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# Basic Needs versus Distributional Weights in Social Cost-Benefit Analysis\*

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## I. Introduction

The purpose of this paper is to compare and contrast two alternative ways of bringing what we might loosely call "distributional considerations" into the machinery of social cost-benefit analysis. The first of these ways is an outgrowth of the utilitarian tradition that has been a part of economics at least since the times of Bentham and Mill. It holds that the marginal utility of an extra dollar to a rich man is lower than that of the same dollar to a poor man. Alternatively, this same notion can be thought of as applying "distributional weights" to the changes in welfare of different people that occur as a consequence of a particular project, policy, or program.

The second approach does not rely on differential weighting of the welfare of different individuals. Rather, it imputes to some individuals external benefits connected with the improvement in the circumstances of others. Most people genuinely feel it is "good" for the sick to be healed, the hungry fed, the illiterate taught, the homeless sheltered, and so on. They have demonstrated these feelings over the centuries through charitable acts in which their own money has been spent to bring about one or more of these objectives. Similar motivations may also lie behind legislation in which societies have accepted a collective responsibility for meeting the medical, educational, nutritional, and housing needs of their less fortunate citizens.

I use the term "distributional weights" to characterize the first of these approaches and "basic needs" to describe the second. In what follows I shall try to show that these two ways of introducing distributional considerations into social cost-benefit analysis (or into applied welfare economics more generally) are really conceptually quite distinct, and have very different implications for public policy and social choice. While they are not in principle inconsistent with one another,

their differences are great enough to make it unlikely that a single society or decision-making entity would consciously decide to implement them both at the same time.

## **II. Traditional Cost-Benefit Analysis**

In a 1971 article I tried to summarize and evaluate the underlying analytical structure of applied welfare economics. Some 100 years or more of literature on this subject could be distilled, I argued, into "Three Basic Postulates for Applied Welfare Economics."<sup>1</sup> These postulates, which I must emphasize are not mine but belong to the whole host of people who have developed the literature of this field, are: (1) The benefit of an incremental unit of a good or service to a (competitive) demander is measured by his demand price. (2) The opportunity cost of an incremental unit of a good or service to a (competitive) supplier is measured by his supply price. (3) When calculating social costs and benefits of a project, a policy, or a program, one simply takes the difference between the total benefits and the total cost attributed to the various members of the relevant social unit (family, city, state, nation, world). A dollar of benefits to one counts as much as a dollar of benefits to another.

Most people are surprised when they learn how powerful are these simple postulates. Books have been written exploring their implications and ramifications. Among the more important implications is a methodology for determining the social opportunity costs (shadow prices) of things like material inputs, foreign exchange, capital, and labor. It is worth noting, in passing, that the conventional analyses of the social costs of monopolistic pricing, of taxes, tariffs, subsidies, farm programs, and so on, all rest on the three basic postulates. They are valuable to us as a profession; they have served us well. We should think not just twice but many times before we discard or alter them.

There can be little doubt that of the three postulates, the one that causes people the most problems is the third. Traditional cost-benefit analysis is completely neutral with respect to pure transfers of income from one individual or group (within the relevant society) to another. Traditional cost-benefit analysis implicitly values a marginal dollar for a rich man the same as the marginal dollar for a poor man. Traditional cost-benefit analysis does not recognize the merits of charity or altruism or even of taxation in accordance with "ability to pay." In short, traditional cost-benefit analysis is in these senses cold, crass, and unfeeling, even though at the individual level it is attuned to reflect and record the subtlest nuances of individual taste and welfare.<sup>2</sup>

The position I have most often taken in defending the use of the three postulates is not to say that they tell us everything but rather that they help us measure in a conceptually unambiguous fashion the pure "efficiency effects" of policies, projects, or programs. That does not

say that every policy that is good from an efficiency point of view is a good policy. Other considerations must be weighed as well. But many of these other considerations are difficult to incorporate systematically into the analytical framework of cost-benefit analysis. This is particularly so when there is little basis for consensus concerning the underlying noneconomic values involved.

Under such circumstances the best thing that economists can do may well be simply to inform their clientele (be it a bureau, a legislature, an interest group, or the public at large) of the strictly economic (i.e., efficiency) costs and benefits to be expected from a particular measure and to leave it to them to decide whether these economic benefits outweigh what may be adjudged noneconomic costs, or (vice versa) whether the noneconomic benefits are large enough to outweigh the net costs of the measure as estimated by the economist. At the very least, the above position is a perfectly respectable one for economists to take, as indeed a great many do.

### III. On Distributional Weights

An alternative to the above position, which a number of highly respected economists have to one degree or another endorsed, is the concept of "distributional weights." It builds on the notion that the social value of an extra dollar in the hands of a rich person is less than that of the same dollar in the hands of a poor person. This idea has roots going quite far back in the history of economic thought, but it is not my purpose to try to trace those roots. Rather, it is to trace the logical conclusions to which the notion of distributional weights leads us.<sup>3</sup>

The history of my encounter with distributional weights is one of increasing inquietude, leading ultimately to a nearly complete disillusionment. The problem is really very simple. Suppose one assigns to families with incomes in the neighborhood of \$6,000 (in the United States) a weight of 2.0, and to those with incomes around \$54,000 a weight of 0.5. At first glance that seems quite reasonable. A family whose total income is \$6,000 is quite poor, and one whose income is \$54,000 is quite rich, in the context of U.S. society today. That the first should have a weight that is twice the "norm" of 1.0, and the second a weight of perhaps half that norm, does not at first glance seem unfair. Many people, if polled on the question, would surely vote approval.

But, at least from the informal polling that I have done at academic seminars over the years, most of the people will quickly change their minds and reverse their vote once they come to understand the implications of such weights and take them seriously.

