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Existence Value, Welfare and Altruism¹

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ABSTRACT: Existence Value has become an increasingly important concept as the use of cost benefit analysis has spread from traditional applications to attempts to place monetary value on, for instance, a rare wetland habitat. Environmental economists have generally accepted the tensions arising in the existence value concept from the range of recent applications, but it is argued here that their various attempts to resolve the difficulties have largely failed. Critics from outside economics, on the other hand, typically claim that the very notion of existence value as understood in economics is flawed, and urge its abandonment altogether. This paper suggests instead a fundamental redefinition of existence value, which, it is argued, (i) explains a number of diverse problems posed by the usual meaning of the term in economics; (ii) does not strain the intentions of respondents to 'willingness-to-pay' surveys; (iii) is consistent with a more realistic model of rational choice in environmental decision-making; and (iv) is sensitive to criticisms from environmental ethics.²

KEYWORDS: Existence value, contingent valuation method, welfare, commitment, altruism, incommensurable choices.

The word value occurs in economic writing with high frequency, the frequency of meanings being about as great as the frequency of occurrence. Boulding (1969: 3)

Existence Value has been given various definitions, but a common element is the value of an object in the natural world apart from any use of it by humans. This does not fit easily into the methodology of neo-classical economics, where decision making has become a 'black box'. A limited range of 'inputs' from the external environment of the agent are considered, most notably price, and related by theory *directly* to the 'outputs' of the decision, observed preferences. The intervening decision process per se is largely irrelevant because the objective is typically to predict behaviour. Theories which predict satisfactorily, *as if* the agent was a rational maximiser uninfluenced by social pressures and norms, are according to the naive positivist, satisfactory by definition.

In contrast, with an environmental existence value, understanding *what* has been observed, from what decision process the expressed value results, must be the first priority, since the concern is to satisfy preferences rather than determine

how they change. As Madariaga and McConnell (1987) put it: ‘When dealing with existence value, more than other sources of value, we need to concern ourselves with the question “What are we measuring?” rather than “What is the measurement?”’ (p.936). Or again, ‘Thus the central issues surrounding nonuse value would seem to revolve around what really is nonuse value.’ (Brookshire and Smith 1987: 932). Vatn and Bromley (1994) make a similar plea for environmental value more generally. The essential lesson is that since different questions are asked when analysing existence values rather than consumer preferences over market goods, a different analysis of the decision-making process is required. The objective is more comprehension than prediction. It is rarely meaningful to talk of predictions based on the willingness-to-pay measures elicited by contingent valuation surveys. For there simply does not exist a ‘true’ valuation or demand in the case of non-market environmental goods, against which the survey results can be compared. Thus the distinction between comprehension and prediction is not, here at least, an empty one.

In the light of this observation, a review of the many meanings attributed to existence value in the literature will be attempted, drawing together some common problems posed by all these interpretations. Second, a redefinition of existence value will be proposed, rejecting the usual equality assumed between welfare and utility in economics. Third, the implications of this definition for a model of rational choice will be traced out in a discussion of what is variously called multicriterion decision making or resolving incommensurable choices. Fourth, the likely significance of existence value as defined in environmental valuations will be assessed.

The problems of operationalising the approach to existence value outlined here remain substantial; for some, this is inevitable, indeed ‘operation’ may not even be a desideratum. This author prefers to argue simply that operationalisation is no more or less a problem here than, realistically, it is for the conventional interpretation of existence value.

PROBLEMS POSED BY THE DEFINITION OF EXISTENCE VALUE

Perhaps the only clear distinction to emerge from the literature is that between existence value and use value. The definition of existence value which has evolved is a residual definition, capturing all value which does *not* arise out of use of an environmental feature.³ The channels through which the object under valuation benefit the agent remain obscure. Contingent valuation studies can never hope to elicit existence value directly, even supposing this were feasible, when researchers do not know which question has existence value as an answer. Questions such as ‘What is the most you would be willing to pay simply to preserve the [environmental good] in its present state, even if you would never use it?’ ask the respondent to perform the difficult conceptual exercise of

determining a residual value, value in the absence of use, and there are obvious psychological reasons to doubt the validity of such responses. Such questions are unlikely to satisfy the doubts of theorists who suspect existence value is merely a chimera to the extent that it conflicts with self-interest and can be elicited by much more direct, motivationally explicit questions to the extent that it does not. Brookshire and Smith (1987: 932) conclude 'To understand these [nonuse] values requires an inquiry into the psychological and ethical elements underlying preferences, as well as the physical meaning of consumption itself.'

The definition would be improved if 'use' were itself less arbitrarily defined. For any given relation between object under valuation and subject valuer, there exists no determinate procedure to establish whether this relation constitutes a use or not. Perhaps the boundary between use and nonuse, use value and existence value, is of no great importance, but if not then neither is the recognition of the two distinct forms of value.

The merits of such a distinction will not be debated here but the need for one has been emphasised repeatedly in the literature. It is claimed below that the proposed definition, in drawing an important conceptual distinction, is self-justifying. Brookshire et al. (1986) are typical in rejecting several claimed motives for existence value because they do not permit this distinction: '... these values do not reflect a *different type* of economic value associated with the preservation of water resources that one would want to call "existence value".' (p.1512). Unfortunately the distinctive feature of existence value lies in a paradox: value in the absence of value. This paradox has been often noted; Brookshire and Smith (1987: 932) in discussing Boyle and Bishop (1987) argue that they 'carefully avoid ethical considerations and the role of alternative motive structures. Thus they imply that a resource provides nonuse values only if someone has a use for it; this could be regarded as circular.' There is a paradox to the extent that so-called 'nonuse' values imply the presence of a use. It will be argued that this paradox can only be resolved by decoupling two notions of value which are conventionally linked – welfare and utility – it is welfare gains, rather than nonuse values, which imply the presence of a use. Thus the defining characteristic of existence value becomes 'utility in the absence of welfare' or more strictly 'utility in the absence of well-being'. These claims will be elaborated and defended in detail below⁴. In short, Sen's (1977: 328) criticism that '[Commitment] drives a wedge between personal choice and personal welfare, and much of economic theory relies on the identity of the two' can certainly be applied to environmental value theory. 'One way to define commitment is in terms of a person choosing an act that he believes will yield a lower level of personal welfare to him than an alternative that is also available to him.' Sen (1977: 327). The point is *not* that agents directly desire to reduce their own welfare, but that adherence to moral and other commitments will be an objective as well as welfare maximisation, and may conflict with it. The welfare level is lower when compared to that obtained when the agent maximises welfare alone.

