

## THE NATURE AND SIGNIFICANCE OF SOCIAL COSTS

In order to be recognized as social costs, harmful effects and inefficiencies must have two characteristics. It must be possible to avoid them and they must be part of the course of productive activities and be shifted to third persons or the community at large. For instance, pollution of the environment by various types of contaminants can be traced to productive activities and can be shown to be man-made and avoidable.

The basic causes of social costs are to be found in the fact that the pursuit of private gain places a premium on the minimization of the private costs of current production. Therefore, the greater the reliance on private incentives, the greater the probability of social costs. The more reliance an economic system places on private incentives and the pursuit of private gain, the greater the danger that it will give rise to external "unpaid" social costs unless appropriate measures are taken to avoid or at least minimize these costs. From this it would follow that a decentralized planned economy which makes extensive use of private incentives such as bonuses to its managers in order to assure the attainment of its targets and objectives, will hardly be immune to social costs. Evidence of certain inefficiencies in the Soviet economy supports this conclusion. In so far as social costs are the result of the minimization of the internal costs of the firm, it is possible to regard the whole process as guidance of a redistribution of income. By shifting part of the costs of production to third persons or to the community at large, producers are able to appropriate a larger share of the natural product than they would otherwise be able to do. Alternatively, it may be claimed that consumers who purchase the products will get them at lower prices than they would have been able to do had producers been forced to pay the total costs of production. And similarly, the enforcement of preventive legislation has a redistributive effect. There is thus a problem of the incidence of social costs and of the costs and benefits of measures designed to prevent the social losses caused by private productive activities. How large a share of the national income is thus redistributed is a problem which cannot concern us here. It is needless to add that the fact that problems of social costs raise issues of income redistribution makes them matters of political controversy and political power.

The main body of neoclassical value theory has continued to regard social losses as accidental and exceptional cases or as minor disturbances. To dismiss the entire problem of social costs in this manner begs the question. For whether or not these costs are isolated cases and minor disturbances can be decided only after their significance and their probable magnitude have been explored. Similarly, to dismiss the problem of social costs on the ground that in some instance remedial measures have been taken by governments and private organizations misses the important question as to whether such measures are adequate and effective. This question too can be answered only after an attempt has been made to comprehend the nature and possible magnitude of the social cost of production. Close analysis of existing preventive regulations reveals that present restraints are still highly ineffective in minimizing social losses, and that in many instances social costs have found either no or only the most rudimentary recognition.

It has to be admitted that some social costs are highly complex and composite in character and can be evaluated only in terms of the importance which organized society attributes to both the tangible and the intangible values involved. Such social evaluations do not, however, pose an entirely *new* problem. The formulation of public policy nearly always requires an evaluation of

"means" and "ends" whose relative importance can only be estimated due to the fact that a substantial proportion of all "costs" and "returns" of economic policies are "political" and intangible in character. Of course, this is not to say that policy formulation on the basis of general estimates of possible costs and returns has been fully explored and offers no further theoretical difficulties. Quite on the contrary, the issues raised by the concept of "social value" and "social evaluation" belong to the most important unsolved problems of economic science.

The social scientist must resist the temptation either to ignore social costs because they require an evaluation by society or to introduce his own standards and preferences into the discussion of their evaluation. For, to do the former and to leave social losses out of account because they are "external" and "noneconomic" in character, would be equivalent to attributing no or "zero" value to all social damages which is no less arbitrary and subjective a judgment than any positive or negative evaluation of social costs. For the social scientist to evaluate social costs in terms of his own standards and preferences would mean the introduction of highly subjective value judgments into economic analysis and would make the generalization derived therefrom equally subjective, arbitrary and problematical. Here, as in all matters of social evaluation, we would be on safer grounds if we could rely on objective standards of social minima and measure social costs in terms of shortfalls or deficiencies from such minima.