Suppose, for example, the U.S. society were to adopt the weights indicated for the income levels of \$6,000 and \$54,000, with presumably an interpolated set of declining weights for incomes between those two

levels and extrapolated weights that rose above 2.0 as income fell below \$6,000 and dropped below 0.5 as income rose above \$54,000. Once these weights are adopted, they should in principle be used to guide policy decisions in the evaluation of projects, taxes, subsidies, welfare schemes, and other types of programs and policies. Let us now suppose that in pursuit of this end several new policies and programs are adopted which have the effect of raising the incomes of some who are below \$6,000 and of lowering the incomes of some richer people, including of course some who are above \$54,000. But so long as there are any families with incomes above \$54,000 and simultaneously other groups with incomes below \$6,000 we cannot stop searching for more ways of effectuating transfers from the first to the second set of people.

Even ways which by the traditional standards would be scandalously inefficient would have to be explored. The margin of inefficiency that would be barely acceptable would be one that in extracting \$1.00 of welfare from the rich (\$54,000 and up) delivered \$0.25 of welfare to the poor (\$6,000 and below). That this is indeed acceptable is seen when the relevant weights are applied. The \$1.00 lost by the rich represents only a social cost of less than \$0.50 (assuming some of the affected rich have incomes above \$54,000), while the \$0.25 gained by the poor represents a social benefit of more than \$0.50 (assuming some of the affected poor have incomes below \$6,000).

Therefore in the stated circumstance, the society (if its distributional weights truly reflect its social values) must accept projects with inefficiency losses amounting to 75% of costs. In my earlier paper I drew the analogy of a desert country where people lived on oases—some of them rich, some of them poor. I then postulated projects of effectuating transfers by sending ice cream on camelback across the desert. If the recipient oasis had a welfare weight equal to four times that of the sending oasis, then the project would be acceptable even if up to three-fourths of the ice cream melted and was lost en route. If the receiving oasis had a welfare weight 10 times that of the senders, then one could accept the project of sending ice cream so long as no more than 90% of it melted and was lost along the way.

This illustration is not at all meant to be realistic, but only a way of graphically portraying the nature of the choices that are present in all real cases. As one goes about the process of making social decisions using distributional weights, one inevitably confronts cases where there is a net social benefit, with the distributional gain outweighing the efficiency loss. So long as this is the case, the logic of cost-benefit analysis presses us to accept those projects.

Returning to the original example from the U.S. scene, I see two possible outcomes.

1. We have, after we have explored all the alternatives and adopted those that met our criteria, some people still at an income level of \$54,000 and some who are still at an income of \$6,000. Here the

implication is that each avenue which has been found for effectuating transfers between these two groups has been pressed to the point where, at the margin, the efficiency cost of effectuating the transfers is 75%. If there is some mechanism whose marginal inefficiency cost is less than 75%, then it should be used more intensively at the expense of other alternatives where the 75% inefficiency cost prevails.

2. There are many ways to effectuate transfers at inefficiency costs of less than 75%. The implication of this is that we have no families above \$54,000 or below \$6,000. For if there were even one family above \$54,000 and one below \$6,000, and if a mechanism could easily be found to effectuate a transfer from the first to the second at an efficiency cost of less than 75%, it would obviously be worthwhile to accept that mechanism as a project and carry out the transfer.

This is a point whose full implications I did not grasp at the time I wrote the conclusions of my "Distributional Weights" paper. I offered there the notion that in applying distributional weights some upper limit like 10% or 15% or 20% should be set to the inefficiency cost that the society was prepared to bear in the process of effectuating a particular transfer. I thought at the time of this being a sort of side condition, imposed in order to stimulate people to search for transfer mechanisms that were more efficient, rather than accept inefficient ones just because there was a big difference between the distributional weights of the transferors and transferees. But I also thought, at least in the back of my mind, that it would not be too hard to find ways of effectuating transfers with inefficiency costs of less than 20% or so.

The lesson I did not draw was, so long as you can invent them, why not use them? Let us see what this would mean in our numerical sample. Note that while income in that example ranged over a factor of nine (\$54,000/\$6,000), the distributional weights ranged over a factor of four (2.0/0.5). If we interpolate geometrically between these limits we would find that a weight of 1.0 ( $= \frac{1}{2} \times 2.0 = 2 \times 0.5$ ) would apply at \$18,000 ( $= \frac{1}{3} \times \$54,000 = 3 \times \$6,000$ ). If we consider the geometric (or exponential) weighting principle to apply quite generally, we can infer from the data of the example that when the highest income in this particular hypothetical society is three times the lowest, the weight attaching to families with the highest income is exactly twice the weight attaching to those with the lowest.

Thus, if it were really true that the social weighting scheme was as assumed, and if we could be assured that it was very easy to find a virtually infinite supply of projects which could effectuate transfers from above to below at inefficiency costs of less than or equal to 50%, it would follow that the highest income in the society, after all acceptable measures had been applied, would be no more than three times the lowest. All the families of the United States would be packed within an extremely narrow range of, say, \$10,000–\$30,000 income.

Personally, I doubt that there has ever been a society with in-

comes so tightly packed. Certainly there is no contemporary national society that even comes close, nor any municipal or national bureaucracy, nor, for that matter any bureaucracy of any international agency. Yet this is where we are driven, with the weighting system with which we began, together with the assumption that it is easy to find a multiplicity of ways to effectuate transfers from above or below, at no greater than 50% inefficiency cost at the margin.

#### **IV. The Basic Needs Approach**

Just as the distributional weights approach has ample roots in the literature of economics, so too does basic needs, though not under that particular label.<sup>4</sup> The areas of literature providing the most direct lineage are those concerned on the one hand with the analysis of in-kind transfers and on the other with the subject of interdependent utilities and Pareto-optimal redistribution.<sup>5</sup> The key feature distinguishing what I call the basic needs approach is the fact that it is not the recipients' utility that enters the donors' utility functions—this leads to a distributional weights approach—but rather the recipients' consumption of particular goods or services (food, education, medical care, housing, etc.) or attainment of certain states (being better nourished, better educated, better housed) that are closely correlated with an "adequate" consumption of such goods or services.<sup>6</sup>

The essence of the basic needs approach is therefore the recognition of an externality associated with improvement (or deterioration) in the extent to which the basic needs of specified segments of society are met. The most obvious motivation for such an externality is altruism, which is present in considerable abundance in most modern societies. It seems to be true, also, that the altruism that we observe is more closely linked to certain basic needs of individuals rather than to their self-perception of their welfare or to their consumption bundle as a whole. The rest of society wants the recipients of welfare payments to spend more on feeding and clothing their children, not on what are judged to be sumptuary or trivial wants. When a school lunch program turns out not to lead to improved nourishment, it is judged by most citizens to be a failure. When a medical care program turns out not to provide increased or improved care for the target group, it is judged a failure, even though it may leave the affected group with more income to spend on other things.