COMPONENTS OF EXISTENCE VALUE

A wide range of meanings for existence value have been proposed in the literature, although practitioners of the contingent valuation method have concentrated on the following:

1. Indirect Use Value. Indirect use value does not involve direct contact with the valued environmental good. It derives for instance from watching TV wildlife programmes, reading about wildlife, or viewing wildlife art. Another form of indirect use value is the scientific value from the advancement of knowledge made possible by the existence of some environmental good such as an animal species. Note however that an entity may have an indirect use even though it has ceased to exist. Brookshire and Smith (1987) observe that ‘even after their [an animal species] disappearance, books etc. yield some form of consumption activity’ (p.932), but do not appreciate the consequences of this remark. A species may have ceased to exist yet, since an indirect use persists, so does positive indirect use value, and hence the non-existence has positive existence value. This incoherence undermines the inclusion of indirect use value within existence value.

2. Vicarious use value. A vicarious pleasure is one experienced in the imagination through another person. Thus a vicarious use value captures the pleasure an individual experiences from knowing *someone else* uses the environmental good. This has with few exceptions been termed ‘altruism’ in contingent valuation studies. Madariaga and McConnell (1987) note two characterisations, individualistic and paternalistic altruism.

Individualistic altruists ‘gain value from the enhanced well-being of others, without regard to the manner in which the gains of others were achieved’ (p.939). This statement is intriguingly ambiguous, for it is unclear whether the ‘value’ being gained by the altruist is well-being, utility or something else. But the individualistic content is clear. A experiences vicarious pleasure or satisfaction from the preservation of the environmental resource, *because* B’s welfare is increased through using it. It is instructive to note that since the agent A assigning positive existence value is concerned with the environmental good only in so far as it affects the well-being of B, the formal model is compatible with what might be termed the ‘Schadenfreude’ possibility. In the Schadenfreude case A wants B to be worse off, and B is made worse off by preservation of the environmental good. Perversely, the ‘individualistic altruism’ approach implies that this situation is appropriately described as ‘A valuing the existence of the resource’. Another case which satisfies the definition of individualistic altruism⁵ is that where B believes, falsely, that some environmental good has been preserved, A wants B to be better off, and A knows that B’s belief is false.

A paternalistic altruist, A, is satisfied by B's mere use of the environmental good, regardless of whether B gains pleasure from using it. This approach is not subject to such absurdities as the Schadenfreude possibility, but like individualistic altruism, the value of the environmental good still depends on the 'altruist' gaining a benefit: it is a self-interested altruism providing happiness or pleasure to the vicarious user. Both characterisations impliedly reject, or at least ignore, Sen's (1977) work on commitment, and have been criticised for ignoring 'genuine altruism' by Edwards (1992). His discussion of the latter is brief and highly speculative, but simply defining 'genuine altruism' as commitment appears to cover his argument.

It is hardly surprising given the problems with vicarious use value that the literature is confused and divided on its inclusion under existence value.⁶ For instance, Randall and Stoll (1983) assume that the basis for existence value is vicarious use value motivated by altruism, but later Randall had changed his mind: 'To keep the value of existence separate and distinct from the value of use, existence value must emerge independently of any kind of use, even vicarious.' (Randall 1988: 219). Vicarious use value is contingent on actual use by another; hence its incorporation in existence value implies existence value would depend on a use, contradicting the only clearly understood meaning of existence value.

3. Bequest value. This is simply another type of vicarious consumption, where the direct users are one's descendants in future generations. The assumption of some future use, which does not reflect the attitude of most conservation and wildlife preservation organisations, is essential to the traditional understanding of altruism. For it is difficult to imagine how current generations can show altruism towards future ones in cases where future generations are not expected to use the environmental good for either consumptive or nonconsumptive purposes. There will simply be no welfare gains for future people from the preservation of the resource to feed into the utility functions of those presently living. Of course future people may be better off because of the knowledge that the *next* generation along will be better off, but this merely moves the motivational problem through time rather than solving it. An infinite regress is generated.

4. Aesthetic value. Krutilla (1967) suggested that works of art may provide value to nonusers. Randall and Stoll (1983) agree and Fisher and Krutilla (1985: 178) discuss the 'unsatisfying nature of exact forgeries' of works of art as suggestive of the nature of existence value. Sober (1986) goes further, holding that the non-use value of an environmental good is entirely aesthetic, and develops an analogy with works of art.⁷ The analogy has some plausibility, but would have difficulty in accommodating the positive existence values placed on ugly species such as a slug. Sober's few examples certainly do not demonstrate

that existence value is entirely aesthetic. Existence value needs to be built on more than an analogy.

The analogy continues to beg the very question it might help to address – what constitutes ‘use’? Aesthetic value would properly form part of existence value if the mere *aesthetic appreciation* of an environmental good (not to be confused with a nonconsumptive use such as birdwatching) does not constitute a use. Aesthetic appreciation is inevitably bound up with existence, for simply to know that an environmental entity such as a bird exists requires an appreciation of its nature, including its aesthetic qualities. A knowledge of an object’s nature is necessarily entailed in knowing it exists. Thus existence value captures aesthetic value when aesthetic qualities form part of the essential nature of the good. However such a notion of aesthetic value retains coherence only if birdwatching can be distinguished from becoming aware of a bird’s aesthetic qualities, which will presumably ideally involve looking at a bird or a representation of one. The most promising rationale for this distinction appears to be a corresponding one between two forms of desires. Birdwatching satisfies directly; to become aware of a bird’s qualities is merely an instrumental desire. The resulting activity may be identical, but the motivation is different. However this is no more than a preliminary observation; there is no space for a fuller discussion which demands a detailed account of the nature of good.

