CHAPTER 3

Estimating the Social Value of a Reparation System, with Particular Attention to Auto Injury Reparation

Social welfare is affected initially by casualties such as auto accidents, and subsequently by the existence and operations of a reparation system. Estimates are made in this study of some of the more measurable costs of auto accidents themselves, and of the administrative and operating costs of the reparation system. What are the benefits of the reparation system? The system cannot eliminate auto accidents, nor even reduce them very much. What it can do is to reduce the social cost of those that occur. The purpose of this chapter is to examine to what extent one can analyze and even measure these “cost-reduction” benefits.

A. DETERMINANTS OF SOCIAL WELFARE

It must be candidly admitted at the start that the precise measurement of social welfare has been adjudged by economists to be impossible.¹

Where social decisions have to be made, they are made; and some attention has been given to devising voting schemes which are likely to select the alternative producing the higher social welfare—bypassing the measurement problem.² It is easier to say how certain things will affect social welfare than to measure the quantitative effects they will have, and still easier to say what things will affect welfare without specifying even the direction of


the effects. It is generally felt that if an economy can at the same
time produce more goods and services and leave more leisure,
 theory welfare is greater, other things being equal. It is also gen­
erally agreed that the way in which the good things of life are
distributed among members of society will affect individual and
social welfare. These two criteria—total output and its distri­ution—are frequently expanded (or subdivided) into five, and the
five describe commonly expressed goals of the economic system:

- Full employment
- Optimal rate of economic growth
- Price stability (or near stability)
- Equitable distribution of income and wealth
- Efficient allocation and utilization of resources
  (maximum production with resources available)

The first three of these are probably little affected either by
auto accidents or by reparation systems, and can be dismissed with
a few brief comments:

*Involuntary unemployment* is generally felt to involve a re­
duction in social welfare. Unemployed workers do not store up
energy which can lead to more output later on. Indeed their
skills become obsolete, their work-habits rusty, and their morale
low. Empirically we know that the impact of unemployment is
largely on the uneducated, the unskilled, the minority groups,
the very young, and the very old. Ever since the depression of the
1930's, a high level of employment has been seen as perhaps the
main goal of social policy.

*Economic growth* has been a more recent concern, particularly
with the stress on competition with Russia; even attempts to re­
duce unemployment have been justified more and more in terms
of their contribution to the rate of growth. One method of secur­ing
growth is to devote more of the output to investment in
capital equipment and research and development, so that output
per man hour will be higher in the future. Investment in the
education and training of individuals, who are "human capital
equipment" of vast importance even if they cannot be owned by someone else, is another important mechanism for increasing the growth rate. It is frequently assumed in general discussions that growth is likely to benefit most of the population, or that, if some benefit more than others, various transfer mechanisms can redistribute the benefits.

Stability of the price level, and therefore of the value of money, is sought as an objective partly because of the effects of unstable prices on output, but mostly because of arbitrary and frequently inequitable effects on the distribution of that output. Widows and orphans suffer, speculators benefit.

It is the fourth and fifth determinants of social welfare which are most affected by auto accidents, and by reparation systems. The distribution of income and wealth is dramatically affected; if the original distribution was fair, the presumption is that erratic changes lead to inequity. The allocation of resources to the most efficient production of the correct goods and services can be affected by the method of paying the costs of accidents and later redistribution of those costs through a reparation system.

B. EQUITY IN THE DISTRIBUTION OF INCOME

If the original distribution of income was not optimal, it is difficult to say anything conclusive about things which change that distribution. Economists and moral philosophers have long discussed the "optimal" distribution problem without agreeing. Egalitarians have argued that faute de mieux we might as well assume equal capacity to enjoy income, and assume that increments of income produce smaller and smaller increments in total satisfaction to an individual (this is the theory of the diminishing marginal utility of money). If this be accepted it is easy to prove that taking money from those with high incomes and giving it to those with low incomes, decreases the satisfaction of the former less than it increases the satisfaction of the latter, thus increasing
social welfare. Even though satisfaction is neither measurable nor comparable as between individuals, it may be useful to show how these economists think total satisfaction would be affected by redistribution, using diagrams as though measures were possible. In Figure 3-1, the curves depict total utility (satisfaction, ophelimity, welfare) of two individuals at varying income levels. There is an arbitrary constant of infinite size (the value of survival) represented by the break in the vertical scale. Taking $2000 from Jones’ high income and giving it to Smith appears to reduce Jones’ satisfaction less than it increases Smith’s.