The basic needs approach accepts these elements of "paternalism" in our societies as being potentially accurate reflections of our true values, attitudes, and beliefs. It pleases me to hear of an otherwise malnourished child now being better fed, and I am willing to pay, whether in the form of contributions to CARE or in the form of taxes, to bring this about. I know that many others feel the same way.

It now becomes clear that our respective individual gratification

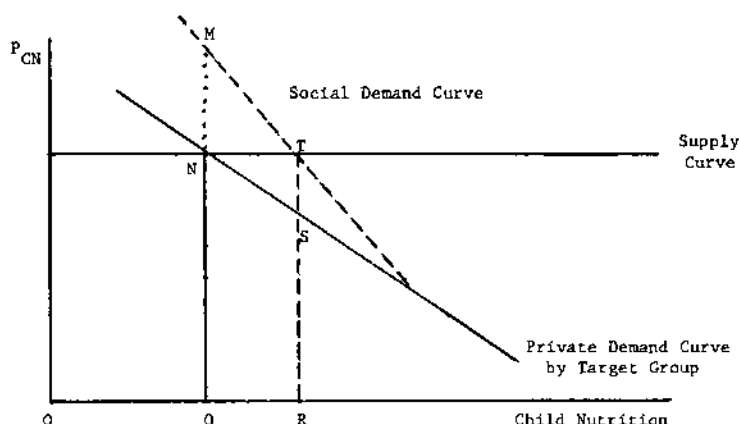


FIG. 1

(and our underlying willingness to pay) at the fact of a poor child being better nourished is something of a public good. The fact that I am gratified in no way precludes you from being gratified also. My willingness to pay to help see that this event comes about can thus appropriately be added to yours, in just the same way that conventional cost-benefit analysis adds vertically various citizens' willingness to pay for an environmental improvement that subsequently can be freely enjoyed by all.

In figure 1 we see a typical case. The private demand curve of the target group would lead to an equilibrium level of child nutrition equal to  $OQ$ . Social intervention is justified, by the basic needs approach, to bring that level up to  $OR$ . The net benefit is the triangle  $MNT$ , which we can conceive of as the difference between  $MNST$ , the "public good externality" occasioned by  $QR$  of additional consumption, and  $NST$ , the standard measure of the efficiency cost of, say, a subsidy of  $ST$  per unit to the target group.

The basic needs approach is in principle remarkably versatile; in this regard it is essentially similar to traditional cost-benefit analysis itself. Basic needs externalities can be present for a variety of different things at the same time—child nutrition, preschool education for the poor, day care for the children of poor working mothers, health of both children and adults, education divorced at least in some degree from parents' ability to pay, and so on. Indeed, one could formulate, in a technically somewhat more elegant fashion than I have here, ways in which there can be interdependencies among the public good externalities, just as there are interrelations of complementarity and substitutability in the private demand (and supply) of goods and services. Thus, if we are choosing a nutrition program for malnourished children and an education program which will also benefit malnourished chil-



dren, it may be wise, in terms of social costs and benefits, to choose to make the extra education available to the same group that gets the extra nourishment, since it is known that educational performance improves dramatically (up to a point) as nutrition improves.

Yet another way in which the interrelations among social externalities for different goods can be reflected is through unhooking the externality from any particular good. If what people really want is that malnourished children should be better nourished, why not define the externality as the price society is willing to pay for each successive rise in a child's index of nourishment, or perhaps in a combination of anthropometric and school-performance levels that would be deemed to reflect the level of nourishment.<sup>7</sup>

### V. The Analytical Frameworks Compared

Some people have reacted to an initial presentation of these ideas by suggesting that the basic needs approach can somehow be seen as simply a variant of the distributional weights approach. They suggest that somehow, if one chose one's distributional weights right, one could reach, through the distributional weights approach, the same answers to a given set of analytical problems as one would obtain using a given set of social externalities under the basic needs approach.

Nothing could be further from the truth. In this section we will show how the basic needs approach is fundamentally distinct from that of distributional weights, veering away from the traditional analysis in quite a different direction. To demonstrate this, I start from the traditional analysis of a subsidy. Figures 2A and 2B show that there are two alternative ways to get at the same answer. In figure 2A we focus on the problem from the vantage point of the price axis. The total cost of the subsidy to the government is the rectangle *RGFT*. A part of this, *SEGR* (shaded diagonally), is perceived as a benefit by producers; another part, *SEFT* (shaded vertically), is perceived as a benefit by consumers. These benefits, in the traditional analysis, offset the corresponding costs to the government, leaving a net loss equal to the triangle *EFG*.

In figure 2B exactly the same problem is addressed from the vantage point of the quantity axis. Here we follow the three postulates in using supply price to measure the opportunity cost of the resources newly attracted into the activity as a consequence of the subsidy and in using demand price to measure the value to demanders of each successive extra unit that they buy as a result of the subsidy. Working with supply price, we get a total incremental cost equal to the trapezoid *EGUV* (shaded diagonally), part of which is offset by the incremental benefit in demand, *EFUV* (shaded horizontally). The net result is once again the triangle *EFG*.