## **CUMULATIVE CAUSATION AND SOCIAL COSTS**

One of the central tasks of the theory of social costs and indeed the key objective of the present study is to trace the causal relationships between various productive activities and business practices on the one hand and of significant social losses and damages on the other. This undertaking will be rendered easier in the light of a brief discussion of social causation. In contrast to neoclassical analysis we accept the principle of cumulative causation as the main hypothesis for the study of social relations and economic processes in particular.

The principle of cumulative or circular causation stresses the fact that social processes are marked by the interaction of several variables both "economic" and "noneconomic" which in their combined effects move the system away from a position of balance or equilibrium. In fact instead of calling forth a tendency toward automatic self-stabilization, social processes may be said to obey some principle of social inertia which tends to move the system in the same direction as the initial impulse. "The system is by itself not moving toward any sort of balance between forces but is constantly on the move away from such a situation. In the normal case a change does not call forth countervailing changes but, instead, supporting changes, which move the system in the same direction as the first change but much further." This principle of cumulative causation, by stressing the interaction of several factors that move the social system in the same direction as the initial impulse only faster, constitutes the main causal hypothesis and the general conceptual framework for the study of social costs.

In a cumulative chain of causation there is necessarily interaction between many factors; this together with the fact that the final outcome of a cumulative social process always depends upon the concurrence of circumstances makes it possible to shift part of the causal "responsibility" to one or the other factor. While this will always be possible and while it may serve a purpose in a debate, it defeats the search for truth. The truth of the matter is that it is the whole cumulative

process of unrestrained concentration of industries and the subsequent growth of urban communities which gives rise to the contamination of the atmosphere beyond the levels of concentration of pollutants that might be said to be compatible with human health. It is this process of unrestrained concentration, regardless of climate and topography, which gives rise to the social costs. Neither the private automobiles nor the chimneys of private dwellings in Donora nor, for that matter, the recurrent temperature inversion, nor the topography of the valley in which Donora is located, can reasonably be said to have given rise to air pollution and its harmful effects. What has given rise to air pollution is the unrestrained concentration of industries in this locality. What applies to Donora applies with equal force to Pittsburgh, to New York, London, Tokyo, the Meuse Valley, the cities of the Ruhr or the paper mills in Cornerbrook in Newfoundland, the mining towns of the Andes and may tomorrow apply to Calcutta or the emerging industrial centers in Africa. Indeed, it will apply to the industrial centers of the Soviet Union and China if concentration of industrial production is permitted to proceed without consideration of its harmful effects on human health and its social costs. That some of these social costs are shifted by one group of firms to other concerns (or for that matter cause additional outlays for the very firms which are contributing to the air pollution in the first place) in no way changes the social character of these costs. They are avoidable if organized society -- that is, governments -- will take the necessary steps and enforce rules which the situation demands.

Before turning to these practical measures it may be worthwhile to point out how the principles of business enterprise favor the emergence of the social costs of air pollution. The initial concentration of industrial production in a few centers, as indeed the location of industries in general under conditions of unlimited competition, will take place in accordance with private cost-benefit calculations. Once established, the industry widens the market for a host of other industries; it offers employment and income opportunities to labor and capital; it provides a broader tax base for the emerging urban communities and the necessary public services. The locality becomes generally more attractive for additional investments, enterprise and labor and urban settlement. It is this expansionary momentum which serves to "polarize" industrial development in certain "nodal" centers, which soon gives rise to secondary and tertiary spread effects in the form of increasing outlets for agricultural products and consumers' industries in general. In the light of traditional economic theory, the process seems to proceed in harmony with the principle of social efficiency. For, after all, internal economies combine with external economies (in the narrow Marshallian sense) to make it appear rational to concentrate production in centers which are already established and offer some guarantee that the necessary social overhead investments (in roads, schools, communication) can be shared by a larger community. What is overlooked is that the concentration of industrial production may give rise to external diseconomies which may call for entirely new and disproportionate overhead outlays for which nobody may be prepared to pay. Thus by concentrating **on** the analysis of internal and external economies, and by stopping short of the introduction of the concept of social costs of unrestrained industrial concentration, traditional theory lends tacit support to the overall rationality of cumulative growth processes, no matter what their socially harmful effects may be. After all, what could be more "rational" than to exploit to the fullest extent the availability of internal and external economies? As long as social costs remain unrecognized and as long as we concentrate on costs that are internal to the firm or to the industry, we shall fail to arrive at socially relevant criteria.