The shift in the respective positions of A and B to those of a and b would then increase social welfare if Jones and Smith were equally "important," not affected by envy or pity, not strikingly different in their capacity to enjoy life, and if they derived diminishing increments of satisfaction from each added bit of income.

Many other economists doubt that one can make such assumptions of independence, comparability, or even diminishing mar-

3 See for example A. P. Lerner, The Economics of Control (New York: Macmillan, 1944), chapter 3.
ginal utility of income. If people's aspirations and capacity for enjoyment are expandable, then except in the very short run, continual increases in income may provide undiminished increments in satisfaction.

People may well be affected by the situation of others. In practice it is families, not individuals, who are counted, and families of different ages and sizes have different needs for money. Wealth, also, is a substitute for money. Owning a home provides "free" housing. Hence, the distribution of money income does not measure the distribution of total satisfaction. Yet social policy in most Western countries has clearly accepted the general notion that extreme inequality in the distribution of income and wealth reduces social welfare. Some rough approximate assumptions about the determinants of satisfaction must have been made to come to this conclusion.

For smaller redistributions of less clear sorts, it is more difficult to make even approximate conclusions. The treacherous nature of this problem has led to a number of attempted theoretical solutions. One useful construct is the "social welfare function," which provides (without specifying how or by whom) a weighting of each individual so that one can combine their preferences.


In the case where one is deciding whether a particular change is an improvement in social welfare, the Bergson solution was not much of an improvement over the original Pareto condition, i.e., if some are made better off and no one is made worse off, then group welfare rises. The Pareto condition could not be applied where anyone was made worse off, and the Bergson function required making a detailed set of ethical judgments before anything could be said about group welfare.

Hicks and Kaldor provocatively proposed the "bribery" test of social utility. If those who gained from a change could afford to "bribe" the losers to accept it, while the potential losers could not afford to bribe the others into accepting the status quo, then they said the change was an increase in welfare—some even added: whether or not compensation was actually paid.

But it was soon pointed out that there might be changes where it would pay the gainers to bribe the losers, but once in the new situation, it would pay the losers to bribe the gainers into accepting a return to the original situation. To deal with this, Tibor Scitovszky proposed a double criterion, that it should pay the gainers to bribe the losers, and in the new situation should not pay the losers to bribe their way back.

These speculations are intriguing, but not very important. The situations which lend themselves to analysis by the "bribery" test are surely rare. Even where they exist, they do not actually escape the necessity for making ethical judgments. At rock bottom there must be a judgment whether compensation should actually be paid.

11 For a summary, see J. De V. Graaff, Theoretical Welfare Economics (Cambridge: Cambridge University Press, 1957), esp. Chapter V.
There are interesting historical examples both of compensation and of noncompensation for social reforms. The British Parliament appropriated 20 million pounds sterling in 1833 as compensation for the freeing of slaves,\(^{12}\) allocated it to the islands of the West Indies in proportion to their exports, and allowed the planters on the islands to divide it up according to their own judgment.

In the United States, although Abraham Lincoln advocated compensation in the hope of avoiding a civil war, it was never paid, and indeed the Fourteenth Amendment actually forbids payments, even by the states.\(^{13}\)

A British law allowed property owners to collect compensation when the action of a public authority affected the value of their property, and allowed the authority to collect “betterment” if the value was increased. In practice this was unsatisfactory. Betterment could not be collected, and the compensation demands made change too costly.\(^{14}\)

Conversely, the cries of those who might have been affected adversely and not compensated have hampered tariff reductions in the United States for years. Recently for the first time, suggestions have been made in a government document that subsidy or compensation payments, retraining of workers, paying of moving expenses, etc., be provided for where tariff reductions would otherwise injure industries or individuals.\(^{15}\) Whether this helped the

\(^{12}\) See W. L. Burn, Emancipation and Apprenticeship in the British West Indies (London: Jonathan Cape, 1937); and William L. Mathieson, British Slavery and Its Abolition (London: Longmans, 1926).


passage of the administration's 1962 trade bill is difficult to say.