5. Intrinsic value.⁸ Loosely speaking this refers to a willingness-to-pay purely to know that an environmental feature is preserved and undisturbed; this returns us to the starting point provided by Krutilla (1967) and presumes there exist characteristics of the entity *per se* which may be valued. Again a paradox is generated for the economist by the notion of value in the absence of any benefit or service flow to the valuer. As argued briefly above, the paradox focuses attention on what can count as a benefit or welfare improvement. For instance, Brookshire et al. (1986: 1515) consider that a willingness to pay of an individual ‘simply because he believes we ought to protect wildlife against human action which would threaten the existence of the wildlife’ is not an acceptable motivation because it does not contribute to human welfare. Yet precisely such an ethical content has been used to define existence value elsewhere. For instance, existence value is the ‘value of ethical feelings concerning the value of wildlife’ (IUCN 1990). Similarly Norton (1987) refers to the *moral value* of species – and implicitly environmental goods in general. Species can have moral value even if value depends on human valuers. The species is a ‘moral resource’ to humans, a chance for humans to form, re-form and improve their own value systems. Existence value is seen as a practical indicator of moral value, the estimate of moral value obtained from CVM surveys.

Mitchell and Carson (1989) claim that the philosophical meaning of intrinsic value, that something has value in and of itself, is incompatible with ‘the economic notion that something has value only if an economic agent is willing

to give up scarce resources for it' (1989: 60). It is possible to reject the extreme ecocentric conclusion which the Routleys and others (see for instance Rolston 1988, Routley and Routley 1979) draw from their 'experience machine' examples, that a species would have value even if there were no humans on the planet to value it, while nevertheless denying the Mitchell and Carson argument. A truly intrinsic value consistent with the utilitarian foundations of economics is certainly conceivable. This middle position is reflected in the work of a number of environmental philosophers, including Callicott (1986), Norton's (1987) weak anthropocentrism, and Hare (1987), and will be defended here.

A (human) valuer is required for an object to have value in any meaningful sense, but the recognised value of an object O may be a value to O alone i.e. intrinsic value. Thus even intrinsic value requires a valuer, who if his values are honestly held, will plausibly be willing to give up scarce resources to maintain them. Admittedly this last step is a contentious one, but even if some agents are unwilling in practice, this does not imply a logical incompatibility between economic and intrinsic value.⁹

This analysis of the proposed motives for existence value has sought to illustrate the confusion in the literature and raise some of the conceptual problems which must be addressed by any adequate formulation. The current treatment of existence value fully justifies the conclusion of Green et al. 'that no exhaustive and mutually exclusive set of motivations underlying individual preferences for environmental goods has yet been determined' (1990: 73).

UTILITY, WELFARE AND PSYCHOLOGICAL EGOISM

A first step is to overcome the considerable misunderstandings caused by terminology. The essential point is that choices driven by commitment will be utility-maximising but not welfare-maximising. In modern economic theory, the definition of utility as a cardinal representation of an agent's preferences has the advantage of being established, generally accepted and thoroughly clear (See Broome 1991 for discussion). Now of a pair of alternatives, does the preferred one, the one with greater utility, necessarily make the agent better off? 'Better off' is here given its ordinary meaning. Mother tells us we would be better off not always doing what we want. We decide to do some act even though we know it will make us worse off. We may disagree with each other, or Mother, over whether some outcome will *in fact* make us worse off – or we merely be mistaken – but such claims as 'choosing to be worse off' are labelled as simply incoherent in mainstream economic theory. This can be true only tautologically, defining welfare as what is preferred.

Mitchell and Carson's implied theory of welfare or the good, if it is a substantive theory at all, certainly equates utility with the good, in this case satisfaction. Thus the benefits of an environmental good are 'the paths through

which the changes in the level of satisfaction indicated by an agent's utility function occur' (1989: 60). Again, only the implicit assumption of an identity between utility and welfare would require the assertion that 'existence values involve the notion that a person doesn't have to visit a recreational site to *gain utility* from its maintenance or improvement [emphasis added]' (p.63).

More interesting still is Mitchell and Carson's (1989) critique of the Brookshire et al. (1986) analysis (discussed in the next section). '...[M]ost important, it is erroneous to assume that making choices on the basis of ethical beliefs necessarily involves self-sacrifice; in fact, those who make choices of this kind obtain utility from satisfying internalised social norms... Far from being counter-preferential, in properly conducted contingent valuation studies, choices based on these preferences are motivated by self-interested and egoistic considerations.' (p.66). Mitchell and Carson rightly assert that ethical influences on choice need not *necessarily* involve self-sacrifice but spuriously transform this into the claim that a *properly conducted* study involves *only* self-interested considerations.

An example of an ethical choice which does not necessitate self-sacrifice is that motivated by an ethic which attaches moral interests to nonhuman creatures.¹⁰ According to Brookshire et al. (1986: 1515) 'this would necessarily involve a counterpreferential choice'. This is mistaken. For to maintain that such concern for animals is inconsistent with welfare-maximisation while a similar concern for other humans via altruism, bequest motives, or Sen-type sympathy is quite consistent, assumes the very asymmetry between the interests of humans and nonhumans which the environmental ethic denies. Randall (1988: 84) certainly admits the possibility: 'Caring is extended [to nonhumans] because it gives the human satisfaction to do so.' Brookshire's claim reduces to a criticism of an environmental ethic per se, rather than a fact about its implications. Either the concerns to preserve the environment for other humans, and for nonhumans, can both be understood as welfare improving, or neither can be so understood. In both cases, it is plausible that the value placed on some environmental good may be attributed partly, but not exclusively, to welfare maximisation.

With full information and a well-defined preference ordering, the agent will be able to satisfy his 'true' preferences, understood as those that maximise his welfare. However, this claim assumes that fully informed preference satisfaction implies welfare maximisation: it is an assumption labelled Psychological Egoism by utilitarians, and precisely the identity which Sen disputes. Psychological Egoism is the proposition that what an agent most wants, if he knows the facts and thinks clearly, is to do whatever would be best for him, or would best promote his long-term self-interest.