In the traditional analysis, then, it makes no difference whether one approaches the problem of measuring welfare change from the

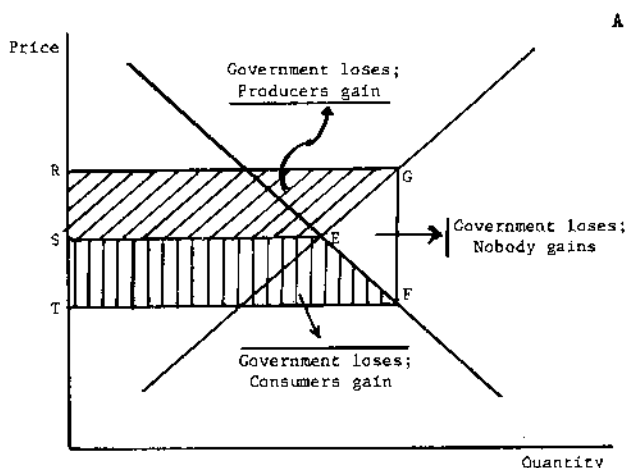


FIG. 2A

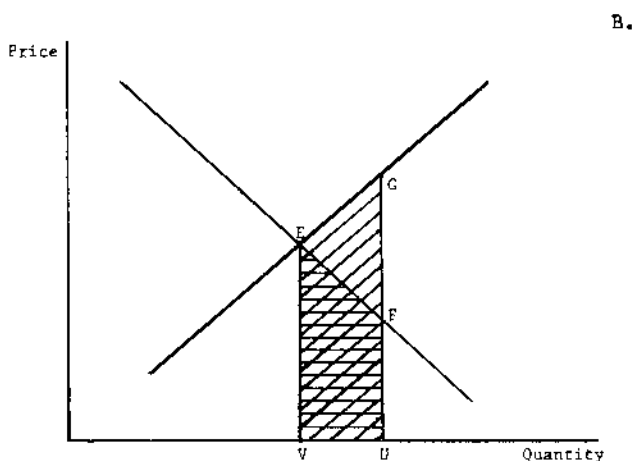


FIG. 2B

vantage point of the price axis (fig. 2A) or from that of the quantity axis (fig. 2B); the net result is the same. Indeed, this is one of the virtues of the traditional analysis, in that it is sometimes much more convenient to look at it one way than the other, and the traditionalist can always choose the easier of the two routes to a solution.<sup>8</sup>

The analytical difference between the distributional weights approach and that of the basic needs is that each of them can work a problem by only one of the two routes. Distributional weights *must* be worked looking from the side of the price axis (as in fig. 2A) and basic needs *must* be worked from the vantage point of the quantity axis (as in fig. 2B). Once this is appreciated, it becomes clear that the two tech-

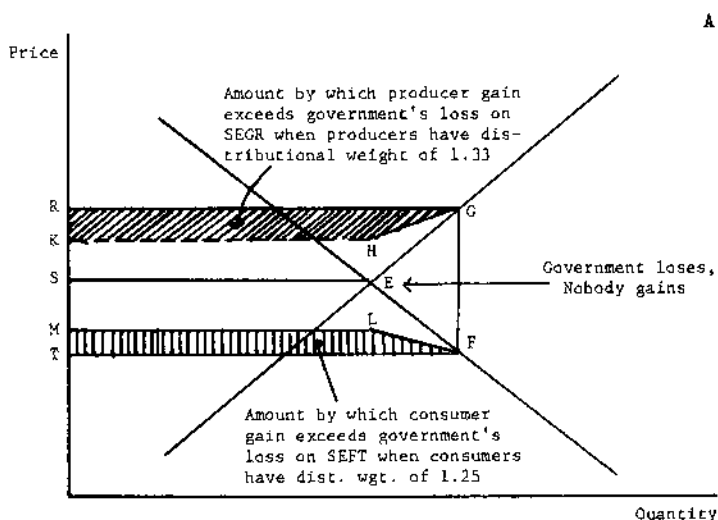


FIG. 3A

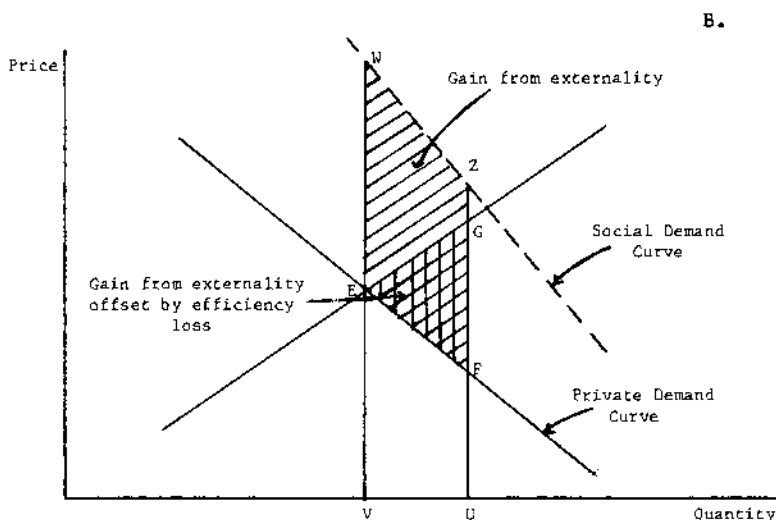


FIG. 3B

niques are fundamentally different, not simply variants of essentially the same thing.

This proposition is illustrated in figures 3A and 3B. In figure 3A we take the same subsidy problem as was dealt with in figure 2, and deal with it assuming distributional weights of 1.33 for producers of the good and 1.25 for consumers.<sup>9</sup> Now whereas in the analysis of figure 2A the benefit to producers represented by the area *SEGR* exactly

canceled out an equal amount of the government's cost, here, since the distributional weight attaching to producers is 1.33, while the government's is (by assumption) 1.0, there is a net benefit equal to one-third of *SEGR*. This is represented by the diagonally shaded area (*RGHK*) in figure 3A. Similarly, since consumers (of the commodity) are assumed to have a distributional weight of 1.25, there is a net benefit associated with the transfer of *SEFT* from the government to them. This net benefit amounts to one-fourth of *SEFT* and is shown in the figure as the vertically shaded area *TFLM*.

In the case shown, the benefits resulting from these two transfers (government to producers and government to consumers) outweigh the efficiency cost of the subsidy (the triangle *EFG*), so that the subsidy itself carries positive net benefits.

