

## The Greening of Economics

"We are confronted by a problem broad enough, and permanent enough, to draw us into the realm of science fiction. If pollution is permitted to worsen over the centuries and the cons, we can nevertheless suppose that life will somehow adapt itself. " Living systems are systems that reproduce," yes; but as the biologists define them, they are also systems "that mutate and reproduce their mutations." That is why living things "are endowed with a seemingly infinite capacity to adapt themselves to the exigencies of existence"-even in a cesspool."

-Solomon Fabricant in Boulding et al  
"Economics of Pollution" p.149.

It has become commonplace to criticise economics for ignoring or indeed justifying environmental disruption. The preponderance of this viewpoint probably reached its peak in the 1970's with the publication of numerous apocalyptic style anti-growth theses (notably "Limits to Growth" and "A Blueprint for Survival") and when there were considerable misgivings and distrust of economic and econometric analysis due to its failure to predict the ensuing inflationary period. In a certain sense, economics has never regained respect. The basis for this distrust, however, is equivocal. To argue that economics "justifies" overexploitation and depletion of the earth's resources is tantamount to saying to saying that the study of ecology "justifies" an imbalance in nature simply because it is capable of explaining the source of that imbalance. In many senses, this essay could be seen as "a defence of economics". Certainly, economic growth (a goal advocated by many economists but importantly not by economics itself) can lead to environmental disruption, but economics has equipped itself with the necessary techniques to why this occurs and therein, how solutions or improvements can be found. It is these techniques and some of the related issues which shall primarily be discussed in this essay.

Welfare economics measures the impact of actions on economic welfare. The criterion for accepting an action as leading to an increase in economic welfare is that it should be Pareto optimal. It is argued that Pareto efficiency may best be achieved in the market system. The justification for this is similar to Adam Smith's concept of the Invisible Hand-that is to say, that individuals acting freely and in pursuit of their own self-interest will achieve a socially optimum and efficient result. A crucial feature, however, of Pareto optimality is that it assumes that the only relationship between parties is that which arises from the price system. In reality, however, other types of dependency do exist and therefore a free-market situation will not always produce an efficient outcome. This can be seen in the prisoner's dilemma, which shows that where there is some form of interdependence, the rational pursuit of individual self-interest does not lead to a socially optimal result.

The relevant interdependency to an analysis of environmental pollution is where an externality exists. According to Nath, an externality occurs "wherever, due to the nature of the present economic and social institutions, costs are imposed on others which do not have to be paid for, or benefits are bestowed on others, for which nonpayment is received." The market does not reflect the true marginal values and costs, indicating economic inefficiency within the market system. where such externalities are negative (eg. pollution), the free-market output is greater than the social optimum; where positive (eg. education), the market output will be smaller than the optimum output.

As far as environmental disruption is concerned, the assessment of the related negative externalities is crucial in order to evaluate the benefits obtainable from the protection and improvement of the environment. Thus, social cost-benefit analysis has emerged as a means of pricing those resources which lie outside the market system. But to many the very essence of this

analysis is abhorrent. How can one put a price on clean air, water or indeed on human life? But yet we do make these sort of decisions everyday. Human life is not above valuation—the outright banning of smoking is vehemently opposed, despite known mortality risks, on the grounds of freedom and individual choice.

Of course, cost-benefit analysis is a complex task. It involves the evaluation and subsequent comparison of all the expected benefits and costs associated with a particular project or externality. Where the expected benefits exceed the costs, then action is deemed socially justifiable. But enormous problems of specification can emerge. For example, with regard to the current Dublin smog problem, it would be necessary to identify, measure and attribute all of the damage costs of the smog to their various sources. The complexity of such an analysis is obvious. There is also the ambiguous nature of cost-benefit evaluation which Kapp has highlighted. He argues, that for example, increased property values which may result from an improvement in the quality of air and water due to pollution control are just as unearned or external as the decreased values which may have arisen due to the original existence of pollution. Is welfare economics and cost-benefit analysis, therefore, only really concerned with a kind of one-sided efficiency?

Another approach which is becoming popular is to see externalities as arising from the failure to define and enforce property rights in certain areas of economic activity. People see certain goods or resources as being free. They therefore have a right to (a) pollute the air or (b) have clean air. Traditional analysis of externalities has tended to certain on two-party situations. Person A pollutes a river running through Person B's land. Both A and B are equal in economic power and have full information concerning their own and each others positions. In such a situation, it is believed that bargaining between the two parties will eliminate the externality. But this represents a very artificial approach. Who owns the air, the rivers, the forests and therefore has a right to pollute or cut them down? When are all parties equal in power and knowledge? And perhaps crucially, pollution and resource depletion affects everyone in the aggregate but often hits our individual interests in a very small way. Thus, the organisation which is crucial for the aforementioned bargaining to take place is difficult to arrange. This is particularly the case with public goods—"multiple-purpose-multiple-user natural assets, owned in common, which must be managed through some collective choice mechanism if they are to be developed, used and conserved efficiently." Here the obvious choice mechanism is national government. Thus we have the recent issuing here in Ireland of the Action Programme for the Environment which contains a variety of measures aimed at minimising environmental disruption—mainly the treatment or recycling of residuals. However, waste treatment in itself does not reduce the mass of the residuals but only changes their form. Often the treated form of one type of waste becomes the pollutant of another environmental medium. Kneese has pointed out that a number of applied economic studies have indicated that inducement to process redesign and recycling is often far less costly than simple waste treatment and just as effective.

The above discussion is very much concerned with the market system—intrinsically, its failure to adequately price and provide the optimal amount of environmental resources. It has been shown how economics has attempted to explain and correct these market failures. But many would still argue that this is just a case of closing the stable door after the horse has bolted. It could be said that it is the unfettered workings of the market system and the goal of economic growth which is leading to resource depletion and environmental disruption. But yet the unconstrained market economies of Eastern Europe have been notorious for producing very serious environmental problems. Capitalism, therefore, may not be the sole root of ecological disaster.

However, we still link industrial and economic expansion with our pollution problem. This relationship does exist but it should not imply that there is a

simple trade-off between the two. The ecological argument is not a zero-sum game. Beckermann, in his criticism of the 1970's thesis, "A Blueprint for Survival" highlighted this point. In this document, the following relationship was posited:

$$E=f(\text{GDP})$$

where E=ecological demand

implying that resource depletion could be prevented by a fall-off in economic growth. But Beckermann has pointed out, that an equally obvious prescription would be to use some policy instrument to change the nature of the relationship (ie. to change f). It should also be noted that a zero or even negative rate of growth would still involve the input of some natural resources into the economic process, so that there would still be wastes and pollution. All of the anti-growth schools do not consider how price increases induced by scarcity will trigger technological change and the search for substitutes. But then again, who is to say that the price mechanism will suddenly value the environment accurately in the face of scarcity when it does not do so now? The previous arguments for rejecting the anti-growth theses seem much stronger. This brings us back to the quotation highlighted in the beginning. The essence of the solution is adaption and change. Surely, there is much credibility to the argument that resource limits are not fixed but can be extended by human ingenuity.

Economics may or may not have guided us to imminent ecological disaster. A less questionable point is whether it can guide us away again. It seems self-evident that economics, through its analysis and explanation of the problems, and economic activity, through its inducement to technological advancement can provide the buoyancy which will keep us afloat in the "cesspool" of environmental pollution.

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