Note that psychological egoism is sometimes defined crudely in terms of uninformed preferences ('an agent always acts in his own best interests') but, as Parfit (1984) has demonstrated, it becomes true by definition when so understood.¹¹ When defined in terms of informed preferences, psychological egoism

has been almost entirely rejected by utilitarians. Parfit (1984: 129) concludes that it 'cannot survive a careful discussion'. Unfortunately this discussion inevitably requires a detailed examination of what is meant by an agent's well-being, or as Parfit puts it to avoid prejudicing the answer, 'what makes life go better'. A short answer therefore is not available; the discussion here will be limited to those conceptions of well-being which seem most likely to support the psychological egoism assumption. If psychological egoism cannot be defended in these circumstances, there is a good case for rejecting it altogether.

We should consider theories of well-being, or more precisely long-run self-interest (Parfit's theory S), which let the individual's well-being simply reflect her wants. The purest example of such a theory is the unrestricted desire fulfilment version of S. By this account of S, a person's self-interest is best served by what would most fulfil that person's desires throughout their life. Psychological egoism, on the other hand, claims that what would best fulfil my *present* desires, on due reflection (Parfit's 'deliberative present aim' theory DP), is most in my self-interest, and this will imply different actions for many agents. If an agent follows unrestricted desire fulfilment, his present desire satisfaction is constrained by the requirement to best fulfil desires in the future too. Under DP, the agent's optimisation of present desires is not subject to such a constraint, leading to a different optimal path of acts whenever the agent's strongest desires vary over his lifetime. Parfit (1984: 127) further maintains that present desire fulfilment cannot subsume long-term self-interest, 'on any plausible theory of self-interest'. Simply defining S as equal to DP is unsatisfactory because, among other reasons, DP is not a 'plausible' theory of self-interest. Present desires need to be severely restricted, not just by future desires, but in more obvious senses if they are adequately to reflect individual self-interest or well-being.¹²

Parfit's 'Success Theory' version of S appears promising. It appeals 'only to our desires *about our own lives*' [emphasis added] (Parfit 1984: 494). However, on this version, an agent's self-interest can be satisfied even after he is dead. Parfit gives the example where 'all my children have wretched lives, because of the mistakes I made as their parent. Suppose that my children's lives go badly only after I am dead. My life turns out to have been a failure, in one of the ways I cared about most. A Success theorist should claim that, here too, this makes it true that I had a worse life' (1984: 495). Parfit is clearly right to argue that the desire to be a successful parent has not been fulfilled, regardless of whether the parent ever knew this, but it seems implausible to conclude that the parent had a worse life. There may be intelligible life after death for desires, but surely not well-being. The cause of the adverse effect on well-being did not prevail until after the agent's death so, it is claimed, the agent's well-being cannot be affected. Parfit's contrary view relates to his distinctive conception of the nature of personhood, which cannot be discussed in the space available here. However the more conventional understanding of well-being does support a coherent notion of well-being improvement, readily distinguishable from desire fulfilment. It is

this distinction which is so essential to the present discussion, made clear by requiring improvements in well-being to satisfy an introspection test. Preference-Hedonism is the name given by Parfit to the Success Theory combined with the introspection requirement – that a feature of an outcome makes life go better/worse only if it is introspectively discernible. Consequences which prevail after an individual is dead are one category which is clearly not introspectively discernible.

In sum, the defeat of the Psychological Egoism assumption implies the logical possibility of non-self-interested, or altruistic, desires. The Preference Hedonism account offers a coherent distinction between self-interested and altruistic desires.¹³ By that approach, the fulfilment of a self-interested desire must affect well-being in the sense of being introspectively discernible.

Returning to terminological questions, since the definition of utility is so well established, it should be left undisturbed, and ‘well-being’ defined to be that which makes the agent better off, noting that an act which makes the agent better off is also by definition in the agent’s self-interest.

It is proposed that ‘welfare’ may be usefully distinguished from well-being for economists, by excluding from ‘welfare’ the vicarious gain to the agent from being altruistic, in the sense of an externality, or from ‘enlightened self-interest’ such as charity donations motivated by the expectation of self-esteem or guilt avoidance. Thus all chosen outcomes maximise utility by definition; demand for an environmental good based on nonconsumptive use value will increase welfare and well-being, but that based on vicarious consumption will increase well-being alone. However in what follows the distinction between welfare and well-being will rarely matter and they will be used interchangeably unless otherwise stated. It is the distinction between utility and welfare which is crucially important here – even then, the correspondence of the two meanings to two words does not much matter, as long as it is one to one. As Sen commented ‘I have no strong views on the ‘correct’ use of the word ‘preference’, and I would be satisfied as long as both uses are not *simultaneously* made, attempting an empirical assertion by virtue of two definitions. The basic link between choice behaviour and welfare achievements in the traditional models is severed as soon as commitment is admitted as an ingredient of choice.’ (Sen 1977: 94) In characterising commitment as ‘counter-preferential choice’, Sen perhaps inadvertently added to existing confusion, understanding preferences as a ranking of outcomes in order of welfare, not desire. Counter-preferential choices thus become utility-maximising but not welfare-maximising ones. While Sen claims that the ‘normal use of the word’ identifies ‘preference with the concept of being better off’, this is surely a less typical use of the word ‘prefer’ than meaning to ‘choose rather’ (the O.E.D. definition). This meaning for preference, as a synonym for choice, will be adopted hereafter.

For readers trained in philosophy, this section has undoubtedly laboured some simple points. However on a number of theories of well-being, these

distinctions are quite subtle – and they appear to have been repeatedly overlooked by the dominant neoclassical model of decision-making in economics.