What conclusions should be drawn from these considerations? Although many economists avoid facing the problem of actually paying compensation, it seems clear that extreme and erratic redistributions of income or wealth by casualties involve reductions in total welfare. Indeed, even one of the more critical writers concludes:

It is of course true that the majority of policies which welfare theory has to appraise will involve redistributitional changes of some magnitude, and that interpersonal comparisons are required. But I suspect that a surprising degree of agreement on whether a given redistribution is good or bad will often be found in contemporary Western Society. Equalitarian details, with money income (or, perhaps, wealth valued in monetary terms) as the yardstick of equality, are nowadays extraordinarily widely dispersed.\(^\text{16}\)

Why is there presumptive evidence that any major random redistribution by casualty will reduce social welfare? Because it is assumed that public policy has already achieved a politically acceptable distribution of income. This is accomplished through progressive income and inheritance taxes, free or subsidized government services such as education, and an elaborate set of income maintenance programs. Some programs work by forcing people to provide for their own retirement, others by taking care of people in difficult circumstances without any prior contribution from them (Welfare, Old Age Assistance, Aid to Dependent Children, Aid to the Permanently and Totally Disabled, Workmen's Compensation). Of course, there may always be some particular redistributions which most people would regard as increasing social welfare; but such a beneficial redistribution is unlikely to occur by chance, if the existing distribution is at all acceptable. The more acceptable it is, the less likely it is that a change will be an improvement.

C. Efficiency in Utilization of Resources

Social welfare is clearly increased if, without changing anything else, it is possible to produce more, or to produce a product-mix closer to what is optimal. How does one define what is optimal?

The market prices provide guides as to what is optimal, provided the distribution of income is optimal and some other conditions hold. In the process of shifting production, the distribution of income is always affected, so that it is difficult to specify what changes are improvements. What can be done is to specify the simultaneous optimal conditions where both the distribution of income and the allocation of resources are best.

This involves interpreting, with the aid of more specific sub-rules, the general rule that each commodity or service should be produced up to the point where the social benefit from producing one more starts to become less than the social cost of producing one more. Under what conditions will people in a competitive society, seeking their own profit and satisfaction, bring about this desired result? The answer is: When a series of five subordinate equalities also hold, as follows:

1. For each product or service the social benefit from producing one more must equal the price at which it can be sold.
2. The price at which it can be sold must represent the additional revenue to the producer for making and selling one more.
3. The additional revenue must equal the additional cost in producing one more.
4. The additional cost must equal the added factors of production used times their price.
5. The prices of the added factors must equal their social cost.

It is next necessary to inquire under what conditions these equalities may be expected to prevail in a free society.

(1) When do prices in the market reflect the social value of
the commodities? Certainly only if the distribution of purchasing power is somehow socially acceptable—not necessarily equal, but certainly passably fair. Clearly the prices of canned milk and of Cadillacs may not reflect their social utility in countries with extreme wealth and poverty. It is also necessary that consumers should be informed, know what they want, ape one another only to a limited extent, etc.

It is generally assumed, then, that these sensible consumers achieve a balance in their consumption. Consuming more and more of one thing involves giving up more and more of another. The added satisfaction from increasing consumption of one must gradually become less than the satisfaction foregone by giving up the second, otherwise why would both be consumed?

It must also be assumed that desirable goods and services can be sold in the market and their value paid for. Sometimes this is just not feasible, as where the apple grower provides apple blossom nectar for bee-keepers in the area. Sometimes it would be wrong even if feasible to charge a price, as in the case of "public goods" where more people can enjoy them without others being deprived, e.g., knowledge, or an aerial fireworks display. Even if these assumptions are not fulfilled perfectly, one might argue that they hold in the main. But of course, the major requirement is that the distribution of purchasing power be acceptable.

