Can Law and Economics Stand the Purchase of Moral Satisfaction?

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Abstract

In recent years there has been a debate over whether or not moral sentiments should be included in normative economic analysis. This paper compares the standard normative criteria for benefit cost analysis, Kaldor-Hicks, that does not include moral sentiments with a modification that does called KHZ. The choice between these criteria should rest on which is the most acceptable and useful. The conclusion is that KHZ dominates KH even by the standards of KH itself and that its use illuminates certain problems in environmental law and economics such as comparing projects with compensation and those without and whether discount rates should be used in evaluating the far future.

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1.0 Introduction[2]

For over sixty years the practical criteria for economic efficiency, the Kaldor-Hicks criteria, has excluded, or at least not properly included, moral sentiments in normative economic analysis. In part this is due to historical reasons, in part to normal inertia associated with any academic discipline and in part because it was until recently not greatly important to include them. This is no longer the case. Existence values often reflect moral sentiments and such values can arise with respect to traditional environmental amenities as well as historic buildings that might, for example, be damaged in an earthquake. This paper asks if the value of moral satisfaction and moral harm should be included in benefit-cost analysis and, if so, what welfare criterion should be used to measure it. The issue is important in environmental economics because questions of existence value and of compensation for harm are prominent and can involve moral sentiments.

I conclude that moral sentiments are legitimately included in normative economic analysis as their inclusion improves the quality of analysis, clarifies issues in environmental economics, and potentially improves decision making. This conclusion rests on using a suitable metric, such as the one I suggest, that captures normative sentiments for normative analysis. The implications of this conclusion are that (1) the potential compensation criteria should be dropped in favor of a variant of Kaldor-Hicks which will better capture values actually relevant to decision making, (2) standing issues in both law and economics should rely (aside from questions of separation of powers and federalism in law) on how well the relevant sentiments can be measured, (3) in principle, existence values as a type of moral sentiment should be included in benefit-cost analysis, (4) a project with compensation is different from the same project without compensation and should be so recognized in efficiency analysis, and (5) criticisms of the use of discount rates because they do not sufficiently recognize future values arise because moral harm is not considered and are unconvincing once moral sentiments are included.

2.0 How Measurement Problems Affect Legal Rights

[2] This paper relies on the recent book, (Zerbe 2001a).

I wish to suggest that common law doctrine disallowing relief or collection of damages, as for example in awards of damages for emotional distress, can be best understood as a problem in measurement. Courts will disallow damages or standing to sue for damages or other relief where damages or the value of relief can not be reasonably measured except in certain outrageous cases. I suggest that in economics as in law the rule should be to include all sentiments reasonably measurable.

2.1 The Legal Concept of Standing

Legal standing is especially relevant to economic analysis because it can provide a reference point for reasonable expectations and psychological ownership. Legal standing gives plaintiffs a right to sue. Although the particular details of the law of standing can be arcane and complex, standing can be understood, aside from consideration of separation of powers, as arising from measurement distinctions.[3] The doctrine of legal standing is derived from the "case or controversy" clause of Article III of the U.S. Constitution. In *Lujan v. Defenders of Wildlife* (*Lujan II*), the Supreme Court articulated three constitutionally required elements that plaintiffs must demonstrate before they are entitled to legal standing. The Court held that plaintiffs must show that "(1) [they] ha[ve] suffered an 'injury in fact' that is (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical; (2) the injury is fairly traceable to the challenged action of the defendant; and (3) it is likely, as opposed to merely speculative that the injury will be redressed by a favorable decision" (*Friends of the Earth v. Laidlaw*, 528 U.S. 167, 180 (2000), citing *Lujan*, 504 U.S. 555, 560-561 (1992).

The standing doctrine, however, also embraces several judicially self-imposed prudential limits on the exercise of federal jurisdiction. Courts often deny third parties legal standing because they are unable to demonstrate they have suffered a concrete

[3] I limit the discussion of legal standing to cases where a right to sue exists under the Constitution, a statute, a regulation or the common law and could be exercised but for the plaintiff's inability to demonstrate a concrete, actual, redressable injury in fact. While environmental statutes such as the Federal Water Pollution Control Act, §505, 33 U.S.C. § 1365 and the Clean Air Act, §304, 42 U.S.C. § 7604 contain provisions granting standing to all citizens or all persons, courts in practice limit standing to plaintiffs who meet the injury-in-fact, causation, and redressabiltiy requirements articulated in *Lujan II*.

