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ALTRUISM AND BENEFIT–COST ANALYSIS

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The central theoretical achievement of classical and neoclassical economics is the demonstration, summed up by Adam Smith's metaphor of the 'invisible hand', that the interaction of selfish economic agents may produce a mutually beneficial, and Pareto-optimal outcome. The assumption that economic agents are selfish has been criticised both as empirically inaccurate (Margolis 1982, Quiggin 1987) and as likely to generate anti-social attitudes in those who hold it (Marwell and Ames 1981). There has, therefore, been considerable interest in economic behavior and policy analysis when agents are altruistic.

Hochman and Rodgers (1969) described conditions under which income redistribution might be Pareto-optimal provided one agent was sufficiently altruistic. Subsequent analysis has been less reassuring. Bernheim and Stark (1988) show that differential altruism within families may lead to redistribution away from the more altruistic members. Kranich (1988) shows that the first and second classical welfare theorems do not generally hold if altruistic transfers are permitted.

These results are troubling for policy analysis. The basic difficulty may be observed from an example[1]. Consider two agents, both with linear preferences, one perfectly altruistic so that she gets equal utility out of both her own and the second agent's consumption, and the second agent being purley selfish. Now consider a costly transfer of, say, $100 from the first agent to the second. As long as the transactions costs are less than 50 per cent of the amount transferred, so that, say, the second agent gets $60, aggregate willingness to pay for the transfer is positive. The first agent would have willingness to pay of -$40 and the second $60, yielding a net gain of $20. So this transfer appears to be efficiency-increasing.

[1] I am indebted to a referee for the suggestion of this example.

But it fails the Kaldor-Hicks compensation criterion, since the second agent cannot return some of his gains to the first in such a way as to leave them both better off. More generally, the fact that standard efficiency results break down in the presence of altruism suggests that the normative status benefit–cost analysis, which is based on the concept of efficiency, may be threatened if altruism is important.

It is surprising, then, that although arguments based on altruism have had some significance in discussions of benefit–cost analysis, there has been no serious analysis of the implications of altruism for the interpretation of results generated by benefit–cost analysis. The early debate focused on altruism towards future generations and its implications for the choice of discount rates. However, the main points discussed were relevant to a broader category of public goods. Sen (1967) proposed the 'isolation paradox.' The basic idea was that, although people would not be willing to make individual altruistic donations, they might give unanimous support to a tax that would fund such transfers. Hence, it was argued, altruism gave rise to a kind of externality problem, that could potentially be resolved by government intervention, for example to lower the rate of discount.

More recently, the issue of altruism has come to the fore in discussions of individual willingness to pay (WTP) to preserve inaccessible wilderness areas or wild species which the person concerned is unlikely ever to see. Studies using the contingent valuation method) have often found this type of WTP to be substantially larger than the benefits associated with direct consumption of market and non-market goods (Mitchell and Carson 1989). Furthermore whereas other components of total valuation, such as recreation values, may be measured in several different ways (eg hedonic pricing models), values not associated with any actual consumption may be measured only in terms of expressed WTP.

Although there are a number of possible explanations for such willingness, altruism is one of the most prominent (Madariaga and McConnell 1987, Mitchell and Carson

1989, Bishop and Welsh 1990). Altruism appears to be an important element in most discussions of the concepts of existence value or 'passive-use' value (Weisbrod 1964, Krutilla 1967). In view of the negative results cited above, the question naturally arises whether altruistic WTP for preservation can properly be incorporated into benefit-cost estimates. More generally, it is of interest to ask how benefit–cost analysis is affected by the presence of altruism.

The object of this paper is to explore the properties of aggregate WTP measures incorporating altruism. It is shown that such measures may yield policy conclusions quite different from those obtained from the use of applied welfare analysis based on the potential Pareto-improvement criterion (as represented for example by Just, Hueth and Schmitz 1982). In particular, it is shown that costly transfers towards narrowly self-interested groups may be evaluated as welfare-improving.

