have, with massive increases in all our violent counter-insurgency activities.

The gap between the rich and the poor nations is rapidly widening. Increments in the United States per capita income over a two year period are greater than the entire per capita amount in many underdeveloped nations. It should be noted, however, that per capita income statistics do not illustrate the disparities that still exist even in the United States. From 1967 to 1969, the per capita income in the United States rose from $3,270 to $3,800, an increase of $530. Even discounting inflation, this increase was about twice that of the entire per capita income in Guatemala, which stagnated at around $250. When one considers the grossly uneven distribution of the national income in Guatemala, that disparity is even more horrendous. One could ask: What do Guatemalan peasants have to do with pollution in the United States? If one tacitly sanctions the growing economic disparities, the answer is “Nothing.” That is, until a revolution brews, and Marine battalions are dispatched to save the “free world.”

We have held up to the world the American model of economic development. The poor nations are asked to emulate us; we are the *sine qua non* of industrial progress. With a little foreign capital, management skills, and technology, all nations could be Americanized, so the fairy tale goes. But that model is fraudulent. First of all, it does not seem to be reproducible, and given the economic straight-jackets with which the rich nations hold the poor, perpetual underdevelopment is really no big surprise. But let us suppose that the model were reproducible, justice were achieved, and all nations consumed and polluted at the current American levels. If that occurred the life support systems of the planet might be destroyed by contamination. For instance, the levels of carbon monoxide and carbon and sulphur dioxides would increase several hundredfold. Hence, in many ways, Americans ought to be grateful that world-wide development has failed. Continued global poverty makes possible our over-consumption and over-pollution.

Such alarming statements lead one to find a villain who can absorb the full blame, particularly one external to ourselves. Some would like to blame these problems entirely on the population explosion which is soaring globally. It is true that population is a factor of scale, *i.e.*, whatever your pollution problems may be,
they will be so much worse with increasing population. But even if zero population growth were in effect immediately, the entire world’s current population consuming at the present United States level would rapidly drain global natural resources; that is, if we first survived the increased pollution. In order to approach distributive justice American style, the utilization of natural resources would have to increase by factors of $10^{-200}$. Hence, in the name of global justice, the industrialized nations should curb their profligate use of material and energy resources.

**NEW CHALLENGES**

The difficulties posed by some of the suggestions offered are obvious. First, there is the link between high employment and economic growth, or its converse, the high unemployment that occurs during a recession. A slowdown of economic growth would eliminate jobs primarily in the manufacturing sector. Given our current economic arrangements, low and moderate income families will feel the slowdown most severely. We have received many warnings recently that the ecology issue should not be a "cop-out" on poverty and urban problems. That advice must be seriously heeded. Therefore, anyone in the ecology movement who advocates a slow-down of economic growth as an answer to pollution is obligated to think and follow through the consequences of one’s proposal.

A redistribution of the national income and a refocusing of national priorities will become imperative if economic justice is to prevail. An adequate guaranteed annual income for all will become a necessity, and the work force will probably have to work shorter hours. Hence, we should not entertain the possibilities of curtailing economic growth to curb pollution until a new kind of distribution of the national income is in effect, lest our moves hurt the poor and lower middle income groups disproportionately. This is the first challenge.

The second challenge is to transform the American value schema. There will be enormous problems encountered in shifting values as we try to get large numbers of people to live new "life-styles" which will require far less material consumption. The American dream is rooted in a three pronged syndrome—an active process of acquisition, consumption and disposal. The net result of this process is dissatisfaction which we try to solve by repeating the cycle. Hence, an insatiable material appetite
makes the wheels of American progress go around. Or, as the political philosopher Russell Baker said, "The American Dream is to convert goods into trash as fast as possible."

Our advertising media bombard us with information which tells us that our identity depends upon our ability to buy, own, and use things; even virility is conditioned by the kind of car we drive. To talk about new "life-styles" which demand less consumption of material things gets to the roots of the American psyche. Yet new alternative life-styles are clearly needed because the present conception of the American dream is really an ecological nightmare.

The third challenge is directed to economists and others who plan economic growth. The challenge is to shift the conceptual framework of economics for developed nations from that of endless growth to a "steady state" economy for goods in the polluting sector. In this reconceptualized economy major increases will occur only in the "service" sector. A new framework should be developed which accepts the constraints of ecology and works toward global justice.

To the trained economist this proposal may seem absurd and displays a lack of understanding of the nature and function of traditional economics. Perhaps we are asking economists to go well beyond economics. Yet there is a need for reconceptualization. But we are not asking for a reversion to the stationary notions of J. S. Mill and other 19th century economists; we need a modern view which incorporates the technical innovations of our day, while taking ecology and justice seriously. The plea clearly is not for an anti-material growth model for all nations. For instance, economic growth is a necessity for under-developed nations in order to provide essential food, clothing, shelter and medical care. Hopefully, some of the new growth patterns can avoid the ecological damage of the current models.

**Conclusion**

Let us repeat the two arguments from thermodynamics and social ethics. Infinite material growth with resulting pollution in a finite biosphere will ultimately lead to disaster, unless the second law of thermodynamics is reversed. But even if technical fixes are available, economic or distributive justice cannot be a global reality as long as Americans, who desire to increase per-
petually their standards of living, consume such a disproportionate amount of the world’s material and energy resources.

When one explores the effects of pollution control costs on the poor, the unemployment problems that would result from a slowdown in material production, the need for new patterns of national income distributions, the lopsided distribution of wealth and income on a global basis, and the ecological limits that would prevent the entire global population from consuming at the current American level, one can truly see perilous links between economic growth, justice and ecology.

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Footnotes

1. Associate Director, Boston Industrial Mission, Cambridge, Massachusetts.


4. See Lincoln and Alice Day, Too Many Americans, Boston: Houghton-Mifflin, 1964, page 31. This figure is so frequently quoted at ecology meetings it has become part of our new conventional wisdom.


6. This challenge was presented to a group of Harvard and M.I.T. economists at a Teach-In sponsored by the New England Sierra Club in Cambridge, Massachusetts, on April 25, 1970.