"injury in fact" or that their injuries are traceable to the defendant.[4] Courts also require that a plaintiff's complaint fall within the "zone of interests" protected by the law invoked.[5] Less often, courts deny parties standing when a decision by the courts would interfere with constitutional separation of powers[6] or raise grave federalism concerns.[7]

By limiting the parties who can bring an action before a court of law, the doctrine of standing helps courts guarantee that "the party whose standing is challenged will adequately represent the interests he asserts" (Blackmun, J., *dissenting* in *Sierra Club v. Morton*, 92 S. Ct. 1361 (1972)). As the Court explained in *Baker v. Carr*, this "concrete adverseness . . . sharpens the presentation of issues upon which the court so largely depends for illumination of difficult constitutional questions." (*Baker*, 369 U.S. 186, 204 (1962)).

All the reasons for denying standing, except for separation of powers and federalism concerns may be regarded as resulting from measurement issues that arise in law as well as economics.[8] Clearly, a right that is hypothetical or conjectural will be difficult for a court with limited institutional capacity to measure. Moreover, where the causation of injury or the likelihood of its redressibility is unknown, courts are unable to measure the benefits and costs to parties involved. The disfavor in which the courts hold third party suits-suits in which one claims to represent someone else's interest may be

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[4] See *Warth v. Seldin*, 422 U.S., 490 for an in-depth explanation of the general rule against third-party standing. In *Warth* organizations and individuals in Rochester, New York brought suit against the town of Penfield to enjoin application of its exclusionary zoning ordinance but the Court held that "Petitioners must allege and show that they personally have been injured, not that injury has been suffered by other, unidentified members of the class to which they belong and which they purport to represent." *Id*. at 499. Traditionally, the Court has permitted third-party standing in limited instances including First Amendment overbreadth cases (*see Broadrick v. Oklahoma*, 413 U.S. 601 (1973)) in order to ensure that an overbroad statute does not chill First Amendment rights of those not before the court; in cases where immigrants seek to assert the citizenship rights of a parent (*see Miller v. Albright*, 118 S.Ct. 1428 (1998)); and in cases where criminal defendants seek to challenge the exclusion of jurors based on race (*see Powers v. Ohio*, 499 U.S. 400 (1991)).

[5] The purpose of the "zone of interests" test is "to exclude those plaintiffs whose suits are more likely to frustrate than to further statutory objectives." Clarke v. Securities Indus. Ass'n, 479 U.S. 388, 397 (1987).

[6] *See Allen v. Wright*, 468 U.S. 737 (1984).

[7] *See Los Angeles v. Lyons*, 461 U.S. 95 (1983).

[8] One who does not adequately represent interests makes it more difficult to measure these interests.

interpreted as a problem in measuring the primary person's interest solely based on the third party's claim.

Courts have not yet fully articulated measurement concerns as the reasons for standing issues. They should. Despite the long history of the standing doctrine, the definition of "injury in fact" remains remarkably murky. This ambiguity may stem in part from a use, non-use distinction applied by courts that is also important in environmental economics.[9] The Supreme Court has consistently refused to recognize non-use moral sentiments as sufficient grounds for standing. For example in *Sierra Club v. Morton*[10] (1972) the Court, in denying standing to the Sierra Club to raise claims relating to the construction of a road and ski resort in Mineral King and Sequoia National Park, distinguished between "mere interest in a problem" and injury. While the court acknowledged that "Aesthetic and environmental well-being, like economic well-being, are important ingredients of the quality of life in our society . . . the 'injury in fact' test requires more than an injury to a cognizable interest." (*Id.* at 734-35.). In *Morton*, the Court opined that the doctrine of standing's "attempt to put the decision as to whether [litigation is pursued] . . . in the hands of those who have a direct stake in the outcome" would be "undermined were we to construe the APA to authorize judicial review at the behest of organizations or individuals *who seek to do no more than vindicate their own value preferences through the judicial process.*" (*Morton* 405 U.S. at 740 (emphasis added)).[11] Thus, because in *Morton* the Sierra Club did not allege that it or its members would be affected in a direct personal way by park development, the Court denied standing under the APA. In *Valley Forge Christian College v. Americans United for Separation of Church and State, Inc.*, (454 U.S. 464, 486 (1982)), Justice Rehnquist also dismissed the idea that standing could be based solely on injury to plaintiff's interests or

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[9] This distinction divides uses such as recreation and natural resource consumption from non-uses such as aesthetic and existence values.

[10] *Sierra Club v. Morton*, 405 U.S. 727, 732 (1972)

[11] The distinction between "mere interest" or moral sentiments and concrete harm was also a factor in denying standing to environmental groups in *Lujan v. Sierra Club* (*Lujan I*), 504 U.S. 902 (1992). These cases, particularly *Lujan II* raises the possibility that Congress can create standing for "mere interest" by transforming it into concrete injury. Congress may create standing by offering a bounty to winners who would otherwise lack standing, thus making their interest measurable. However, this may not be possible if the Supreme Court determines that "mere interest" does not fulfil Article III's requirement for an injury in fact.

moral sentiments. Rehnquist stated, "standing is not measured by the intensity of the litigant's interest or the fervor of his advocacy." (*Id*.) In many cases, when moral sentiments are fully recognized the distinction between mere interest and injury in fact disappears. The distinction is problematic because a courts decision to grant or deny standing based on a plaintiff's category of injury (mere interest or injury in fact) rather than on the measurability of a plaintiff's claim often leaves society without judicial remedies even when, in theory, those remedies could be efficiently distributed.