This result is contrasted with the reasoning leading to Sen's isolation paradox. It is shown that the inclusion of altruism leads to a set of endogenous welfare weights in a manner that depends on the prior choice as to whose preferences should count in benefit–cost analysis. Sen's analysis avoids many of the difficulties raised here because altruism is exclusively directed towards members of future generations, whose preferences do not count.

1. Altruism, willingness to pay and efficiency

At least for economists, the most obvious model of altruism is based on the idea that people gain welfare from consumption undertaken by others. This model has been used by Hochman and Rodgers to provide a Pareto-optimal theory of redistribution. A closely related model has been used by Loomis (1988) to model the altruistic component of total valuation.

In this section the model is further simplified by the assumption that utility is linear in all consumption levels. By a natural normalization, this yields

$$W_i = C_i + \sum_{j \neq i}^{n} \lambda_{ij} C_j , \qquad (1)$$

where W_i is utility for individual i, C_i is an index of consumption for individual i and λ_{ij} is the weight placed by individual i on individual j's consumption. This representation of consumption may be interpreted simply in terms of a single consumption good. Alternatively C may represent a claim on resources, as in Kranich (1988). In the latter case, (1) incorporates the assumption that altruism is non-paternalistic, in the sense that individual i does not care how j spends her budget.

The linearity assumption means that it makes sense to refer to W_i as individual i's WTP for a policy program yielding consumption C_j to each individual j. Also $\boldsymbol{W} = \sum_{i=1}^{n} W_i$, representing aggregate WTP, is well defined. Under the total valuation framework, policies are chosen to maximize $\boldsymbol{W}$.

Assuming that $\lambda_{ij} < 1$, $\forall$ i, j, no voluntary transfers will take place. Further, if $\sum_{j \neq i}^{n} \lambda_{ji} < 1$, $\forall$ i, no Pareto-optimal redistribution can occur with this model. However, the model has other behavioral implications, at least some of which are plausible. Individuals will undertake altruistic actions if the costs to themselves are small and the benefits to others are large. One example is the return of lost articles that are of small value to the finder and large value to the loser.

To understand the properties of aggregate WTP measures when preferences take the form (1), it is useful to consider an example. Suppose the population is divided into two groups. Members of group 1 (Universalists) have $\lambda_j = \lambda$ $\forall$ j. Members of group 2 (Exclusivists) have $\lambda_j = \lambda$ whenever individual j is another Exclusivist, but $\lambda_j = 0$ otherwise. All individuals are otherwise identical.

Now consider a proposal to undertake a simple transfer of an amount δ from a member of group 1 to a member of group 2. This transfer is not costless, and the amount actually received by the member of group 2 after deadweight losses are netted out is $\delta-\varepsilon$. Such a proposal will have positive aggregate WTP whenever ε is sufficiently small. From (1), the aggregate WTP for the proposal is:

$$V = (\delta-\varepsilon) - (\delta-\lambda(\delta-\varepsilon)) + \lambda((N_2-1)(\delta-\varepsilon) - (N_1-1)\varepsilon) \qquad (2)$$

$$= \lambda(N_2(\delta-\varepsilon) - (N_1-1)\varepsilon) - \varepsilon,$$

where N_J is the number of members in group J (upper-case subscripts will be used to denote groups). The first term in the RHS of (2) is the gain to the member of group 2. The second is the loss to the member of group 1, net of the altruistic gain arising from the fact that most of the loss is a transfer rather than a deadweight loss. The final term sums the WTP of all those not directly involved. Because the altruistic members of group 1 care only about the deadweight loss, while the members of group 2 are willing to pay for a transfer from an outsider to a fellow member, aggregate WTP will be positive for small ε.

The proposal does not, however, pass the Kaldor-Hicks potential compensation test. Compensation of the losers would cancel out the original redistribution, leaving the deadweight loss ε. To see this, observe that the net loss for the altruists in group 1 is given by $(\delta-\lambda(\delta-\varepsilon)) + \lambda(N_1-1)\varepsilon = (1-\lambda)\delta + \lambda N\varepsilon$, which is positive for any positive δ, ε. This net loss will be constant no matter how the payment δ is allocated across the members of group 1.