In figure 3B we have the analysis of the same problem using the basic needs approach. The social demand curve lies above the private demand curve by the amount of the social "externality" attaching to each successive unit of consumption. In this case the social benefit of *VU* of extra consumption is measured by the area *UVWZ*, while its social cost is measured by *UVEG*. Thus the subsidy program has a net benefit equal to *GEWZ*. This in turn can be broken down into a gain (the diagonally shaded area *FEWZ*) from the externality as such, minus the standard efficiency loss (the vertically shaded area *EFG*), as measured in the traditional analysis.

The comparison between figure 3A and figure 3B shows clearly the difficulty of considering the two approaches as somewhat "the same." No plausible interpretation could be given to the area blocked out by a trapezoid between *W*, *Z*, and the price axis in figure 3B. Correspondingly, it is not in general possible to represent the shaded areas in figure 3A as something comparable to the externality *FEWZ* in figure 3B.<sup>10</sup>

## VI. The Policy Implications Compared

It should be clear from what has been said so far that the basic needs approach is an attempt to reflect the attitudes and views of the members of a given society. One society can be more concerned with the education, health, housing, and nutrition of its members than another. One may concentrate its concern on education, another on health, and so on. In such cases, a proper reflection of the basic needs approach would do the same. The society itself, not the analyst, is the entity whose views should count.

The same spirit that motivated the above remarks leads me to incorporate an additional element in my own interpretation of the basic needs approach. That element is a certain penalty, which can be small or large (or even zero), on the use of government funds to subsidize specified activities or to effectuate specified transfers. I do this because

I feel it reflects the views that people have. People in general are not neutral with respect to the use of public funds to subsidize activities or people that in their view do not "deserve" the transfer. Rich and poor alike condemn the "welfare cheat," even though by the cold logic of the three basic postulates, all that may be involved is an extra transfer from the government to the individual concerned. People are disturbed by the thought of American graduate students taking advantage of the food stamp program because they do not view them as appropriate recipients of welfare funds. It is not that people are against graduate students; rather, they are out to protect their tax dollars.

The idea of imposing a "penalty" of, say, 5% or 10% on subsidy and transfer funds helps to capture or reflect these feelings, which in my view are widely held among taxpayers in this and other countries. The desire to promote activities connected with basic needs is tempered by a sense that programs that cast too wide a net can easily be too wasteful.

Figure 4 illustrates the point. There we have two successively higher levels of subsidy,  $S_1$  and  $S_2$ . In the first step the basic needs externality produces a benefit measured by the diagonally shaded trapezoid, which easily outweighs the subsidy "penalty" of, say, 10% of the government's outlay (the diagonally shaded rectangle). In the second step the externality produces a smaller benefit (the vertically

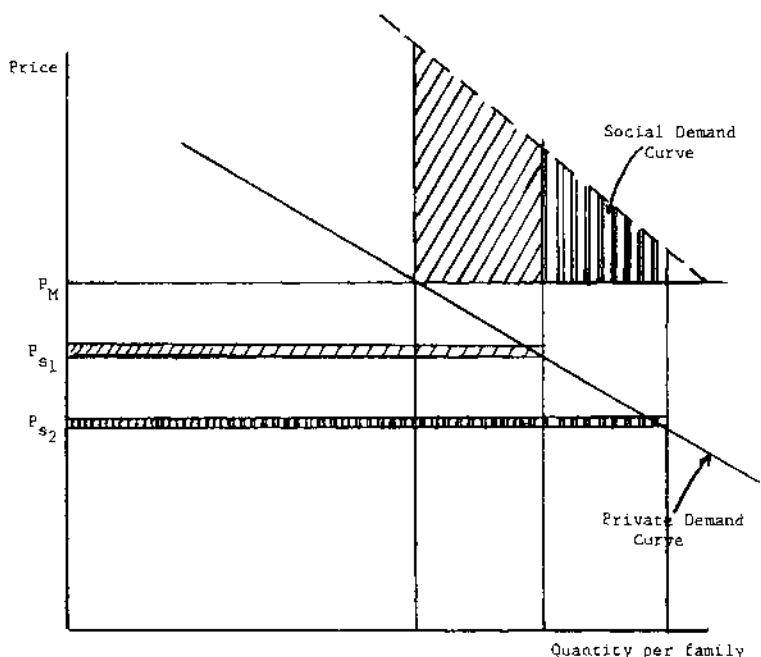


FIG. 4

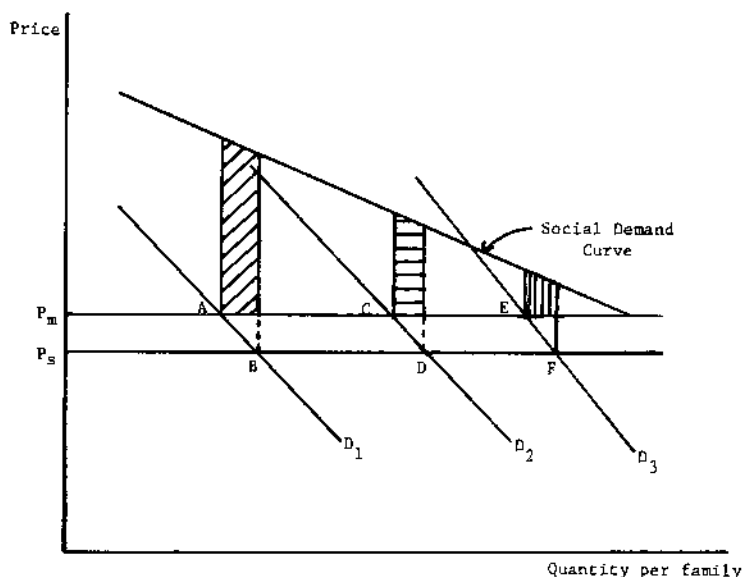


FIG. 5

shaded trapezoid) which less easily outweighs the larger subsidy penalty given by the vertically shaded rectangle.

Let us now make some more direct comparisons between the basic needs approach and that of distributional weights.