Judicial resolve to deny standing based on "mere interest," however, may be faltering, opening the way for a measurement-based theory of standing. In *Friends of the Earth v. Laidlaw Environmental Services* (528 U.S. 167 (2000)), the Supreme Court was willing to grant standing to the plaintiff on the basis of claims of injury that some justices found vague (Scalia, J. and Thomas, J., dissenting). In *Laidlaw*, the record of actual loss of use to FOE members was spotty. Moreover, FOE's claims were made in the face of a finding that no environmental harm occurred, on the basis of a subjective evaluation of environmental quality and individual fear of possible harm rather than actual harm.[12] The treatment of interest in the *Sierra Club v. Morton* and *Laidlaw* appears inconsistent. The Court's approach in *Laidlaw* may indicate a greater willingness to give plaintiffs standing based in part on their non-use moral sentiments.

A distinction based on measurement differences would be less likely to suffer from illogical discontinuity. From a legal perspective, the question I should raise is whether or not a distinction based on measurement is better than one based on the type of injury--mere interest versus what the courts call economic harm, but which might more accurately be called market harm. If the distinction based on the type of injury fails to give standing to important sources of harm that are reasonably measurable, then failure to

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[12] Prior to *Morton*, the Supreme Court indicated in dicta that it would be willing to consider non-economic harm to plaintiffs in cases where these non-economic interests fell within the zone of interest of the contested statute. In *Ass'n of Data Processing Service Orgs v. Camp*, 397 U.S. 150, 154 (1970), the Court stated that the zone of interest "at times, may reflect 'aesthetic, conservational, and recreational as well as economic values." (citations omitted). Because a statute's zone of interest may include aesthetic, conservational or recreational values, the Court stated in dictum that "standing may stem from [non-economic injury] as well as from the economic injury in which petitioners rely here." *Id*. at 154.

offer standing to those whose harm is based on moral sentiments will be inefficient. [13] In *Lujan II*, Defenders of Wildlife presented a series of nexus theories of injury. They argued that the "ecosystem nexus" "proposes that any person who uses *any part* of a 'contiguous ecosystem' adversely affected by a funded activity has standing even if the activity is located a great distance away," that the "animal nexus" theory would allow "anyone who has an interest in studying or seeing the endangered animals anywhere on the globe" standing; and that the vocational nexus approach would allow suit by anyone with a professional interest in such animals. (*Lujan II*, 504 U.S. at 565.) Finally, DOW presented the "vocational nexus" approach, "under which anyone with a professional interest in such animals can sue." (*Id*. at 565.) Ultimately, the *Lujan II* majority agreed that the Defenders of Wildlife did not present sufficient evidence of an injury in fact, since they only claimed an intent to visit affected sites at some indefinite future time, at which time they might be unable to observe endangered animals. Yet, Justices Kennedy and Souter, in their concurring opinion, were "not willing to foreclose the possibility that . . . a nexus theory similar to those proffered here might support a claim to standing" on a different set of facts (504 U.S. at 578) a possibility Justice Blackmun and O'Connor echoed in their dissent (504 U.S. at 592).

The ability of the courts to solve these problems in legal standing doctrine is a modern day test for the evolution towards common law efficiency. I suggest that a focus on measurement can help. I suggest that a party should have standing to have his or her gains or losses considered in a legal decision when the weight of public opinion, in the

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[13] In 1997, Shintech, a large Japanese chemical corporation, proposed to build a plastics plant in Convent, Louisiana. According to Robyn Blummer writing for the St. Petersburgh Times as reported by the Denver Rocky Mountain News (Oct. 10, 1998, p. 62A) they passed state and federal emissions standards and agreed to hire substantially from the local community. They were opposed by Greenpeace on Title VI of the Civil Rights Act. Under this Act, EPA may withhold a permit if there is a "disparate impact" on minorities. As a result the Company has withdrawn its plans to build in the Convent location. A web search using Google and the name Shintech turns up conflicting reports about the sentiments of local residents. Some reports say that residents wanted the plant because they wanted the jobs. Reportedly, manufacturers are responding to Title VI rules by avoiding minority communities. Whatever the truth of the matter, it raises an issue of to what degree the moral sentiments of indirectly affected persons should count where the directly affected public disagrees. Certainly such sentiments by others can not be taken in law or economics as representing those directly affected. See Zerbe (1991, 1998) for material relevant to this sort of issue.

form of the regard for others, supports granting their gains or losses standing and those gains or losses are reasonably measurable (Zerbe 2001b).