(2) When does the price of the added product equal the added revenue to the producer? This is true when the producer is selling in a competitive market so that his own increased sales will not depress the price. If any sort of indivisibilities make this assumption untrue, the producer has a degree of monopoly. In the monopoly situation he does not ask what the price is, but what added revenue would come from producing and selling more. The expected revenue from the increased output must take account of

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17 For a careful analytical treatment of these two reasons for market failure plus a third resulting from indivisibilities, see Francis M. Bator, "The Anatomy of Market Failure," Quarterly Journal of Economics LXXII (August 1958) 351-79.
expected losses from lower prices on the total output. Thus the added revenue from producing one more is less than price if monopoly exists. Hence the equation requires competition in the production and selling of goods and services.

(3) When will the added revenue from one more equal the added cost to the producer? When he maximizes his profits. This is indeed the classical economic rule for profit maximization.

The slopes of the lines in Figure 3-2 are the marginal increments in cost and revenue respectively, and clearly where the vertical difference between total cost and total revenue is a maximum (maximum profits), the slopes are equal. There must be increasing incremental costs, of course, whether from increased costs internally or in purchasing labor and materials from more valuable alternative uses.

(4) Under what conditions will the added cost of producing one more be equal to the added factors used times their price? When there is competition in the markets and where factors of production are purchased so that no individual producer worries

**Figure 3-2**

![Graph showing the relationship between cost and revenue](image-url)
about bidding up the price of labor or materials by his own activity. In a one-company town, this calculation of the possible added costs of having to increase wages of everyone in order to secure a few more workers may exist, but it is not considered common.

(5) Finally, under what conditions will the prices of the added factors of production represent their social costs? These factors are being bid away from alternative uses, hence their prices will represent the social benefits foregone in those other uses, provided all the other equalities hold universally.

There is an exception to this last statement: sometimes the production of some good or service involves a social cost which is not reflected in any necessary payment by the producer. An industry may pollute a stream or the air, a farmer may contribute through poor practices to flash floods in the valley below. These external diseconomies of production mark a major problem where legislation is called upon to improve the operation of the competitive system.

There may also be situations where the marginal conditions are insufficient, so that a major change could lead to a new higher optimum, but can only be made by a series of steps the first few of which make things worse. The change from private cars to public transportation in a city may be an example.

Not only are these optimal conditions based on a set of rather strong assumptions, they are also untestable, and unquantifiable. They represent a theoretical optimum, but real world policy is made moving from one less-than-optimal condition to another, hopefully better, condition. Nonetheless, it is generally assumed that major further departures from these optimal conditions are to be minimized.18

D. APPLICATION TO INJURY REPARATION

What is the connection between the rules for maximum social welfare and the problem of personal injuries and reparation? In order to focus discussion, consideration will be given particularly to injuries caused by the operation of automobiles. There is a reduction in social welfare resulting from personal injury automobile accidents, both from the reduction in present wealth and productive potential, and from the arbitrary redistribution of wealth (concentration of costs on a few people). The first is much easier to quantify than the second, since it involves only estimating the costs of repair or replacement of damaged objects (whichever is cheaper), medical costs, and the discounted value of the lost future income in the case of death or disability. Quantification of the reduction in social welfare through lack of any "loss spreading" that would make the effects distributionally neutral, would require measurement and interpersonal comparisons of the utility of income—clearly impossible.

There is also a long-run loss in social welfare if accident costs are not properly reflected in the costs of using an automobile, and this, too, is difficult to estimate. It involves the costs of extra accidents because of inadequate deterrents, and the costs of using resources in the automobile transportation industry, or in the private automobile section of it, where their value (net of accident costs) is lower than in some other use (such as railroads, or public transportation).