This example illustrates the more general point that, when altruistic WTP is introduced, the standard equivalence between the Kaldor-Hicks criterion and positive aggregate WTP does not hold. The assumption implicit in the usual applications of the criterion is that transfers from one individual to another will not affect the welfare of any third party.

It may be objected that benefit–cost analysis is not normally applied to purely redistributive projects. The example given above may, however, be interpreted in terms of a project that yields private benefits to the group 2 member with costs borne by the group 1 member. A similar analysis applies to examples where a number of members of each group are involved; for example, where state funds (raised from taxpayers in group 1) are used to provide a local public good for a community with members who care about local welfare, but not about the state as a whole. More generally, the evaluation of an arbitrary project is given by:

$$V = (1+(N_1\text{-}1)\lambda)\, B_1 + (1+(N_1+(N_2\text{-}1))\lambda)\, B_2, \tag{3}$$

where B_J is the aggregate net benefit to members of group *J*. The effect of incorporating altruistic WTP is to convert the evaluation procedure from standard benefit-cost analysis to a welfare-weighted analysis. If the weight for members of group 1 is normalized to unity, the weight for members of group 2 becomes $1+\alpha$, where

$$\alpha = N_2\lambda/\,(1+(N_1\text{-}1)\lambda). \tag{4}$$

Before considering the normative implications of this result, it is useful to move to a slightly more general specification, in which members of group 2 attach different, but non-zero, weights to the welfare of group members and outsiders. The weight attached to members of group 1 is denoted by $\lambda_{21,}$ and that for members of group 2 by λ_{22}. For members of group 1, we have $\lambda_{11} = \lambda_{12} = \lambda$. The evaluation of an arbitrary project is given by

$$V = (1+(N_1\text{-}1)\lambda_{11} + N_2\lambda_{21})\, B_1 + (1 + N_1\lambda_{12}+(N_{2\text{-}}\text{-}1)\lambda_{22})\, B_2 \tag{5}$$

$$= (1+(N_1\text{-}1)\lambda + N_2\lambda_{21})\, B_1 + (1 + N_1\lambda+(N_{2\text{-}}\text{-}1)\lambda_{22})\, B_2$$

The welfare weight for members of group 2, becomes $1+\beta$, where

$$\beta = ((N_2 - 1)(\lambda_{22} - \lambda_{21}) + (\lambda - \lambda_{21}))/(1+(N_1\text{-}1)\lambda + N_2\lambda_{21}) \qquad (6)$$

The first term $(N_2 - 1)(\lambda_{22} - \lambda_{21})$ in the numerator reflects the difference in the weight that members of group 2 place on the welfare of members and non-members. (The second term, corresponding to altruistic effects for those directly involved, will be unimportant in most cases.) The larger is this difference, the larger is the welfare weight attached to group 2 by the total valuation framework.

Three factors interact to determine the size of the weight β. The first is the total altruistic WTP of each member of group 2, measured by $(N_2 - 1)\lambda_{22} + N_1\lambda_{21}$. This is the amount a member of group 2 would pay in order to secure a unit increase in consumption for everybody else. An increase in altruism implies, *ceteris paribus*, an increase in the weight β. A group whose members have zero altruistic WTP has a weight of 1, the same as that for a group of universalists. The second is the ratio $\lambda_{22}/\lambda_{21}$, determining the extent to which the individual deviates from universalist benevolence. By definition, a group which displays universalist benevolence receives a weight of 1 in the benefit-cost calculus. The final factor is the ratio N_2/N_1, the size of the group relative to the population as a whole. From (6), an increase in N_1 (that is, a reduction in N_2/N_1) implies an increase in β. As the group becomes larger in relation to the total population, group altruism becomes more like universal altruism.

In the discussion thus far, it has been implicitly assumed that all λ_{ij} are non-negative. Altruism is not the only attitude relevant to WTP. Misanthropy, envy and "keeping up with the Joneses" are equally relevant (Brennan 1973, Archibald and Donaldson 1976, Villar 1988). All of these attitudes imply a positive WTP to see others' income reduced, at least relative to one's own. In equation (6), consider the case when members of group 2 are actively hostile to non-members so that $\lambda_{21} < 0$. The weight β attached to group 2 increases further, indicating a positive payoff to misanthropy.