When determining whether a party can bring a claim for damages before the court, the threshold question, from a remedies perspective, is whether a party is entitled to damages at all. This is essentially a question of whether a court should grant the party standing. Courts hold that there cannot be recovery in the form of damages unless there has been an injury that the law recognizes. If there is an injury the law recognizes, the court will award compensatory damages in order to restore the party to the position he would have been in, had he not suffered the unlawful injury. The rule of compensatory damages most closely resembles WTA, rather than WTP. To determine the position a person would have been in but for an unlawful injury, one must recognize the substitution effect, income effects, and loss aversion.[14] In reality, courts frequently use measures of damages that are closer to WTP than WTA.

The explanation for the use of WTP rather than WTA is that the WTP is easier to measure. Courts usually employ market value as a measure of damages when that measure is a reasonable estimate of their value to the owner, as in the case of goods that are held for resale or exchanged in the course of business. Courts are less likely to use market value when the owner bought those goods for his own use or convenience.

While courts do not use market value for non-commercial goods, they fail to employ a 'pure' WTA measure. With few exceptions, courts have refused to provide damages for tort or contract[15] claims based purely on emotional damage or distress. Thus, they have generally refused to recognize sentimental value. This appears to be due to difficulty in measuring sentimental value. One exception to the rule denying a claim of sentimental value is found in *Campins v. Capels.* In the case, the plaintiffs home had been burglarized resulting in the theft of a wedding ring and three 'national racing championship rings.' The defendant had received the rings from thieves and then melted them down so that he could recast them and sell the new jewelry. The sentimental value claim was only for the championship rings. After noting that the plaintiff's 'sentimental'

[14] If these effects were ignored in the calculation of damages, a party would not be restored to the position he would have been before the injury.

attachment was neither 'mawkishly emotional' nor an 'unreasonable emotional' attachment, the court acknowledged that there was no 'readily available' market for the buying and selling of championship rings. Thus, virtually all of the rings' value stemmed from their emotional significance. The court appeared to feel that the jury could put reasonable sentimental value on the championship rings; such value was not dependent on claims of sentiment towards other people which might be difficult to evaluate but on a value which most could recognize. The court held that the plaintiff could not demonstrate sentimental value by arguing that he would not have sold the rings at some price.[16]

2.2 Measuring Damages to Moral Sentiments: Intentional Infliction of Emotional Distress

Emotional damages or damages to moral sentiments are notoriously difficult for courts with limited institutional capability to measure. Since measurement presents such a dilemma, courts have employed judicially created standing mechanisms that funnel only the most deserving cases into the courtroom. The most common claim of damage to moral sentiments, the tort of intentional infliction of emotional distress, illustrates the courts attempts to cope with measurement issues. The tort of intentionally inflicting emotional distress is defined as outrageous conduct by the defendant intentionally causing or recklessly disregarding the probability of causing emotional distress.[17] Because conduct must be outrageous, only cases that shock the public's collective conscience are given standing. This limits cases for emotional damages to those where the regard for others would stand firmly behind allowing recovery. Moreover, in many jurisdictions, plaintiffs must show physical injury before recovery for emotional distress is allowed by the court. When plaintiffs claim both physical and emotional damage, the court's measurement task is less onerous because physical damage provides a quantitative base by which to gauge emotional damage. Furthermore, claims involving

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[15] Courts have been more willing to award damages for emotional loss or disappointment when the subject matter of the contract was emotional well-being or happiness.

[16] Even in jurisdictions which allow sentimental value, courts have been unwilling to allow recovery for sentimental value unless a good has virtually no market value. In *Carye v. Boca Raton Hotel & Club*, the plaintiff's jewelry was stolen while entrusted to the defendant. While the jewelry had been accumulated over the course of the plaintiff's 48-year marriage, and the court did not dispute the jewelry had sentimental value, it denied recovery for sentimental value because the market value of the rings was considerable.

some element of physicality are usually more egregious than claims involving only emotional damage, and thus physicality may act as a screen to rid the court of frivolous or the least important claims.