COMMITMENT AND EXISTENCE VALUE

Even if psychological egoism is rejected, and thus the possibility of commitment acknowledged, its role may be problematic. Brookshire et al. (1986) do not deny the existence of commitment or its relevance to environmental decision-making, but nevertheless object to any measure of existence value, or cost-benefit analysis, which admits choices based on commitment. Their argument essentially rests on two claims:

1. 'Fundamentally individuals may make choices for reasons not expressed by the model of utility maximisation because as we all recognise people are sometimes prompted to act out of a commitment to do what is right.' (p.1517)
2. 'Since benefit-cost analysis relies on an identity between preference, welfare and choice...' leading to
3. '...the conclusion must be that not all expressions of willingness to pay are relevant to benefit-cost analyses.' (p.1517)

I accept claim 1, reject claim 2, and hence deny the conclusion 3.

Claim 1. The original argument for the possibility of commitment is of course in Sen (1977), although it is accepted as a possibility in Sen's earlier work. For instance Sen (1973) argues that agents are willing to pay for a commitment they hold. It would be inappropriate here to discuss these arguments in detail, but they will be examined incidentally below in the process of demonstrating the possibility of a coherent notion of existence value which incorporates commitment. Brookshire et al. comment that Goodin (1980), Brandt (1967), Kelman (1981) and Sagoff (1981) all recognise a distinction between preferential and counter-preferential behaviour – that is, between choices which maximise well-being and those that do not – to which could be added most of the literature on the modern formulations of utilitarianism, e.g. Parfit (1984), Brandt (1979), Griffin (1986) among others. Indeed Sen reinvented for economics a possibility with which Marshall was certainly familiar (see Broome 1991). The validity of claim 1 depends of course on abandoning psychological egoism, as argued above.

Claim 2. Again there is a danger here of drifting into a lengthy discussion of the fundamental purpose of cost-benefit analysis. As mentioned above, to construe cost-benefit analysis as the single tool for making a dichotomous choice without reference to other information inputs, is to caricature the policy-making process.

Supporters of cost-benefit analysis in environmental decision-making repeatedly agree that the main appeal of cost-benefit analysis lies in its comprehensiveness, its attempt to take full account of *all* benefits and costs resulting from the policy decision, and that by drawing them onto a common (usually monetary) scale, it ensures that difficult to quantify benefits are either fairly weighted or their exceptional exclusion explicitly acknowledged. Hence claims to exclude in general whole categories of benefits threaten the principal advantage of cost-benefit analysis. Yet conclusion 3 represents precisely such an exclusion.

Claim 2 rests on some sweeping claims regarding the rationale for cost-benefit analysis. For instance, 'Normative economics holds to the principle that the appropriate role for public sector decision-making is in attempting to aid the market sector in attaining an efficient allocation of resources... benefit-cost analysis can be viewed as representing an efficiency ethic.' (p.1514). Pareto efficiency, however, is defined in terms of individual preference orderings and it is not at all clear that commitment is in any sense inconsistent with maximisation over these rankings. It is helpful to repeat again: 'One way to define commitment is in terms of a person choosing an act that he believes will yield a lower level of personal welfare to him than an alternative that is also available to him.' Sen (1977: 327). So commitment involves the *choice* of the agent and it is to these revealed preferences that the Pareto principle must apply. There is no requirement that the choice be welfare-maximising, as Brookshire et al. must agree by asserting claim 1 (except of course that they use 'utility-maximising' to equal 'welfare-maximising').

A Pareto-efficient allocation is an allocation of goods, not welfares. It is defined over preferences. In so far as the common wording refers to 'better off' and 'worse off' it either assumes the identity between preference and welfare which Brookshire et al. reject in claim 1, or simply misrepresents the formal definition, and can be safely ignored.

This author suspects that by referring to an efficiency ethic, Brookshire et al. did not strictly mean (Pareto) efficiency at all, but the nebulous idea that normative economics should seek to maximise individual welfares, even to the extent of ignoring the agent's actual choices if they conflict with this objective.

Hence in determining to what extent agents have been given what they 'really' want, in distinguishing an agent's 'counter-preferential' wants from 'true' wants, the yardstick is the agent's own welfare. The 'welfare imperative' is so widespread as to pass almost unnoticed. Why, for instance, do interviewers provide respondents with further information concerning a wilderness site when conducting a willingness-to-pay (WTP) exercise? Presumably by the time a development proposal has reached the WTP survey stage, agents will have had ample opportunity to acquire information to the point where its expected marginal benefit equals its marginal cost. In most cases the market for information will be missing or imperfect, but even if this presents problems, it does not

explain the provision of additional information. For if it did, the nature and quantity of the information provided would reflect market conditions. The evidence for this seems at best weak: there seems to be no study which has explicitly compared this aspect of different WTP exercises. Of course this is hardly necessary, since practitioners themselves freely acknowledge their reasoning – to aid the respondent's choice. But how can a choice be aided, or improved, if there are no objective criteria by which to define improvement, since preferences are purely subjective?

Thus claim 2, if 'efficiency' is understood correctly, falls because choices based on commitment remain consistent with the agent's preference ordering. The alternative is the bald paternalistic approach which ignores the agent's choices, or expressions of willingness-to-pay, when they do not maximise his welfare – and inevitably therefore requires an objective conception of welfare. Moreover, if existence value is excluded from cost-benefit analysis to the extent it is not consistent with welfare-maximisation, then use value must be similarly excluded. On many occasions, recorded willingness-to-pay cannot claim to accurately reflect the welfare benefits from a use.

In practice cost-benefit analysis may be called upon whenever it is not practicable to introduce a market when one has not arisen already – which because of information asymmetries is likely to be much more common than in the simple Coasean world (see Farrell 1987). Even if it were practicable, the public authority might not do so, since it has many objectives besides Pareto efficiency. The social welfare function may weight individual welfares in line with distributional considerations, or there may be entirely nonutilitarian (welfare based) goals altogether e.g., justice.