Turning to the other side of the coin, a reparation system can per se affect the level of social welfare in three ways: It can redistribute the losses, in a way almost certain to improve the distribution of wealth and income (by reducing the redistribution which was occasioned by the injury). Second, it can improve resource allocation by seeing to it that the inevitable accident costs

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19 This subject has been usefully explored for the whole tort field by Guido Calabresi, "Some Thoughts on Risk Distribution and the Law of Torts," Yale Law Journal, LXX (March 1961) 499-553.
of the automobile transportation "industry" are borne by the industry (and those deciding on its scope) rather than by society generally. Third, it may actually reduce the original costs of accidents by deterring negligence and thus reducing avoidable accidents. (The distinction between avoidable and unavoidable accidents is arbitrary and perhaps empirically impossible, but is a necessary conceptualization.) It is easier to make the case for an improvement in social welfare by these three means than to provide even the crudest procedures for quantifying the extent of the benefit. A reparation system has its own costs of administration, which must be deducted from the benefits, too.

Taking the first contribution of a reparation system, its redistribution of wealth, why does it increase social welfare? In the case of the uninsured motorist, it may not, particularly if the driver at fault is also injured. Shifting the loss to the negligent party may have other benefits (deterrence of negligence, "justice"), but may well increase the departure of the distribution of wealth from the optimal. The reparation system, however, may well force people to insure, and it is the insurance which provides the loss spreading. Even with liability not everyone carries insurance, but without it, fewer would. Why, then, is the spreading of losses, the offsetting of any arbitrary shocks to the distribution of wealth, considered to increase social welfare? It is because of an implicit assumption that in general the distribution of wealth (and income) reflects a social and political decision with various devices (progressive taxes, transfer systems) to achieve it.20

Hence, the spreading of losses induced by a reparation system may well increase welfare (by reducing the amount a concentrated loss would have impaired it), whereas the tort liability in the uninsured case is just as likely to have unfortunate as fortunate repercussions on income distribution. Its effects must find their justification on other grounds.

20 Graaff, Theoretical Welfare Economics, p. 169; see also Calabresi, supra note 19, at 527.
What of the second argument, that a reparation system may improve resource allocation? Application of cost theory to automobile accidents makes it clear that accident costs are part of the social costs caused by the automobile transportation industry in the same way in which work accidents are part of the costs of industrial production. If the automobile transportation industry is not required to bear the costs, there is a subtle social subsidy which encourages more automobile operation than would take place if people knew they would have to pay what it costs. Why don't people take account of these costs, or why wouldn't they without a reparation system? Mainly because the impact of accidents is irregular and serious accidents are not frequent. Most people injured in auto accidents have not previously been in a serious accident. In addition, most people think of themselves as better than average drivers, not so likely to have an accident. And even those who are negligent may get away with it for a long time if other drivers are alert. Hence, human nature being what it is, people may well tend to underestimate the probability of being affected by an accident. A reparation system and the connected insurance available provide clues as to costs of driving an automobile. Where insurance rates are keyed to mileage or location, there are added clues as to the differential costs of driving more or driving under more crowded conditions. For convenience, it is helpful to think of the automobile transportation industry as consisting of many small (family) firms each owning a transportation-producing asset (a car) and selling its services to the same family.

It is important here to make an arbitrary distinction between two sorts of accidents: First, there are injuries which are the probabilistic result of having cars on the road with the inevitable chance events or unintended errors of judgment. Second, there are injuries which result from gross negligence or violation of traffic laws, and which may be much more frequently caused by some people than by others. In order for optimal decisions to be made, the actuarial cost of the "inevitable" accidents should be
spread over all the drivers, perhaps according to how much they drive and under what conditions. They would then be free to decide how much to drive, but would know, and pay, the full costs.

The costs of the avoidable accidents should presumably be assessed against the particular drivers who cause them, as though they were making decisions to be negligent and knew that they would have to pay the costs of that negligence. This is difficult for several reasons. First, much negligence is never discovered because it does not result in an accident. Second, the costs are frequently beyond the financial capacity of the negligent driver. There is a need for penalties to deter negligence, perhaps as high for those who are lucky as for those who happen to cause an accident, but what about the remaining costs? Perhaps they should be spread among all drivers on the ground that there will always be fools or misfits driving. Perhaps they should be covered out of general tax funds.