Despite these judicial attempts to limit cases involving emotional damages to only the most deserving and easily measured, the system is still fraught with measurement problems. In cases involving emotional damages, the task of quantifying emotional damages falls to the jury. However, as Cass Sunstein (1992) relates, in intentional infliction of emotional distress cases,

> Monetization is extremely difficult. Significant arbitrariness is entirely to be expected. Similar cases may well give rise to dramatically different awards. How does a jury know what amount would provide an employee, or a student, with adequate compensation for quid pro quo . . . ?[18]

The jury's determination must be made in a virtual vacuum, since no comparative valuation is allowed. Moreover, the jury's valuation problem is exacerbated by Judges' unwillingness to allow experts to address measurement of emotional damages before the jury. This unwillingness to allow expert testimony on the subject of emotional damages also spans to punitive damages. As court in *Voilas v. General Motors Corp.* holds,

> Extending the rationale of the opinions in these other analogous areas leads to the logical conclusion that expert testimony on punitive damages is neither desirable nor necessary, and indeed, would invade the sacrosanct role of the jury. The Court is satisfied that the trier of fact in the present matter is the proper, and only, quantifier of punitive damages; in essence, there is no science or methodology to awarding such damages where the jury can evaluate . . . and determine how to punish accordingly.[19]

Courts reluctance to allow juries valuation tools is ironic, given their careful attention to giving only the most deserving and measurable cases standing.

3.0 The Concept of Standing In Economics

Whittington and Maccrae (1986) explain the concept of economic standing as a method of describing who is able to have their values count in economic analysis. This seems to be a contradiction to the prevailing if unarticulated notion under the standard

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[17] *See M.H. By and Through Callahan v. State,* 385 N.W.2d 533 (Iowa 1986).

[18] Sunstein, Cass, "Assessing Punitive Damages (With Notes on Cognition and Valuation in Law)," 107 Yale Law Review 2071, 2134 (1998).

Kaldor Hicks (KH) criteria that every person has standing to have their values counted in an economic analysis.[20] Elsewhere Zerbe (1991) has shown that legal rights can be used to determine economic standing as well and can be taken as pragmatic indicators of general sentiment. Under any paradigm, economic standing is determined in the first instance by ownership. Ownership is usually not difficult to determine. Ownership defines the reference point and in economic analysis entitles negative changes from that point to be treated as losses and measured by the willingness to accept payment for a change (WTA), and positive changes to be treated as gains and measured by the willingness to pay to acquire the goods or rights (WTP).

Under KH an action is said to be efficient if the total WTP to acquire the goods or rights resulting from that action exceeds the total of the WTA payment in exchange for goods or rights given up and if the potential winners could hypothetically compensate the potential losers. Anyone affected by a proposed action will have either a WTP or WTA so that implicitly all affected persons are arguably to be included in the economic efficiency analysis. The issue of excluding certain people or sentiments did not traditionally come up.

Except that KH is not so inclusive in practice. A notable example is the treatment of foreigners in the context of benefit-cost analysis. Typically benefits and costs imposed on foreigners are ignored (Harberger 1978). So in practice foreigners do not usually have economic standing in benefit-cost analyses. The standard best practice is to conduct a benefit-cost analysis from a national perspective. But in practice when one jurisdiction, a city or a state, is conducting its own benefit-cost analysis, it ignores effects on other jurisdictions unless they are strong enough to involve consequences for the original jurisdiction.[21]

In spite of common practice, the general rule that follows from the logic of the KH criteria is that all goods for which there is a WTP are economic goods. Questions of economic standing are really questions of how to count values, i.e. problems of measurement. For example, for many projects the value of information gained from

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[19] 73 F. Supp. 2d (D.N.J. 1999).
[20] KH is the standard measure of normative efficiency in economics.
[21] This restriction to less than a national jurisdiction would not be acceptable to some economists.

determining distributional effects will not be worth the cost. While economics can justify ignoring distributional effects in many instances, I suggest it should do so on measurement grounds instead of principle.

Under KH, distributional effects are not usually counted. The KH assumption is that compensation to those harmed by a project and changes to the income distribution are to be ignored as part of efficiency analysis.[22] If equity is considered at all, and usually it is not, it is considered separately from efficiency. This has lead to a failure to recognize equity as just another economic good and a separation between efficiency and equity that is mistakenly based on principle rather than convenience of practice.

As economic analysis has extended to a broader variety of subjects and a broader array of values, issues of standing have grown apace. In a policy affecting the costs of immigration, should the benefits the children of illegal aliens receive from public education in the U.S. be included in an analysis of educational policies? Should the benefits criminals receive from crime be counted in considering policies affecting criminal behavior? Should existence value of environmental amenities be counted?