Their arrival at conclusion 3 leaves Brookshire et al. (1986) in difficulties. Commitment *uniquely* opens the possibility of preference orderings *different* to welfare maximising ones, but they reject it while simultaneously arguing for defining existence value in terms of intrinsic value alone on the grounds that it 'seems to be the only motivation left out of all those suggested as existence value that one might want to associate with a *unique and different* economic value... [emphasis added]' (p.1514). Either intrinsic values maintain the equality between utility and welfare, like all other claimed components of existence value and all use values, or they do not, in which case they are generated by commitment. There can be no other possibilities. Once commitment has been rejected, it is not at all clear why, or even how, existence value can be a distinctive type of economic value. Such a demand inevitably begs the question, not addressed by Brookshire et al., of why existence value needs to be a 'unique and different' type of economic value, especially if this phrase implies an incommensurability with conventional economic value (utility), which would pose great analytical problems. If no incommensurability is implied, the phrase is at best mysterious.

A DEFINITION OF EXISTENCE VALUE

In what sense, then, is existence value a unique and different economic value? The answer should by now be obvious, and therein lies a definition. Existence value is problematic for environmental economics because it is assumed that all goods must bring a welfare gain to the agent – and it is only through a use that the welfare benefit can flow to the agent. Existence value seems to be a chimera if we are looking for welfare effects of the environmental good not related to use. For if an object has welfare benefits then the object has a use, since by definition the ability of an object to provide such benefits constitutes a use. Now because welfare benefits can only flow via a use, they are entirely captured by use value. Once the assumption that a good has value only in so far as it affects well-being has been abandoned, the role for existence value as non-welfare-improving value is clear.

The Existence Value of some environmental good is defined as the value assigned by the agent to the good in addition to any expected changes in the welfare of the agent dependent on the good's continued existence. Note this formulation entails that although a good yielding welfare improvements implies it has positive use value, the reverse is not true. Welfare gains are a sufficient condition for positive use value, but not a necessary one. A good may have a use, in the strictly functional sense, without making the agent better off. A proper explanation of this and other difficulties raised earlier requires a more thorough treatment of value, as discussed below.

But the most important feature of this formulation is that the welfare-improving independent variables found in a conventional utility function are *incommensurable* with existence value because existence value is not measured in welfare units. Put simply, this incommensurability is the rationale for continuing to treat existence value separately from other forms of value.

EXISTENCE VALUE AND SAGOFF

The approach taken here may appear to be simply a re-labelling of Sagoff's consumer/citizen dichotomy with other terminology. 'As a citizen, I am concerned with the public interest, rather than my own interest; with the good of the community rather than simply the well-being of my family... As a consumer... I concern myself with personal or self-regarding wants and interests... I look out for Number One.' (Sagoff 1986: 8). Certainly the argument here is consistent with that of Sagoff, and subsumes it by implying that agents can act as both citizens and consumers in valuing the environment – not just citizens as Sagoff alleges. Further, by tying the values of the agent as a citizen to existence value, precisely what aspects of any particular environmental good concern the

individual as citizen is hopefully made clearer. For plainly some aspects do not and Sagoff tends to ignore these.

More importantly, Sagoff's justification for his dichotomy appears to rely crucially on an appeal to intuition in a series of well argued examples. However plausible, these do not demonstrate that the consumer/citizen, or altruistic/self-interested dichotomy is irreducible and cannot be compacted by, for instance, notions of enlightened self-interest.

The incorporation of the proposed measure of existence value in a utility function does not imply such a reduction of the dichotomy to a conventional utility-maximising approach. To reiterate, utility is simply the cardinal representation of *ex post* (revealed) preferences. As has been emphasised above, in 'enlightened self-interest' explanations of altruism, the definition of utility will so often slide from the cardinal representation of preferences in one context, to a measure of individual welfare in another.

Margolis (1982), for example, posits two utilities for an agent, one from self-interested benefits, the other from public interest 'independent of any personal benefits arising'. So far this is consistent with my approach: utility equals cardinal preference representation and two independent preference orderings are implied. In Margolis, the two orderings are resolved to determine the agent's action by the familiar equalisation of marginal utilities. However, this only makes sense if the utilities are both cardinal and commensurable. Even then, although the maximisation exercise is now possible, it is not well motivated. At this stage, changing the definition of utility to mean individual welfare generates the requisite motivation for performing the maximisation. But the motive is strictly self-interested: thus Margolis ultimately fails to incorporate pure altruism (commitment) in the neoclassical model.

It may be better to describe the problem differently. Mainstream environmental economics may well accept the suggested form of the utility function but, crucially, assume that such a function exists *ex ante*. Incommensurabilities and other difficulties are resolved by the agent *ex ante*. Now with utility as the cardinal representation of preferences, utilities can of course be assigned and a function inferred *ex post*, but incommensurabilities may prevent it existing *ex ante*. In terms of the neoclassical choice model, the problem becomes one of establishing the axioms of completeness, transitivity, and continuity over an extended domain where variables representing the state of various environmental goods are elements in the vectors corresponding to the choice bundles.

INCOMMENSURABLE DIMENSIONS OF CHOICE

The obvious rejoinder from the neoclassical economist at this point is to argue that since the agent is assumed to have made a rational decision (in this case,

determining her WTP), she will inevitably have resolved any incommensurabilities in the process of doing so. Levi (1986) has argued strongly that this need not be the case. If two or more aspects of decision really are irreducible, then the mere observation of a choice *ex post* does not imply that a resolution of the conflict has been made *ex ante*. Specifically, it may not be true that completeness of the ordering is necessary for a decision, even when the incompleteness concerns the alternatives between which a choice must be made. Rather than an ordering existing *ex ante*, a decision may be said to determine one, in the sense of a (perhaps partial) ordering which may be used *ex post* as a heuristic device in describing the decision. There is no space here to discuss fully the growing literature on what has been termed 'problems of intrapersonal comparability', but the notion of a 'multiple self' is clearly relevant, if only as a heuristic device to aid exposition. To use Kavka's (1991) terminology, the individual is modelled as a set of 'subagents', each concerned only with one dimension or aspect of the alternatives available. Two common strands running through the literature should perhaps be emphasised.