The existing system fulfills these rules badly if at all. The unavoidable accidents, resulting from no one's negligence, are theoretically not compensable and for the most part therefore not covered by automobile liability insurance. They may be covered by other forms of insurance, private or social, but a proper pricing system would require that auto owners carry collision insurance, and income loss insurance for death or disability resulting from auto accidents. Only such a system would add to the cost of driving an automobile the inevitable costs of the "inevitable" accidents. (But there would be difficulties because of the operating costs of such a system, as will be explained below.)

On the other hand, the "avoidable accidents" bring into play a mixture of tort liability and liability insurance which spreads the costs of these accidents among all insured drivers, or leaves them on the victims of uninsured motorists. The spreading eliminates most of the possible deterrent to the guilty driver; it therefore defeats the resource allocation function, unless one assumes that the deterrent is ineffective anyway.
The third advantage of a reparation system—that of deterring accidents—raises a different kind of difficulty; that of assessing the effectiveness of deterrents. The social gain from avoiding an accident can be approximated by estimating the cost of the accident. The question is whether tort liability, particularly with insurance available, is deterrent, and to what extent it reduces accidents beyond what other considerations might. After all, the negligent driver risks his own life, limb, and car too.

There are two other problems to keep in mind before returning to the problem of measurement. Whenever there is damage to productive capital equipment, physical or human, society has an interest in its optimum rehabilitation as an economic matter, entirely apart from ethical considerations of justice or "making good." In the case of human beings, in particular, the social conscience demands as much rehabilitation as possible even where it does not "pay" economically, as in the case of a retired person. In the case of equipment it is frequently an easy matter to determine whether it is more economical to scrap or repair. The clearest case, however, is where the resources devoted to rehabilitation of the person are obviously less than optimal, because he does not have the funds (no one was liable, or perhaps he was the negligent party). Here society may properly insist on rehabilitation, and a difficult question arises as to who should pay for it.

Finally, once it is obvious that there are social costs of injuries which would be reduced by a reparation system and by some deterrents, it is still necessary to ask whether the increase in welfare from the reparation system is greater than the costs of having the system. It is this question which makes some crude quantification of the magnitudes important. It may prove desirable to trade some loss in precision in social cost accounting for economy and simplicity in the reparation system. If someone suggests also trading some loss of equity in the resulting income-wealth distribution for economy in the system, it becomes necessary to say something even about the quantitative advantages of equity.
E. An Illuminating Excursion

One way to get a fresh view of a social control system is to look at another area where no system exists, and ask whether it would be useful to have one. Air pollution furnishes a good illustration. Here there are social costs, created by the activities of some, and felt by others. The costs are not evenly spread, but concentrated on those who live on the valley floor, or who have weak lungs.

Should some system be instituted for assessing the cost of air pollution on those who cause it, or is it enough to pass laws prohibiting certain blatant forms of pollution? Pittsburgh passed a law regulating the grades of coal which could be used in home furnaces, rather than attempting to tax high-sulphur coal because of its role in pollution (perhaps because with a stoker poor coal burns with little smoke).

Suppose that the costs of determining and allocating costs, and adjudicating claims, and enforcing the system, were substantial in relation to the total social cost involved. One might then conclude that it was cheaper and better to allow the air pollution than to incur the costs necessary to eliminate it. It might also be so much cheaper to pass regulations than to assess costs, that a clear social gain would result in spite of imperfections in a regulatory system. The major imperfection in any regulatory system as against a social costing system is that it fails to allow flexibility. A producer of pollution, faced with a charge for this pollution rather than a regulatory prohibition, can decide whether to pay the charge (which would be used to compensate the victims, and help pay for their cleaning bills), or to spend the money eliminating the pollution. It may well turn out upon investigation that it is much cheaper to eliminate the pollution than anyone thought. Those for whom it is very expensive could still pollute and pay.

A major difficulty in allocating costs is that the social costs of many activities cumulate with the extent of the activity. The capacity of a particular atmosphere to absorb wastes is limited (as
is the capacity of highways to carry traffic without accidents). Hence it is impossible to isolate the contribution of any one individual and evaluate it. It is conceivable that with 100 factories, one almost never gets smog but that with 150 it becomes an acute problem. This cumulative disequilibrium problem is even more dramatic with stream pollution where beyond a critical point the stream loses its ability to recover and the lack of oxygen causes an ecological imbalance which kills off most organisms and makes recovery extremely difficult.