Legal standing can often be used to inform economic standing and resolve measurement issues. For instance, where legal and illegal behavior arises the law can be used as a proxy for a more extensive measurement. For example, Zerbe (1998, 2001a) suggests standing should be denied to thieves to have the value of stolen goods to them count, except where the law of theft is itself being considered (Zerbe, 1991, 2001a). It is not the illegality per se that matters in economics. Where illegality is clear, and it can be taken as an expression of sentiment of a broad part of the population, then the denial of standing to thieves is just an efficient way of summarizing the results of a broader poll. That is, if one is considering whether or not thieves should be required to return stolen goods, even though they are worth as much to them as to the owners, one could estimate that were the sentiments of the population polled broadly, the result would favor denying

[22] As Kaldor explained where a policy results in an increase in aggregate income, the policy is quite unaffected by the question of the comparability of individual satisfaction, since in all such cases it is possible to make everybody better off than before, or at any rate to make some people better off without making anybody worse off. Kaldor goes on to note (1939, p. 550) that whether such compensation should take place "is a political question on which the economist, qua economist, could hardly pronounce an opinion."

thieves standing and returning the goods. Similarly, in considering whether or not it is worth spending additional money to prevent a murder, one may be safe in ignoring the value of murder to the murderer. This is unlikely to be greater than the loss of others opposed to murder. The failure to adopt this approach leads Posner into untenable positions (see Zerbe 2001a).

Standing concerns which sentiments should count in economic analysis. This issue is the subject of this essay. The questions to be considered are: (1) How are moral sentiments to be treated? (2) Are projects with compensation different from those without? (3) Can harm arise when it is unknown to those affected? and most importantly, should an aggregate welfare measure such as KHZ be used instead of KH?

4.0 How Should Moral Sentiments Be Valued?

Moral sentiments are those that concern the welfare of other creatures. To ask if moral sentiments should be included in normative analysis seems peculiar; on the face of it moral sentiments would seem to be a crucial ingredient. The rule suggested here is to include all sentiments reasonably measurable. Yet important parts of such sentiments, the income distribution and compensation for harm, have historically been omitted from efficiency analysis. Similarly a variety of theoretical as well as practical arguments have been advanced for ignoring existence values (Hausman, 1993).

The argument for including moral sentiments in benefit-cost analysis is developed here by considering the arguments that have been made against such inclusion and the advantages for inclusion. The basic test used is to ask which among choices of normative measures of value appears to be the most useful and acceptable. The conclusion is that a version of an aggregate WTP-WTA measure holds the most promise. This measure I have called KHZ (Zerbe, 2001a).

The KHZ criteria is met when the sum of the WTP's for a change exceed the sum of the absolute value of the WTA's. KHZ assumes simply that (1) all values count, or more precisely all goods and sentiments for which there is either a WTP or a WTA are economic goods; (2) gains and losses are to be measured by the WTP and WTA respectively and from a psychological reference point that is determined largely by legal rights, and (3) transactions costs of operating within a set of rules are included in

determining efficiency. The rationale for these assumptions may be found in Zerbe (2001a). Here I focus on the rationale for counting all values.

5.0 Attacks on the Inclusion of Moral Sentiments

Six arguments have been advanced against inclusion of moral sentiments in benefit-cost analysis. It is said that the inclusion of moral sentiments results in (1) the acceptance of projects that fail to pass a potential compensation test (PCT) (Winter, 1969, Milgrom, 1993), (2) different weights being given to different individuals (Quiggin, 1997), (3) the inclusion of purely redistributive policies (Quiggin, 1997), (4) the inclusion of undesirable sectarian sentiments (Quiggin, 1997), (5) double counting (McConnell 1997), and (6) measurement problems. I consider these in turn.[23]

5.1 Failure of the Potential Compensation Test

The strongest argument against inclusion of moral sentiments in calculations, at least to economists, will be concern that such inclusion leads one to accept projects that do not pass the PCT (Milgrom, 1993). The PCT requires that winners from a project are hypothetically able to compensate the losers while retaining some of their gains. No actual compensation is required.[24]

Assume with Milgrom that one party, B, cares about transfers to person A but that A does not care about transfers to B. The recognition of B's moral sentiments can suggest acceptance of a project with a positive net surplus that does not, however, pass a PCT. Suppose that A gains from the project and B loses. A hypothetical transfer from A to B would result in B hypothetically gaining less than A loses. B's moral sentiments cause him to lose from A's loss, so that B can not in fact be hypothetically compensated. For example, consider a project which costs $160 and from which A has a gross gain of $100 and bears none of the costs. Her net gain is $100 and B has a gross gain of $100, but pays the entire $160 for a loss of $60. The net surplus from the project will be $40 ($100 - $60). Suppose, following Milgrom, that B's gain from the project is given by $50

[23] In addition, Tim Swanson in a verbal communication raises the issue whether or not the inclusion of moral sentiments allows equilibrium analysis. Elsewhere (Zerbe (2001b) I show that an internal equilibrium is reached as long as altruism is not extreme.

[24] Since one may care about transfers, e.g. compensation for a government taking, as a matter of principle or for self regarding reasons such as fear that a bad precedent may be applied also to oneself, the restriction of altruism alone is too narrow.