First, a picture emerges of an agent operating under bounded rationality (attention is paid to psychological constraints on reasoning processes as well as information costs) using a simple decision process which facilitates learning about changes in the parameters of the choice environment, unlike the standard assumption of 'parametric rationality' where agents treat these parameters as fixed. The notion of a complete, transitive, *ex ante* ordering remains valuable, but as a representation of each separate dimension of choice rather than the overall decision process.

The second strand of the literature addresses whether an overall ordering might exist. It seeks to develop a theorem for the intrapersonal case which is analogous to Arrow's interpersonal one. It is well established that Arrow's famous 'Independence of Irrelevant Alternatives' condition entails that any cardinal information contained in the individual orderings is ignored. If this claim is accepted (and it is less obviously acceptable in the intrapersonal case than the interpersonal one), along with the standard conditions of non-dictatorship, Pareto principle and unrestricted domain, then the analogy to Arrow's Theorem follows. The agent has no overall complete transitive preference ordering. Obviously this conclusion can be avoided by tricks familiar to all social choice theorists: demand that the overall ordering be 'acyclical', a much weaker requirement than transitivity. Sen and Williams (1982: 17) have questioned whether completeness of the overall ordering is an essential part of 'rationality', claiming that the property of 'never foregoing a definitely superior and available alternative' is sufficient. Thus as in the interpersonal case, the implications of an intrapersonal form of Arrow's Theorem need not be entirely pessimistic. The extent to which the axioms of Arrow's Theorem, and the rationality requirements of an overall ranking, carry over to the intrapersonal case, obviously demands much greater research.

IMPLICATIONS AND CONCLUSIONS

The implications of this definition of existence value and the divorce of welfare from utility are significant. The insistence that existence value must reflect welfare changes is responsible for many of the misunderstandings over its possible components, while the proposed definition suggests a clear principle for determining whether an element of value forms part of existence value. If the value component is expected to make the agent better off, then it is captured by use value, otherwise it forms part of existence value.

One puzzle illuminated by the proposed definition of existence value is the often observed inequality between measures of willingness to pay and willingness to accept. The latter may be simply incoherent, since it implies the agent can be compensated for loss of welfare. However if the agent does not receive any welfare benefit from, for instance, the preservation of a species, there is, *ceteris paribus*, no welfare loss from its destruction for which he can be compensated. It is revealing to compare the meaning of a willingness to accept measure for an environmental good with that for some other project giving possibly no welfare benefit to the respondent e.g., famine relief. For it is clearly meaningless in the latter case. If an agent is prepared to pay £100 in support of a famine relief project to save 100 people, this does *not* imply that £100, or even more, will compensate the individual for the absence of relief (Holland and Roxbee-Cox 1992). The individual does not need compensating; it is the famine victims whose welfare is affected by the absence of relief – so it is they, if anyone, who can be compensated.

Once the proposed definition of existence value is adopted, it relieves environmental cost-benefit analysis of a number of troubling philosophical objections to attaching monetary values to certain qualities, such as aesthetic appeal. These problems are not solved of course, but avoided. For example, the aesthetic value of some environmental feature can only be captured by existence value to the extent that it is both a subjective expression of personal preference, and can be represented by a metric which is unique up to an increasing linear transformation. But the aesthetic benefits to society may involve objective qualities too. Moreover, existence value and hence total value does not measure how much better off the individual is made by the project or preservation under consideration, and certainly not the social welfare effects for society as a whole. Responses to CVM surveys must be understood for what they are – no more or less than subjective monetary valuations of the agent's current desires. As such they deserve much attention in the formation of policy, but *alongside* judgements concerning well-being and perhaps also nonutilitarian conceptions of value.

To want a species preserved on which one has placed existence value alone is to want what is not necessarily in one's self-interest. The welfare benefit to the agent from a species with existence value alone is zero, hence although by definition such a choice will be first in the agent's preference ordering, welfare

maximisation is left undetermined. It may be unclear what theory of action drives existence value, if not self-interest. There are a number of possibilities consistent with the broadly utilitarian, or more strictly, consequentialist, approach underlying normative economics. One theory is termed the 'deliberative present aim theory' (DP) by Parfit (1984: 128). This holds that the individual wants what would best fulfil her present desires if she 'had not been deceived and was thinking clearly' – or more realistically had undergone a process of cognitive psychotherapy such as that proposed by Brandt (1979). Existence value then becomes a measure of the intensity of such desires, assuming the cardinality usually understood in WTP surveys. Norton's (1986) 'weak anthropocentrism' seems related to the DP theory, defining the former as 'value influenced by both considered preferences and the consistency of such preferences with a rational world view.' This possibility was raised partly to demonstrate that existence value does not demand a substantive morality to motivate action. But further discussion is inappropriate here.¹⁴

In conclusion, perhaps the main advantage of the proposed approach to existence value is that it admits respondents holding such an environmental ethic. The inability of CVM studies to accommodate such preferences has surely been a significant cause of the refusal of many respondents to answer certain WTP questions. Undoubtedly there exist moral commitments of the form which existence value as defined here seeks to capture. In a study of the importance of enhancing the survival possibilities for various wild species in New England, a majority of respondents (79%) agreed with the statement that 'all species of wildlife have a right to live independent of any benefit or harm to people' (Stevens et al. 1991: 396). Equally certain is that these commitments will be associated with protest bids. Although 79% of respondents in the Stevens study expressed an explicit commitment to preserving the species *per se*, the majority refused to pay when confronted with hypothetical valuation. The close association of significant existence value, environmental moral commitments, and protest bids is empirically supported; this paper has sought to explain the relationship.

A valuation process that allows for commitment can be sensitive to some of the valid philosophical objections to cost-benefit analysis made by Sagoff and others. As Sagoff (1986) argues, the economist's conventional value neutrality is an illusion: it is neutral among preferences, but biased among theories of value, choosing welfare-maximisation as the ultimate good and preference satisfaction as the means of achieving it. The proposed understanding of existence value does not threaten value neutrality, and it strengthens preference neutrality because it does not reject certain preferences formed after due deliberation, such as those based on an environmental ethic, simply because they do not maximise an agent's welfare. It would be naive to reject Turner's (1988) conclusion that: 'On pragmatic grounds, arguments in favour of nonhuman individuals or collectivities, having interests and primary rights based on intrinsic value, are unlikely to make much headway in current policy-making circles.' However, if this intrinsic value

is recognised in the preferences of individuals, and hence in the existence value that they assign, the practical problems are of the same kind as those involved in measuring most types of use value. Perhaps 'pragmatic' in Kerry Turner's statement ought best be interpreted to mean 'ideological'; in which case, those who wish policy to respond to some preferences but not others are at the very least obliged to defend such a distinction.