It is also possible to extend the argument to the case where there are a large number of groups, each with different weights on insiders and outsiders. The relative weight attached to group J once again depends on a term of the form $N_J(\lambda_{JJ} - \lambda_{JO})$, where λ_{JJ} is the weight on insiders and λ_{JO} is the weight on outsiders.

The linear-additive model (1) permits a simple derivation of the effects of altruistic WTP. However, these simplifying assumptions are not critical to the argument. A natural generalization of (1) replaces the linear form with the additively separable form:

$$W_i = U_i(C_i) + \sum_{j \neq i}^{n} \lambda_{ji} U_{ij}(C_j), \qquad (7)$$

where U_i denotes the utility of private consumption and U_{ij} is a utility function used by individual i to evaluate the consumption of individual j. This may be j's own utility function, i's estimate of that function or a paternalistic evaluation of j's welfare. The basic argument goes through as before. For projects which have small effects on individual income, the model may be approximated by (1) with weights given by $\lambda_{ij}^* = \lambda_{ij} U'_{ij}$. For models where there are large income effects for some individuals, the usual problems of interpreting aggregate WTP arise. However, they are no more serious in this case than in standard benefit–cost analysis.

2. Endogenous welfare weights and the isolation paradox

It is useful to consider in more detail the way in which the aggregate WTP criterion may conflict with the Kaldor-Hicks potential compensation criterion. First, as is observed by Blackorby and Donaldson (1990), the assumption of a one-good economy means that, if individuals are selfish, the aggregate WTP criterion coincides with the potential Pareto-improvement criterion. Hence, the divergence between the two criteria observed in the previous section arises solely because of the introduction of altruism.

This problem may be analyzed in terms of the notion of endogenous social welfare

weights. It has been observed above that some transfer policies will yield positive aggregate WTP but will fail the Kaldor-Hicks compensation test. In itself, this is not a startling result. Income effects and relative price changes may lead to situations where the Kaldor-Hicks criterion breaks down. The striking feature of the present analysis is that the two criteria systematically yield opposite results. Costly transfers always fail the Kaldor-Hicks test. However, if altruism is included, some costly transfers will always have positive WTP.

The only exception arises in the polar case where all individuals are the object of the same amount of altruistic concern. That is, $\sum_{j \neq i}^{n} \lambda_{ji} = \sum_{j \neq k}^{n} \lambda_{jk} \; \forall \; i, k.$. If this condition is satisfied, we may denoted the constant $\sum_{j \neq i}^{n} \lambda_{ji}$ by β^*. The aggregate WTP for any project will be precisely $(1+\beta^*)$ times the net benefit (cost) derived from a standard benefit–cost analysis. In this case, altruistic preferences will be irrelevant, since they will simply amplify the results of an analysis based on potential Pareto improvements.

The condition $\sum_{j \neq i}^{n} \lambda_{ji} = \sum_{j \neq k}^{n} \lambda_{jk}$ will obviously be satisfied if all individuals have 'universalist' preferences of the type held by members of group 1 in the example above. On the other hand, if there exist individuals i, k, with $\sum_{j \neq i}^{n} \lambda_{ji} > \sum_{j \neq k}^{n} \lambda_{jk}$, there will always be some efficiency-reducing transfer from k to i for which aggregate WTP will be positive.

The results obtained here have a quite different flavor to that of Sen's isolation paradox. In Sen's analysis, although no unilateral transfers will take place, everyone will support a tax policy which finances a collective transfer. By contrast in the present model, although everyone expresses some WTP for transfers to others, there exists no potential Pareto-improvement and no tax-transfer policy that would command universal assent. The critical point is that in Sen's analysis, welfare is defined as the welfare of the current generation and altruism is directed towards members of future generations. The (anticipated) welfare of these future generations, in Sen's work and in benefit–cost analysis generally, is valued only instrumentally, as it contributes to the welfare of altruistic

members of the present generation. Marglin (1963), perhaps the most influential writer on the social rate of discount, states (p. 97) "I take it as axiomatic that a democratic government reflects only the preferences of the individuals who are currently members of the body politic." By contrast, in the model presented above, as in Hochman and Rogers, altruism is directed towards members of the current generation.