1. Suppose we have a subsidy on a type of food largely (but not exclusively) consumed by poor people. Let the poorest group initially consume a quantity of 10, the next poorest 15, the next poorest 20. In the basic needs approach, we are highly likely to assign a greater social value to the subsidy-induced increment of consumption of the very poor than to the increments of consumption of the two higher groups. This is because the social demand curve is likely to exceed the market price by a greater amount for the poorest group's consumption than for those of the higher groups. With distributional weights, however, we are likely to consider the effect of the subsidy on individuals in less-poor groups to bring more social benefit than that on individuals in the poorest groups. This is because distributional weights focuses on the income transfer implicit in the subsidy.

In figure 5, the basic needs trapezoid for the poorest group (diagonally shaded) is clearly bigger than that for the middle group (horizontally shaded), which in turn is larger than that for the least-poor group (vertically shaded). The implicit transfers to which distributional weights apply run obviously in the opposite direction  $P_s P_m AB$  (for a family in the poorest group) being smaller than  $P_s P_m CD$ , which in turn is smaller than  $P_s P_m EF$ . Only if the distributional weights declined

very rapidly indeed would the "preference" for the effect on the poorest group be maintained.

2. A similar paradox applies to successive increments of subsidy to a given group. In the basic needs framework, the social benefit of each successive equal increment of subsidy is necessarily smaller than that of its predecessor. The same is not necessarily true when distributional weights are used, for the trapezoids measuring the implicit transfers get progressively bigger.

3. A third implication of the distributional weights approach is a certain indifference as to what to subsidize. The objective is to give the poor more "utility"; how they spend their money is not of moment. In principle, so long as the relevant trapezoids were of the same size, a distributional weights analyst would be indifferent among subsidies to the consumption by a given lower-income group of milk or movies or beer. A basic needs approach would almost certainly prefer the subsidy to milk.

4. On a related matter, many real-world food subsidies turn out to be intramarginal. In the United States, the food stamps received by a poor family help pay for a fair fraction of its food expenditures, but not all of them. Its marginal expenses are therefore at market prices, and the subsidy implicit in food stamps thus has only an income effect (no substitution effect). This in turn means that giving people food stamps has identical effects with giving them money. The purchasing power released by the family's getting a certain amount of food stamps at a subsidized price is simply spent on extra goods and services in the same way as if it were ordinary income.

Now most of the people I have polled, on learning these facts, feel that the food stamp program has failed to achieve its objective. They do not think that the extra beer or movies bought with the released purchasing power should be counted. They do think that induced additional expenditures on medical care, housing, and warm clothing for the children should be counted. This is exactly what a basic needs approach would count.

These are but a few cases where the distributional weights and the basic needs approaches lead to quite different policy conclusions. By now I have talked to quite a few professional groups on this subject, and uniformly they tend to prefer the policy conclusions that flow from basic needs. My own guess is that the basic needs approach more accurately reflects the true underlying value structure of most modern (as well as at least some not-so-modern) societies.

## **VII. Measuring the Basic Needs Externality**

Finding the empirical counterparts of our theoretical concepts has always been a challenge for economists, and this is no exception. We simply must admit that it is no easier to quantify basic needs exter-

nalities than it is to establish a precise set of distributional weights that truly reflected an individual's or society's beliefs.

Yet help may be found from an unexpected quarter—the degree to which we are willing to tolerate inefficiency. Consider the effects on either the distributional weights or the basic needs approach of the following three principles, all of them commonly employed in traditional cost-benefit analysis: (1) the Hicks-Kaldor principle of potential compensation, which states that no problem or project should be undertaken unless the beneficiaries can (potentially) compensate the losers; (2) the least-cost principle, which states that no program or project should be undertaken if an alternative way can be found to provide the same or equivalent benefits at lower cost; and (3) the hypothesis that among the policy instruments available are lump-sum transfers between individuals and the government, which can be carried out at zero (or negligible) cost.

The above three prongs are sufficient to puncture either the basic needs or the distributional weights idea. Any distributional benefit that could be obtained via a project which did not pass the traditional test on purely efficiency grounds could be obtained more cheaply by a set of lump-sum taxes and transfers. There would be no *need* to accept the inefficiency in order to obtain the benefits; lump-sum transfers would provide a lower-cost alternative.

The same result applies when the basic needs approach is followed. If we assume that costless transfers are available, and that with sufficiently large transfers to a beneficiary group its members will voluntarily make adequate provision for their own basic needs, then lump-sum transfers become a way of providing equivalent (or better) basic needs benefits to those of any project.

Actually, the above line of argument is exactly the basis on which economists have traditionally justified their neglect of distributional considerations in their analyses. Follow efficiency criteria to the letter, it was said, and straighten out your distribution problems later, via (costless or nearly costless) transfer payments. In recent years economists have become skeptical of this advice, in part because actual mechanisms of transfer are not in fact costless, and in part (I believe) because simple lump-sum transfers (e.g., from potential beneficiaries to potential losers on a project) open up a series of political and equity issues that are perhaps even more vexing than the economic issues that these transfers resolve. (If a lump-sum transfer is made from A to B, why not from C to D? How do we put people into categories determining whether they will pay or receive lump-sum transfers, and how large each person's transfer will be?)

In drawing back from lump-sum transfers as a "solution" to the distribution problem, economists have implicitly recognized that, in general, the least-cost way of effectuating a transfer is not the zero-cost



way. In effect, there simply is no zero-cost way. This places an additional burden on proposals involving transfers, one which is different from and additional to the sort of transfer "penalty" that was discussed in the preceding section and illustrated in figure 4. The question is simply, how much "waste," measured in the traditional sense, is the society willing to accept in order to bring about a given benefit rather than seek further for less costly ways to achieve the same or an equivalent benefit?

Once we open this line of thinking, it is but a small step to the idea that we might be willing to accept more inefficiency in cases where the basic need that is to be satisfied is extremely pressing, than we would be in cases where the need being met is more marginal.