In other words, the cost "created by" one plant may be zero until another plant adds its waste, after which it is very large. Certainly one could not assess the increase in cost solely to the last plant, since it would cost nothing if one of the other plants would treat its waste.

An instructive example is the situation in which the cost of eliminating the pollution is negligible, but the cost of enforcing that elimination is substantial. Suppose, indeed, that it would cost (in terms of resources devoted to inspection, administration, etc.) nearly as much to enforce the regulation as the total social costs of the pollution to be eliminated. Clearly it is still worth while eliminating the pollution. Who should pay for the costs? Should the pollution-producing firms be taxed to pay the costs of policing, as well as the costs of pollution control? How identify them once the law is passed? Certainly one cannot use the revenue from fines to pay the administrative costs, because with complete compliance there would be no fines. Can one tax any potential producer of pollution to pay for the pollution control?

F. IS QUANTIFICATION OF THE BENEFITS OF INCREASED EQUITY AND OF IMPROVED SOCIAL COST ACCOUNTING POSSIBLE?

From half a century of tortuous writing in the field of welfare economics, it is clear that verifiable scientific measurement is, in the strict sense, an impossible task. It is relatively easy to measure
the cost of accidents and the cost of operating any existing reparation system. But the benefits of the reparation system and of the improved social cost accounting which it may produce are impossible to quantify in the same sense. This means that in comparing different types of reparation or compensation systems, quantitative measurement is largely restricted to comparing the costs of accidents with the costs of the system. Comparisons of the benefits produced by the relative equity and cost-accounting characteristics of each system seem possible only on a qualitative basis.

Given this situation, it is tempting to conclude that small departures from optimal resource allocation, and small distortions in the distribution of wealth and income resulting from accidents, might well be ignored on the grounds that their social cost is probably small, and certainly small relative to the costs of a reparation system to determine and offset them.

The focus of economics on optimal conditions has not produced any quantification of the social losses resulting from departures from those optima. The completely avoidable departures, such as air and stream pollution, are simpler because whenever the costs of the enforcement system plus the costs of eliminating the causes of pollution are less than the estimated cost of the pollution, then the control system is worth installing, provided the income redistribution problems can be handled.

In the case of auto accidents there are no adequate grounds for believing that the proper cost allocation would either reduce accidents nor change the total amount of driving appreciably. Hence, the major benefits for which society presumably pays the costs of a reparation system are those arising from the spreading of costs, the avoidance of major distortions in the distribution of income and wealth. And these can apparently be handled by a direct loss insurance system (involving life insurance, disability insurance, and hospital-medical insurance), at less cost than by a system which imposes liability (with or without fault), and impels the
liable persons to buy liability insurance. One might well argue that the tort liability system is justified on the basis of its "justice" aspects, even with the watering-down in penalties through liability insurance. Some penalty carries over in higher insurance charges, though it would be more effective with compulsory insurance. Indeed, on grounds of welfare economics it is easier to argue the case for insurance extended to all accident losses without regard to fault, than for the tort liability system. And it would be easier to argue for more nearly complete loss spreading through wider insurance coverage, both on the resource allocation and equity grounds, and on the basis of the relatively low costs of the system.

This appraisal does not exclude the possibility that the liability system should be retained. Assuming that a loss insurance system would be better, the question would remain of how people are to be induced to buy the loss insurance which they need. Today, it is evident that they do not buy it; they rely instead on the demonstrably uncertain probability that they will get reparation through the liability system. The liability system on the other hand produces a high degree of insurance, because the threat of having all one's wealth taken by the arm of the law seems somehow more persuasive than the threat of losing it all in an uncompensated accidental injury.

Liability might also be retained for a variety of reasons which might be subsumed under the versatile concept of "justice." This might include the importance of dramatizing society's disapproval of negligence, even if the actual condemnation is liquidated by a liability insurance company. It might include the objective of vindicating the innocent injury victim, and assuaging his vengeful feelings toward the cause of his woe. These are objectives on which economic utility theory has little if anything to say.