It may be argued that, while the neglect of social costs may contribute to the cumulative growth process, it still would not explain the incomplete and inefficient process of combustion which gives rise to the emanation of pollutants into the atmosphere. For, obviously, if air pollution is a sign of inefficient and incomplete combustion of coal or oil, the question arises why would business enterprise permit such waste to continue? The answer is simply that what may be technologically wasteful might still be economical considering the fact that not only social costs can be shifted with impunity but, above all, that discounted private returns (or savings) obtainable from the prevention of the technological inefficiency and social costs may not be high enough to compensate for the private costs of the necessary abatement measures. The fact that the resulting pollution of the atmosphere may cause social costs far in excess of the costs of their abatement is not, and indeed cannot, be normally expected to be considered in the traditional cost-benefit calculations of private enterprise. According to one investigator, the costs of enforcing existing air pollution ordinances (in Ontario) would involve expenditure of only fifteen cents per capita, while the annual economic losses which could be saved in this way would amount to between ten and twenty dollars per person.

### **THE SOCIAL COSTS OF WATER POLLUTION**

As in the case of air pollution, those who are most directly responsible for the pollution of watercourses do not bear the adverse effects and monetary losses caused by their productive activities. As a result, they are frequently not interested in minimizing these negative consequences. As a matter of fact they tend to be interested rather in avoiding investments for the necessary treatment of their waste products. By minimizing their internal costs they tend to shift and actually maximize the external or social costs. Indeed, the costs of controlling water pollution either by prior treatment of the materials discharged or by otherwise disposing of them are likely to be much lower than the social costs arising from the neglect of these measures. The damages caused by water pollution are distributed over a great number of people who may be unable or uninterested in bringing legal action against the main offender because it is usually difficult and expensive to prove liability for damages in court: "Judicial precedent requires the demonstration of specific damage rather than general damage, and further requires quantitative estimates of the amounts of damage experienced by specified individuals. Variations in the natural quality of water and polluting substances make the process of marshalling such evidence lengthy and intricate." Furthermore, even if liability and damages are proven it is also necessary to demonstrate that practicable means of abatement exist before an injunction may be obtained. This entails additional expense and further delay. Thus the dispersion of damages and the excessive expenses for court action act as a deterrent to the elimination of water pollution in modern industrial societies. However, the main social costs of water pollution are not those sustained by individuals in the form of injuries to health or property or recreational values, but rather those which arise from the depletion of a major economic resource.

What would be a possible approach to the evaluation of social costs of water pollution? The answer to this important question depends upon the conceptual framework we choose. If we want to look upon water pollution and social costs only in terms of the benefit-cost calculus of business enterprise, we would have to try to arrive at a monetary value of the various losses and damages caused by the contamination of watercourses. While this is possible in some instances, it would be a fruitless undertaking in others. It is possible to calculate the market values of the