Figure 6 illustrates how this principle can be implemented in practice. For each particular basic need, the relevant authority (the legislature, the executive branch, the relevant cabinet ministry) would set two points, *A* and *B* in figure 6. The first of these points, *A*, represents the level beyond which the society simply does not recognize a basic needs externality. I think the simplest way of defining such a point is as the typical consumption level of a particular percentile of the distribution of families. This point might be set, for secondary education, at the point where the demand curve of the typical family in the seventieth percentile would cross the market price; for medical care, it might be where the demand price of a typical family in the fortieth percentile would equal the market price; for housing, it might correspond to the place where the demand price of the fiftieth percentile equaled the market price.

The meaning of point *A* is clear. Up to this point, the relevant authorities are willing to recognize the existence of an externality, to accept, if you like, a social responsibility. Beyond this point they see no cause to intervene in private decisions.

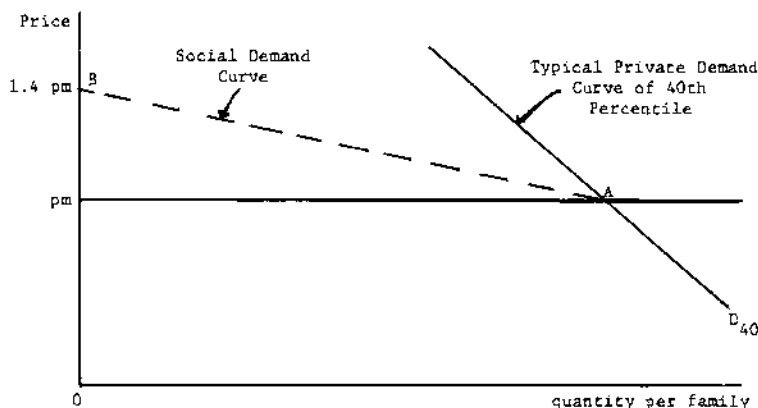


FIG. 6

The meaning of point *B* is different. It represents the maximum amount of inefficiency that the relevant decision makers are willing to accept, even for the first units associated with a given basic need (or, since almost everybody is likely to have at least some number of units even in the absence of intervention, the intercept that in the decision makers' minds generates an acceptable upper limit to the inefficiency factor in the relevant range). This, too, could be distinctly different for different types of needs. Quite plausibly, it could be very substantial for something like emergency medical care, but relatively modest for services like education that are provided routinely and regularly to a large number of families. The urgency of the costs, and their relative infrequency, makes resource cost a less serious consideration when emergency medical care is involved; on the other hand, the likely large numbers of beneficiaries of educational expenditures make it more important to search for the most efficient delivery systems.

There is no reason why the social demand curve joining *A* and *B* should be a straight line, except that it is difficult to claim the kind of subtle knowledge or insight that would justify something other than the simplest type of relationship.

The principles underlying figure 6 can be adapted to situations in which it is not desired to link the basic needs externality to any particular good but instead to a particular outcome. Nutrition is a good case in point, where a nutritional index (with intake of calories, proteins, carbohydrates, the various vitamins, etc., as inputs) would be measured on the horizontal axis. A point corresponding to *A* would be placed at, say, 95% of a fully adequate diet; a point corresponding to *B* would be placed on the vertical axis. Since in this variant we are not working directly with a market price or supply curve, the vertical axis would have to be measured in money. The point corresponding to *B* would therefore be a certain number of dollars per week. If, then, a particular project or program were to cause the nutrition level of a certain group of individuals to be raised from 80% to 90%, a benefit equal to the shaded area in figure 7 would be attributed to each of them.

#### **VIII. Compatibility of the Basic Needs Approach with the Three Postulates**

As a final observation I should like to point out that the basic needs approach is totally compatible with the three fundamental postulates of traditional applied welfare economics, while the use of distributional weights obviously entails altering the third postulate. The analogy to be drawn is with any public good (such as a park) or "public bad" (such as highway congestion). The benefit of a park is measured by the sum total of the potential users' willingness to pay. The negative externality of a project causing more traffic to flow on a particular highway is the sum total of the willingness of the users whose trips have been slowed

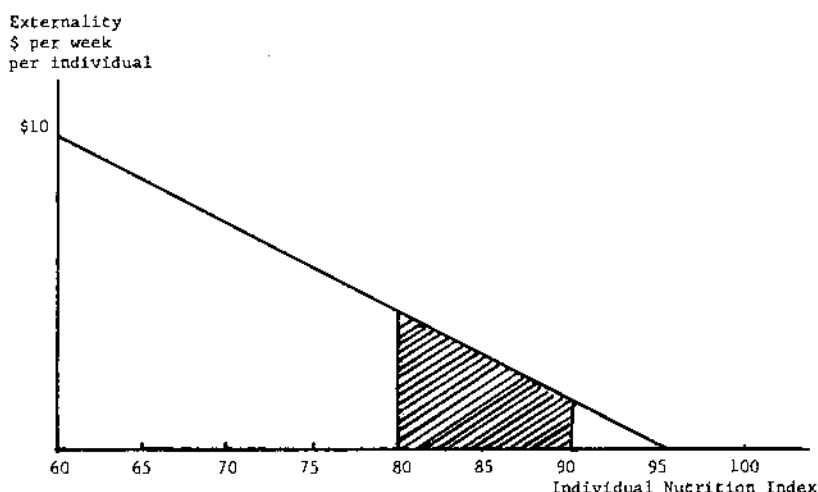


FIG. 7

up to pay to have traffic restored to its original, less congested state. This is usually quantified by estimating the extra time lost because of the added congestion and valuing that time, in principle, at the value that each affected individual would place on it. In the basic needs approach the externalities attributed to other members of society as measured by their estimated willingness to pay to see a particular specified outcome (e.g., undernourished children better fed) are added up in the same way.

In each case, too, something corresponding to the least-cost principle can come into play. We should not attribute to park A a benefit which is greater than the alternative cost of achieving the same or equivalent objectives at a lower cost. But at some point we will have to stop the search for lower-cost alternatives and get ahead with constructing park A, if that appears to be the best project. With basic needs externalities, the approach illustrated in figures 6 and 7 provides what is essentially an operating rule of thumb, saying when to accept a particular basic needs externality and when, instead, to seek ways of producing a similar or equivalent benefit more cheaply. This makes it clear that the curve representing the cumulation of all relevant private "willingness to pay" must lie everywhere above the social demand curve as pragmatically measured in figures 6 and 7.