NOTES

¹ I would like to acknowledge the helpful comments of members of the Environmental Economics group of the Centre for the Study of Environmental Change (CSEC) at Lancaster University, and Gay Meeks and Tim Swanson at Cambridge.

² Although the arguments of this paper are unlikely to impress proponents of 'deep ecology'. That approach will not be addressed at all in what follows – this author, like many others, does not find it at all helpful for environmental policy-making. The reasons are far outside the scope of the discussion here.

³ Throughout 'use' will be assumed to include options to use. Economists have termed the value of having this opportunity 'option value'. Thus in what follows option value is always excluded from existence value.

⁴ But nowhere will any attempt be made to develop an approach devoid of utilitarian roots, such as a Rawlsian or rights-based analysis. This is simply because of the enormity of the challenge of relating a concept such as existence value, thoroughly grounded in (an arguably narrow) utilitarianism, to nonutilitarian ethics. The task attempted here is a much more limited one, working within a broadly consequentialist perspective. However, no particular version of utilitarianism will be assumed.

⁵ Unless of course welfare (of B) is defined in terms of a form of desire fulfilment which admits the desire not to be deceived. See e.g. Griffin 1986.

⁶ Boyle and Bishop 1987, Cronin 1982, Desvousges et al. 1983, Gramlich 1977, Mitchell and Carson 1981, Randall and Stoll 1983, Schulze et al. 1983, are among those who appear to include vicarious use value in existence value.

Brookshire et al. 1983, Brookshire et al. 1986, Edwards 1992, Fisher and Raucher 1984, Fisher and Krutilla 1985, Krutilla 1967 and Stevens et al. 1991 exclude vicarious use value.

However this understanding of the authors' treatment of existence value is limited by the absence of any formal definition of existence value in many studies, in which case the definition must be inferred from the question asked to respondents. The authors listed include the main discussions or CVM surveys of existence value in the economics literature, but exclude often relevant analyses of value from environmental philosophers. These almost never refer to existence value directly, but the limits of a definition can be inferred. Where this is possible, environmental philosophy typically excludes vicarious use value.

⁷ Sober's analogy appeals to two grounds of similarity with works of art. Firstly, reality matters. Sober claims that most of us value seeing a real painting more than a copy. This is compared with the Routleys' famous 'experience machine' argument (e.g., Routley and Routley 1979) where the simulated experience of being in, say, a wilderness is argued to

be inferior to the real experience, even if the machine-generated experience is indistinguishable in the sense that the individual concerned does not know whether simulation or reality is being experienced. However if the experiences really are indistinguishable and following mainstream welfare economics, only the agent's welfare matters, then the simulated experience cannot be inferior. But these are deep waters and the definition of welfare (see next section) is central. For if welfare is defined in terms of a form of desire fulfilment which admits the desire not to be deceived, then the simulation might leave the agent worse off after all. Although it may be misleading to label such desires as aesthetic. Similarly, if someone cannot distinguish an original painting from its excellent copy, then they will be unable to rank these experiences. The value of an original painting over that of a copy does not derive from the experience of seeing and therefore on some accounts, the original's aesthetic value is no greater.

Secondly, context matters. The claimed lower existence value from preserving a species by keeping zoo specimens rather than a wild habitat is held to be analogous to the desire of art historians to save Venice or Florence as a whole and not merely particular frescoes or altar pieces.

⁸ Brookshire et al. (1986) argue 'In order to distinguish the idea that there are attributes of the resource that are valued by the preferences of individuals from the concept of intrinsic value as used by ethical philosophers (value in and of itself), it would be better to refer to such a value as inherent...' (p. 1514) But this distinction may be spurious. Hare's (1987) formulation of three classes of value certainly rejects it. See below.

⁹ While it is argued here that existence value may include intrinsic value, it is not claimed that they are equal. The set of entities possessing positive intrinsic value simply overlaps with the set possessing positive existence value. One reason for this has been pointed out by Brennan (1992): 'To recognise [such] existence values we do not need to argue that rain forests have value in their own right. Rather, it may be that the existence of rain forests is instrumentally valuable, in that without them other things of value would be lost.' Here an instrumental value is included in existence value; the instrumental use of the rain forest is not captured by use value because its direct use is to *nonhumans*. Use value reflects the preferences – and therefore uses – of humans alone. It is instructive to note that an object of instrumental value to nonhumans would fall under class γ in Hare's (1987) classification, providing nonhumans have morally relevant interests. Hare invokes the 'Golden Rule' to suggest that all sentient creatures do; that approach is endorsed here.

¹⁰ Such an ethic is proposed in, among others, Attfield 1983, Singer 1979, Rolston 1988, Norton 1986, Callicott 1986, Regan 1981 and Hare 1987.

¹¹ Psychological egoism defined over actual 'uninformed' preferences is the claim that, if some act would best fulfil someone's present desires, this act will inevitably maximise the agent's welfare, since present desire fulfilment is the definition of welfare maximisation. When psychological egoism is made true by definition, the independence of the concept 'self-interest' is sacrificed. It now means no more than uninformed present desire fulfilment. See next paragraph.

¹² A full discussion would require several books. Edwards (1979), Gosling (1969), and Griffin (1986) have all influenced my approach.

¹³ This author suspects that altruistic motives are not merely a logical possibility but necessarily entailed by any account which seeks to reduce them to self-interest; relatedly preference hedonism has flaws which point to an Aristotelian 'objective list' approach. See O'Neill 1993.

¹⁴ See for instance Hardin 1988, Parfit 1984, Griffin 1986, or Brandt 1979.

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