The inclusion of altruism in benefit–cost analysis involves the application of unequal weights to different individuals, depending on the extent to which they are objects of altruistic concern. These weights arise endogenously in the analysis. Yet benefit–cost analysis is based on the idea that benefits should count equally, no matter to whom they accrue. An equivalent statement of this position is that all individuals should be given an equal weight in the calculation of benefits.

In practice, however, nearly all benefit–cost analysis is characterised by some form of exogenous weighting of individuals. In some cases, individuals seen as more deserving are given a higher weight. More generally, attention is confined to individuals within a given jurisdiction, implicitly giving them a unit weight and everyone else a zero weight.

The weighting principle that arises from inclusion of altruistic WTP in benefit–cost measures involves a mixture of two (arguably incompatible) principles. As noted above, the weight given to individuals within the relevant jurisdiction may be denoted $1+\beta_i$. The unit term is derived from the *a priori* principle that all individuals count equally. The term β_i reflects the rule that individuals who are objects of altruistic concern should be given more weight than those who are not. Individuals other than current citizens (and non-human objects of altruistic concern) are given a weight β_i, determined by the altruistic WTP of those whose preferences are counted[2].

This partition suggests two ways in which the objection, commonly made by environmentalists, that standard benefit–cost analysis takes insufficient account of future generations and non-human species, may be interpreted. One view is that standard

[2] The altruistic WTP of individuals outside the relevant jurisdiction is not taken into account.

benefit–cost analysis fails to take adequate account of the altruistic concerns of members of the current (human) generation. The response is to include altruistic WTP. An alternative interpretation is that members of future generations and/or non-human species should be included *a priori*, regardless of whether the current generation feels any concern for them. Most environmentalists appear to support the latter view, at least as regards future generations. 'Deep ecologists' and some others, such as Peter Singer, support it as regards non-human species.

3. Policy Implications

The interpretation of altruism as yielding endogenous social welfare weights may be illustrated by considering a the policy implications of the aggregate WTP criterion. First, analysis based on the aggregate WTP criterion yields the general proposition that redistribution from purely egoistic individuals to members of any mutually altruistic group is desirable. Consider, for example, the case when altruism is confined to members of one's immediate family. The aggregate WTP criterion suggests that policies which redistribute income from single individuals to families should be approved, even when they are inefficient in terms of standard benefit–cost analysis. Note that this result does not require that members of any one family should have an altruistic attitude towards other families, or that anyone should be interested in the family as an institution. Depending on the nature of familial altruism, the analysis may also be used to support transfers from small families to large ones. This result will hold if an increase in family size, arising, for example, from the birth of a child, leads to a net increase in altruistic WTP for benefits to family members. The result will not hold if altruistic WTP for the new family member is completely offset by reduced concern for existing family members. The problem of household WTP is considered further in Quiggin (1995).

It is worth reconsidering the objection that benefit–cost analysis is rarely applied to

purely redistributive projects. If the aggregate WTP criterion is accepted, the exclusion of redistributive projects from consideration cannot be justified. Otherwise, projects might be approved on the grounds of the altruistic WTP associated with their distributional effects when a Pareto-superior outcome could be attained using direct redistribution. For example, there are many public expenditures, such as subsidies to education, that would be likely to benefit families at the expense of single individuals. However, in the absence of traditional externality effects, as opposed to the altruism externality considered here, such policies will be dominated by direct transfers.

A further implication of the analysis is that results may be different depending on whether WTP is elicited on a household or on an individual basis. If the household is used as the unit of analysis, any intra-household altruism will be internalized in the decision process that generates household WTP. Given perfect altruism within the household, WTP will presumably be determined by maximization of a utilitarian household welfare function. Given imperfect altruism, some form of bargaining solution will apply. In either case, however, direct consumption benefits accruing to one member of the household will be counted only once. When individual WTP is elicited, these direct benefits will be supplemented by altruistic WTP.