### Notes

\* This is a substantially revised version of a paper that was prepared as a background document for a seminar at the World Bank in the spring of 1978 and was subsequently used as background for many other seminar discussions. The comments of members of these many audiences are acknowledged and appreciated.

1. Arnold C. Harberger, "Three Basic Postulates for Applied Welfare Economics: An Interpretive Essay," *Journal of Economic Literature* 9 (September 1971): 785-97.

2. The three postulates respect individual tastes in the sense that they record as an improvement in welfare a voluntary transfer of a person from, say, Alaska where he was earning \$500 a week, to, say, Hawaii where he will earn only \$200 a week. So long as transfer was voluntary, he obviously must benefit, and the measure of his benefit is the excess of \$200 a week over the weekly wage in Hawaii that would just barely induce him to make the move.

3. Much of what follows is distilled from Arnold C. Harberger, "On the Use of Distributional Weights in Social Cost-Benefit Analysis," *Journal of Political Economy* 86 (June 1978): S87-S120.

4. In the seminar at which the earliest version of this paper was first presented, I elaborated what I here call the basic needs approach in an attempt to give a concrete analytical form and structure to the notion of basic needs, which had already been adopted (though without precise definition) by the World Bank as one of the goals whose fulfillment it would pursue in its operations.

5. For a partial sampling of this literature, see K. Boulding, "Economics as a Moral Science," *American Economic Review* 59 (March 1969): 1-14; H. G. Brennan, "Pareto-desirable Redistribution: The Non-Altruistic Dimension," *Public Choice* 14 (Spring 1973): 43-67, and "Pareto-optimal Redistribution: A Perspective," *Finanzarchiv* 33 (1975): 237-71; H. G. Brennan and C. Walsh, "Pareto-optimal Redistribution Revisited," *Public Finance Quarterly* 1 (April 1973): 147-68; H. G. Brennan and C. Walsh, "Pareto-desirable Redistribution in Kind: An Impossibility Theorem," *American Economic Review* 67 (December 1977): 987-90; E. Browning, "A Comment on Distributional Externalities and In-Kind Transfers," *Public Finance Quarterly* 4 (April 1976): 245-52; J. M. Buchanan, "What Kind of Redistribution Do We Want?" *Economica* 40 (May 1968): 185-90; G. Daly and F. Giertz, "Welfare Economics and Welfare Reform," *American Economic Review* 62 (March 1972): 131-37; G. Daly and F. Giertz, "Benevolence, Malevolence and Economic Theory," *Public Choice* 12 (Fall 1972): 1-19, "Transfers and Pareto Optimality," *Journal of Public Economy* 5 (January/February 1976): 179-82; F. T. Dolbear, "On the Theory of Optimal Externality," *American Economic Review* 57 (March 1967): 90-103; R. S. Goldfarb, "Pareto Optimal Redistribution: Comment," *American Economic Review* 60 (December 1970): 994-96; I. Garfinkel, "Is In-Kind Redistribution Efficient?" *Quarterly Journal of Economics* 87 (May 1973): 320-30; H. M. Hochman and J. D. Rodgers, "Pareto Optimal Redistribution," *American Economic Review* 59 (September 1969): 542-56; E. J. Mishan, "Redistribution in Money and Kind: Some Notes," *Economica* 35 (May 1968): 191-93; E. O. Olsen, "A Normative Theory of Transfers," *Public Choice* 6 (Spring 1969): 30-57; E. O. Olsen, "Some Theorems in the Theory of Efficient Transfers," *Journal of Political Economy* 79 (January/February 1971): 166-76, and "Subsidized Housing in a Competitive Market: Reply," *American Economic Review* 61 (March 1971): 220-24; M. Pauly, "Efficiency in the Provision of Consumption Subsidies," *Kyklos* 23 (January 1970): 33-57; G. E. Peterson, "Welfare, Workfare and Pareto Optimality," *Public Finance Quarterly* 1 (July 1973): 328-38; J. D. Rodgers, "Distributional Externalities and the Optimal Form of Income Transfers," *Public Finance Quarterly* 1 (July 1973): 266-99; W. Vickrey, "One Economist's View of Philanthropy," in *Philanthropy and Public Policy*, ed. F. G. Dickinson (New York: National Bureau of Economic Research, 1962); B. A. Weisbrod, "Distributional Effects of Collective Goods," *Policy Analysis* 5, no. 1 (Winter 1979): 67-95; K. Wicksell, "A New

Principle of Just Taxation," in *Classics in the Theory of Public Finance*, ed. R. Musgrave and A. Peacock (New York: Macmillan Co., 1958); R. Zeckhauser, "Optimal Mechanisms for Income Transfer," *American Economic Review* 61 (June 1971): 324-34.

6. There is a very close connection between my concept of basic needs and the concept of "merit goods" as described in Richard A. Musgrave and Peggy B. Musgrave, *Public Finance in Theory and Practice* (New York: McGraw-Hill Book Co., 1973), pp. 80-81. Such distinction as one can draw rests principally on my emphasis that the externality involved applies to the individual demand curves of specific members of society (the poor or the otherwise "needy") rather than to the market demand curve. That is, in my concept, it is not the good itself that has "merit," but its capacity to contribute to the meeting of "basic needs." This will be seen more clearly as examples are elaborated in the next section.

7. These suggestions are at this stage to be considered as conceptual, rather than pragmatic. Perhaps it is improvements in body weight, alertness, and school performance that society seeks when it implements a nutrition program.

8. In exploring the effects of a subsidy, we have here looked only at supply and demand in the affected market. This simplification was for expository purposes only, however, because the traditional framework is, in concept, fully general-equilibrium in nature. For further detail see my "Three Basic Postulates for Applied Welfare Economics" and the references cited therein.

9. Obviously, weights would presumably differ from individual to individual within each group; the figures indicated are assumed to be the relevant averages for producers and consumers, respectively, of the good in question.

10. This is particularly true when the analysis is extended to its general-equilibrium dimensions.

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