increased costs of maintenance and repair of particular structures which are corroded prematurely by the chemicals discharged by an up-stream factory. Similarly, it would be possible to estimate the market value of the loss of livestock, the destruction of crops, and the loss of soil fertility or even of certain recreational facilities. Data of this sort are available. However, they are far from satisfactory because they are not only incomplete but misleading. They focus attention only on those values which can be estimated in dollars and cents. These data also tend to support the misconception that the problem of water pollution is essentially a "uniquely local blight" which can be corrected by general appeals to "the responsibility" of business concerns and local taxpayers. Actually, as we have endeavored to show throughout the preceding analysis, the problem of water pollution can be understood only if it is seen in the framework of social ecology and the threatening imbalance between a given supply of, and a rapidly increasing demand for, water in practically all parts of the world. Water and air pollution do much more than shift some of the costs of production to people living outside of a given area. They create a new physical environment for man. Indeed, instead of the natural environment in which man has lived for centuries, the permanent revolution of technology has created a man-made environment the full implications of which, for human health and human survival, are far from being fully understood. We are only at the threshold of the realization that this man-made environment may be exceedingly detrimental to all life on this planet. By far the greatest potential danger in this respect is to be found in the inadequate disposal of radioactive wastes and radioactive fallout. What gives these hazards their unique and dramatic character are the cumulative effects of exposure over the entire life span of the individual on his health and survival. It has been said that in public health, as in other fields of human understanding, "we stand at the microchemical and microphysical frontier" beyond which there may lie the solution of many of the problems of the presently still incurable and chronic diseases. The cumulative impact of a man-made environment on human health is the measure of major and significant social costs. As already pointed out, we are just at the beginning of systematic inquiries which may ultimately provide the basis for the elaboration of scientific standards and the evaluation of the human costs of water pollution.

The threatening imbalance between an essentially constant supply and a rapidly increasing demand for water opens up still another perspective of the social costs of water pollution. A dependable supply of clean water is essential to agricultural and industrial growth. Regions which are unable to conserve their water supply or which permit it to be polluted by human activities, destroy one of the productive forces upon which rest their present and future prosperity. The pollution of this resource, like the pollution of the atmosphere, is a social cost which needs to be fully assessed. Admittedly, these productive forces have social values which cannot be assessed in terms of either individual welfare criteria or market values. They are values-to-society for which the market calculus provides at best only a preliminary and certainly not an overruling yardstick. Social values of this sort call for an appraisal of overall social and political consequences of action or nonaction. In the specific case of water pollution, they call for knowledge of the cause and effects of the pollution of specific watercourses so that the consequences and comparative costs of different policies (including the policy of nonaction) can be stated and thus become the basis of rational political choice. Only systematic research conducted under impartial scientific auspices can provide the basis for estimating the social costs of water pollution with a reasonable degree of accuracy. Unless such a scientific assessment of the causes, extent and effects of water pollution is carried out, and kept up to-date to take

account of the effects of new pollutants resulting from a changing technology, it is futile to speak of overall measurements of the social costs of water pollution and of environmental pollutants in general. Such a scientific assessment would ultimately lead to the elaboration of scientific standards of Maximum Permissible Concentrations of various types of environmental contaminants. These standards could serve not only as the basis of measurements of environmental pollution but also as objective criteria for the formulation of sanitary standards and policies for the maintenance of an environment that conforms to the biological requirements of health, life and survival. Instead of passively adjusting to a detrimental environment, the scientific man can shape his surroundings and adjust his man-made (artificial) environment to his purposes.

We cannot concern ourselves with the economic or administrative aspects of abatement policies. Suffice it to point out, however, that the need for more information is not equivalent to saying that we must remain inactive until all investigations have been completed. Enough information is available to justify remedial action in specific cases. Delay will render not only future action more costly but will increase present social costs. Indeed, as pointed out before, the costs of early abatement may be amply justified if compared with the future social cost of neglecting early remedial action. While society can never avoid the social costs of neglect, individual enterprises can shift the social costs to others and to the future. The social costs of water pollution are borne to a considerable extent by people living downstream. This complicates the abatement problem; it transforms water pollution into a regional problem. Above all, it raises the question of the incidence of costs and benefits. Abatement policies cannot be made dependent upon the local ability to pay or the local tax base. They have to be financed **on** a regional scale and as part of the general attempt to preserve a national resource. Only a regional approach with federal agencies assuming overall responsibility for water management policies can guarantee the preservation of water resources.