This result shows that, when altruism is present, the policy implications of the aggregate WTP criterion are different from those of a welfare analysis based on the idea of potential Pareto-improvement. However, it is not clear from this example which approach is to be preferred. Altruism is generally regarded as preferable to egoism and a policy that satisfies altruistic preferences at the expense of egoists' consumption seems quite appealing.

A less appealing implication of the analysis present above is that altruistic preferences should be given more weight, the more they deviate from universalist benevolence. The unattractive policy implications of this conclusion may be illustrated by the case when some individuals have 'sectarian' preferences, characterized by altruism towards members of their own racial or religious group and zero or negative altruistic WTP for others. The

aggregate WTP criterion implies that redistribution from groups that are the object of negative feelings towards groups with sectarian attitudes is a welfare improving policy. The presence of individuals without any sectarian preferences, even if these individuals are a majority of the population, makes no difference to the result. For these individuals, the losses and gains from redistribution cancel out, leaving no net change in welfare (except for any deadweight loss incurred in making the transfer).

A possible way of avoiding the unpalatable implications of this analysis is to observe that many people object to discrimination *per se* and would presumably be willing to pay to prevent the adoption of discriminatory policies. This is by no means a straightforward solution. First, there is no guarantee that, in any particular case, WTP for non-sectarian policies will counteract the tendency of the aggregate WTP criterion to favor groups with sectarian preferences. Second, opposition to discrimination usually implies a concern about processes and not merely about outcomes. People opposed to racism would not, in general, approve of a decision process which gave any positive weight to racist preferences[3]. Third, the problem raised here applies in relation, not only to religious and ethnic groups, but to redistribution between regional and interest groups. Strongly held moral objections to the general idea of transfers between such groups (as opposed to preferences regarding particular transfers) are rare. Thus, under the aggregate WTP approach, at least some transfers of this kind are likely to receive a positive evaluation.

In summary, the analysis in this section suggests that admitting altruistic preferences into benefit–cost analysis, as is proposed in the aggregate WTP approach, is likely to have important, and surprising, implications for policy. These arise from the two main results of the analysis derived above. First, members of mutually altruistic groups, such as families, are favored at the expense of self-interested individuals. Second, the more

[3] To some extent, these difficulties affect any decision process when racist preferences are present. In particular, they affect the outcomes of democratic decision-making processes. In any such process, the votes of racists are aggregated with those of non-racists and anti-racists. However, provided racists are in a minority, the democratic process can overcome these difficulties more satisfactorily than the aggregate WTP criterion.

parochial is any group, the more heavily that group is weighted in the benefit–cost calculus[4]. An alternative way of expressing this result is to say that an individual's altruistic preferences will be more influential, the more that they deviate from universalist benevolence.

These implications have apparently not been observed previously. In part, this is because the use of the concept of existence value, which incorporates altruistic WTP, has been confined, thus far, to resource and environmental policy. This is essentially a historical accident. If the underlying concepts are accepted as valid, altruistic concerns are relevant in determining the desirability of any policy proposal.

4. Responses

There are a number of possible responses to the difficulties which have been raised here. Because the possible responses involve fundamental differences in views concerning the appropriate rôle of benefit–cost analysis, it is impossible to do more than outline the main positions.

The first possible response, that of the 'hard-nosed' advocate of traditional benefit–cost analysis (for example, Mendelsohn 1984, Rosenthal and Nelson 1992), is to discard the category of non-use value, and, with it, any concerns which can not be expressed (at least in principle) in market behavior, but to maintain the claim that benefit–cost analysis can be regarded as yielding a complete evaluation of any project. In this view, a total valuation of relevant costs and benefits can be achieved without worrying about altruism, or related ethical values such as stewardship. This viewpoint stands or falls on the ethical appeal of the efficiency norm on which it is based[5]. At least in matters of environmental policy, the

[4] Compare the results of Bernheim and Stark, where the less altruistic partner in a marriage gains at the expense of the more altruistic partner.

[5] For a forthright statement of the viewpoint that economists should be partisan advocates of efficiency-based ethics, see Rosenthal and Nelson (1992).

pure efficiency norm does not command majority assent. Most people (including the present author) feel that action to preserve endangered species is justified even if the extinction of those species would have no cost in a traditional benefit–cost analysis.