+ 0.5 times A's net surplus. If A hypothetically were to transfer $60 to B as compensation, this would hypothetically fail to do the job as the $60 hypothetical gain to B is partly offset by A's loss. B's hypothetical loss is now $30, as B loses $30 from A's loss of $60. If B then transfers an additional $30, B's loss would fall to $15, A would have a surplus of $10 and the project no longer has a positive net surplus. The actual rather than hypothetical transfer of money would result in both a failure to pass the PCT and to achieve positive net benefits.

The lesson Milgrom draws from this is that one should exclude moral sentiments from benefit-cost analysis. There are several difficulties with this argument, the strongest of which is that it is incorrect as a practical matter.[25] Another is that the KH measure does not assure passage of the PCT.

5.2 Under What Conditions Will The Potential Compensation Test be Failed:

Without loss of generality consider a pure distributive project.[26] In a move that transfers Y to users from altruists users gain Y and altruists lose Y - αY, where α represents the percentage value altruists place on users welfare. Zerbe (2001b) shows that no failure of PCT will occur where $\alpha > 1$.

He also shows that α is greater than 1. Redistribution is a public good (or bad). The term α is not the value that an altruist gives to the users income which I assume will always be less than 1. Rather it is the summation of the weight over all affected altruists. If 160 altruists are charged $1.00 each to transfer $160 to the users they will value each dollar transferred by some percentage less than 1. If this is for example 10 percent, α will be 16 and αY will be $2,560. The weight given over all individuals is the sum of each affected individual weight. This will be greater than 1 as long as the number of people times this weight is greater than one.

Milgrom's example is essentially 2 person and he assumes an α less than one. Suppose instead that α is > 1.5. It is then impossible to construct his example. For

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[25] See Zerbe (2001), "A Normative Metric for the Purchase of Moral Satisfaction"

[26] One objection to including moral sentiments may arise from these examples in which net benefits are always highest when the altruists pay the entire costs. Is this fair? Fairness is also a moral sentiment and there is no reason to assume that its incorporation will result in results that are less fair than current practice.

example, if the cost of the project in Milgroms' example is $160 and α is say greater than 1.7, then both users and altruists gain so that the PCT does not arise.

5.3 KH Does Not Pass the Potential Compensation Test

Moreover, using KH itself does not assure passing the PCT. The standard benefit-cost test, the Kaldor test, sums the compensating variations (CV's). For almost twenty years it has been known that a positive sum of CV's is a necessary but not a sufficient condition for the passage of a compensation test (Boadway and Bruce, 1984). So projects evaluated according to the traditional criterion may not pass the compensation test. Symmetrically the Hicks' test, the sum of equivalent variations (EV's), is a sufficient but not a necessary condition for passage of such a test. To use the Hicks' test will result in rejection of projects that do pass the compensation test. KH is then an imperfect guide to passage of compensation tests.

More importantly, Baker (1980, p.939) has pointed out a more interesting and legally relevant failure of the KH to pass a PCT. He notes that when rights are in dispute, the usual case in matters at law, the sum of the expectations of the parties will normally exceed the value of the right so that no potential compensation is possible. For example, suppose a piece of property worth $120 to Ronald and $100 to Richard is in dispute between Richard and Ronald but each believe with 80% percent probability that they own the property. The total value of expectations is $176 and the winner could not in principle compensate the loser. If the property is awarded to Ronald, he has a gain of $24 and Richard a loss of $80. There is no gain from which to potentially compensate Richard. As long as the sum of expected values is greater than the actual value the project can not pass the PCT. The inability to determine the efficient allocation is an indictment of the PCT but not of a variant of KH that abandons the test.[27]

5.4 Weights

Quiggin (1997) notes that giving people credit for altruistic sentiments means giving them additional weight in a social welfare function. The benefit-cost analysis would involve "the application of unequal weights to different individuals depending on

[27] A move from a legal regime that does not use (KH or KHZ) efficiency as a rule for legal decision to one that does would pass the potential compensation test, For example a rule that

the extent to which they are objects of altruistic concern. . . .Yet benefit-cost analysis is based on the idea that benefits should count equally, no matter to whom they accrue (1997, p. 149)."

I would say rather that the assumption in benefit-cost analysis is that the marginal utility of income is the same for all. The adoption of the assumption of equal marginal utilities of income as part of the Kaldor-Hicks criteria arose to avoid interpersonal comparisons. Unequal weights that arise from altruism do not violate this assumption. When the demand for oranges increases, oranges receive more weight in a benefit-cost analysis that concerns oranges but this is no different from the increased weight received by the object of moral concern when the demand for moral satisfaction increases. Since the weights arise from WTP's, that is endogenously, they are as other goods.

