ECONOMICS FOR ECOLOGY. GENERAL ANALISYS

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Economics

Present views of economics developed at a time when the primary needs were for production and distribution of goods and services, on the one side, and adequate but not excessive work, on the other. Economists guided policy-makers in the United States through remarkable progress on these fronts. As a result, Americans now have sufficient productive capacity to meet all their needs and many of their wants. They have a forty-hour work week which, together with holidays and vacations, seems to be a satisfactory balance of work and leisure. Backbreaking and degrading labor has been greatly reduced.

Nevertheless, problems remain. Too large a portion of those who want to work cannot find employment. A segment of the unemployed has given up and adapted to life on the dole or turned to illegal activities. Economic advance has been accompanied, it seems, by declining stability of families.

Also, progress seems to have slowed. Given the adequacy of production to meet real human needs, this might not be critical if it were not that the economic system that has been developed over the past decades requires growth for its health. In individual companies, unless sales increase, profits are likely to decline. Efforts to maintain profits involve increasing the productivity of workers. Those who are displaced can find new employment only if new jobs are being opened up. If the economy is not growing, or is growing too slowly, it cannot provide the required jobs.

Economists differ in their explanations of the slowing of growth, but most see the lack of gain in productivity as the main culprit. Productivity increases as capital is substituted for labor or places more energy and technology at the disposal of workers. To get an increase of capital investment, taxes have been lowered, especially on those in higher income brackets. Yet the anticipated growth has been slow to materialize. Economists are puzzled. The time is ripe for fresh thinking about the economy.

Ecology

Ecologists view the world in quite different categories. Their concern is with the interconnection of the myriad of activities that jointly constitute our environment. In recent decades by far the most important activities have been human ones. These are changing the environment at a rate inconceivable in earlier centuries. Furthermore, whereas the interactions of other creatures generally have contributed to biospheric growth, overall the human impact has been destructive.

Deleterious effects of human activity on the environment are far from new. Thousands of years ago human beings overgrazed once lush pastures, turning them into deserts. They deforested mountains in which great rivers rose, leading to silting and flooding below. Whole civilizations disappeared as they destroyed their environments. Nevertheless, our situation is different. We now do in decades on a global scale what in the past required centuries on a local scale.

Recently it has become clear that, in addition to rapid desertification and deforestation produced by traditional methods, we are also poisoning water and soil and air. As a result, even carefully managed and protected forests are dying, and many lakes and rivers are incapable of supporting fish life. The rate at which species of plants and animals are disappearing is accelerating.

Equally critical is the effect of human activities on the weather. There is no longer much doubt that unless there are unforeseeable changes in human behavior, the greenhouse effect will trap more heat and global temperatures. Winds, ocean currents, and patterns of precipitation will change, reducing agricultural production in some areas and increasing it in others. Even more dramatic may be the effects of the rise in the level of the ocean. This rise may flood the great river deltas of the world.

The Relation of Economy and Ecology

As long as the world was large in relation to human activities, as long as resources and sinks for the disposal of wastes were abundant, economists could ignore these aspects of the economy. Economics, after all, deals with what is scarce, and resources and sinks were not scarce. Nevertheless, economists did develop ways of treating the side effects of economic activities whose costs were borne by society as a whole rather than by the producers and consumers. Many economists argued that efficient use of resources requires charging to the producer the full cost of producing goods. This would include the cost of disposing of the product when it is no longer useful. Of course, the producer would pass this additional cost on to the purchaser in the form of a higher price. In this way, goods would be priced at their true cost.

Although the calculations of the real cost of the natural resourses are difficult, they are not impossible. Natural scientists and economists have the tools to work out together realistic figures. These would determine some combination of regulations and taxes through which social costs would be borne by producers and consumers. Large additions to costs of certain industrial processes would encourage changes to less polluting ones. And large additions to costs of certain goods would encourage substitutions. The free market would then work to generate a less polluting industry, and pollution taxes could be used to counteract the continuing pollution.

The most difficult calculations would be those where the destructive effects will be delayed for some decades. In particular, the contribution of industry to the greenhouse effect will not have important negative consequences for fifteen or twenty years. However, calculations are possible even here.

Let us suppose the best estimate is a three-foot rise in sea level in about fifty years. What losses will be experienced? The value of the world's beaches can be estimated along with the cost of protecting cities like Cairo and New Orleans from flooding. Much of Venice would be uninhabitable, and its value would be included in the losses.

Considerable low-lying farmland would be lost, and salt water would poison some irrigation and drinking water supplies. When total losses or costs of preventing losses have been added, the contribution of a given industry to these phenomena could be calculated according to its emission of carbon dioxide, chlorofluorocarbons, waste, heat, and so on. The tax would be based on the percent of the total loss attributable to the particular industry. The figures would be corrected to determine how much would now have to be deposited to reach the appropriate amount in fifty years. Obviously, figures for anticipated interest rates and inflation would be introduced into the calculation. In any case, the amount paid for this purpose would be placed in a trust fund for the future. It would contribute to the economy because it would be invested. But the principal and accumulated interest would not be spent for fifty years. The tax set aside each year would be made available for expenditure just fifty years later. Thus our grandchildren would have funds each year to help them cope with their mounting crises.

We could hope that as we paid the full costs of our industrial activities we might find ways to meet our needs that would slow down the heating of the planet. If so, we could reduce our payments accordingly. In the unlikely event that we stop the process altogether, the system would, indeed, have proved a success!