The second possible response (Kopp 1992) is to maintain the aggregate WTP criterion, including altruistic WTP, and accept the implications drawn out above. As was shown above, this involves replacing the usual distinction between efficiency and equity with an approach in which equity considerations are incorporated endogenously. It is not clear, however, that the altruistic preferences individuals bring to bear in determining WTP are directly related to the equity principles which they would, as citizens, prefer that society should adopt. As a simple example, one might consistently advocate the view that society should make decisions on the basis of the utilitarian calculus, without possessing any altruistic concern for people outside one's own family or neighborhood. These issues require much more detailed analysis than can be afforded here. The main implication of this paper is that acceptance of an unmodified aggregate WTP framework would imply a range of policy conclusions that have not previously been observed.

A third response (Quiggin 1993) is to conclude that moral and ethical concerns such as altruism can neither be disregarded nor incorporated into benefit–cost analysis. As a result, benefit–cost analysis is inherently partial. It is necessary to abandon the objective of total valuation and the implicit promise of a single number which captures all the costs and benefits of any policy proposal.

According to this view, it is necessary to accept that the scope of benefit–cost analysis is limited. The object of benefit–cost analysis should be to estimate the changes in individual consumption bundles resulting from a given policy proposal and to summarize the value of these changes using a money metric. Benefit-cost analysis must form part of a broader process of policy evaluation that takes account, not only of changes in individual consumption bundles, but of broader ethical and moral concerns.

This approach raises the question of how the scope of benefit–cost analysis should

be defined. As has long been recognized by theorists and practitioners of benefit–cost analysis, there exists no precise line of demarcation. Professor Cannan, quoted in Pigou (1924, Ch 1) states:

"We must face boldly, then, the fact that there is no precise line between economic and non-economic satisfactions, and, therefore, the province of economics cannot be marked out by a row of posts or a fence, like a political territory or a landed property. We can proceed from the undoubtedly economic at one end of the scale to the undoubtedly non-economic at the other end without finding anywhere a fence to climb or a ditch to cross."

On this view, it is right and natural that economists should strive to sharpen their tools of analysis and expand the range of goods to which they may be applied. It is wrong to suppose that this process can, or should, culminate in the reduction of all values to economic value.

A final possible solution is to respecify the total valuation framework in such a way that concern for others is eliminated, but other forms of non-use value are captured. This appears to be the position of Brookshire, Eubanks and Sorg (1986), at least when concern for others can be described as ‘counter-preferential’. In this context, it is useful to note that the questions typically used to elicit WTP do not specify consequences for people other than the respondent. Madariaga and McConnell (1987) and Mitchell and Carson (1989) have shown that the specification of these consequences does, in fact, affect measured WTP. One way of avoiding some of the difficulties outlined above would be to specify the consequences for others in a way which eliminated altruistic concern and confined attention to private benefits. This could be done be eliciting WTP on the assumption that all other people will be charged an amount equal to their own WTP and hence will be indifferent between acceptance and rejection of the project.

Not all categories of concern with others will be eliminated by this procedure. Given a paternalistic desire that others should consume larger amounts of particular goods than they would themselves choose, non-zero WTP may arise even from a project which leaves U_i unchanged for everyone.

Furthermore, it might prove difficult to specify the consequences for others in a convincing way. None of the usual payment vehicles, such as access charges and tax increases, charge each individual an amount equal to WTP. Also it seems reasonable for any randomly selected individual to infer that if no-one else is going to benefit from the project, neither will they. Some form of protest response to the procedure, such as a zero bid, would then seem reasonable.

Concluding comments

Benefit–cost analysis may be regarded as a method of aggregating preferences. A natural approach to altruism is to treat altruistic attitudes simply as a particular sort of preferences. However, as has been shown above, this approach leads to surprising and sometimes perverse results. The fundamental problem appears to be that altruism is typically an expression of moral beliefs rather than of a taste for other people's consumption. Although the project of treating moral beliefs as preferences has some appeal for economists, it is unlikely to be successful.

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