5.6 Purely Redistributive Policies

Quiggin correctly points out that the adoption of an aggregate WTP-WTA criterion results in the inclusion of purely redistributive projects. He then notes the objection that benefit-cost analysis is rarely applied to purely distributive projects. This is true but as Quiggin notes, and as I noted earlier (1991), such inclusion can improve benefit-cost and policy analysis and is required by any criteria based on aggregate WTP-WTA such as KHZ. If our standard is usefulness and acceptability, historical practice is a weak reason to fail to adapt.

The KH criteria arose out of discussions among prominent British economists during the late 1930's.[28] Before this time it was generally assumed that each individual had an "equal capacity for enjoyment" and that gains and losses among different individuals could be directly compared (Mishan, 1981, pp.120-121; Hammond, 1985, p. 406). Robbins (1932, 1938), disturbed this view by arguing that interpersonal comparisons of utility were unscientific. Economists accepted this and attempted to develop a welfare measure that would avoid interpersonal comparisons and which was more broadly applicable than Pareto efficiency. Kaldor (1939, pp. 549-550) acknowledged Robbins' (1938, p. 640) point about the inability to make interpersonal

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inefficiently awarded the property to Richard would result in a loss of $120 instead of just $100 so there would be a net social WTP of $20 to move to a regime that used an efficiency criteria.

[28] These are: Robbins, Hicks, Kaldor, and Harrod, all writing in the *Economic Journal.*

utility comparisons on any scientific basis, but suggested it could be made irrelevant. He suggested that where a policy led to an increase in aggregate real income;

> . . .the economist's case for the policy is quite unaffected by the question of the comparability of individual satisfaction, since in all such cases it is possible to make everybody better off than before, or at any rate to make some people better off without making anybody worse off.

Kaldor goes on to note (1939, p. 550) that whether such compensation should take place "is a political question on which the economist, qua economist, could hardly pronounce an opinion."

Thus, it came to be thought that including considerations of the income distribution or of compensation would involve interpersonal comparisons, that such comparisons could be avoided by excluding considerations of compensation or of the income distribution, and that the measure of efficiency could be made more scientific. Yet, in their desire to avoid interpersonal comparisons, economists failed to make their analysis more scientific and instead created additional problems. First, any measure of efficiency that is normative is based on moral assumptions. It can only be scientific in the sense of being consistently applied. Second, the test simply assumes that all individuals' gains and losses are to be treated equally and receive a weight of one and that any change in these weights should be made by politicians or non-economists. So there exists within the criteria interpersonal comparisons. Yet let us suppose that giving a weight of one and leaving further value judgments to decision-makers does have an appeal of impartiality. To include compensation or income distribution considerations does not diminish this impartiality nor require any other weight than equal weight for individuals values. Ask yourself if there are cases in which one would be willing to pay to affect some degree of compensation for the losses of others. Since the answer for some will be yes, than the enactment of compensation is itself an economic good. There will be a WTP or WTA for the purchase of this good. These WTP and WTA measures will receive a weight of one across different individuals just as is done for other goods. Thus, to include compensation or changes in income distribution as economic goods requires no interpersonal comparisons except the requirement already a part of KH to treat all equally.

5.7 Sectarian Preferences or Immoral Sentiments

Moral sentiments can be negative as well as positive. Quiggin notes, "the unattractive policy implications of this conclusion may be illustrated by the case when some individuals have sectarian preferences, characterized by altruism toward members of the their own racial or religious group and zero or negative altruistic WTP for others (Quiggin, 1997, p.151)." It is at least ironic that the most extended and harshest criticisms of economic efficiency outside the profession are its failure to consider moral sentiments. Elsewhere (1998) I have argued that benefit-cost analysis should take preferences as they are, and have considered the implications at length (Zerbe, 1998, 2001a). This sort of problem is considered extensively in the context of criticism of utilitarianism or of benefit-cost analysis at length in the philosophy and legal literature (Dworkin (1980, 1986), Posner (1981, Smart & Williams, 1973). But this sort of problem does not arise necessarily from moral sentiments but just from "bad utility", that is from values at variance with the norm. These issues are thus raised in considering matters unconnected with moral sentiments such as how to value goods in the hands of criminals or the WTP by consumers of illegal drugs and so forth, as well as by many problems of moral sentiments. The protection against the weight of immoral sentiments is the weight of moral sentiments. Quiggin finds this "by no means a straightforward solution." (1997, p. 151). I disagree.

First, legal rights will determine the starting point for the determination of whether a WTP or WTA measure will be used. To the extent to which existing rights grants a WTA measure as the cost of an immoral arrangement such as slavery, the costs will be very large in economic measurement.

In addition, it is reasonable to take the law determining rights, where it is clear, as furnishing information that serves as a shortcut for a weighting of values. Thus the law against theft may be taken to imply that the value of goods in the hands of the thief is zero. It is not that the thief's valuation of the stolen good is zero but that she has no right to it so that in a full analysis the WTP of those who would deny value to the thief will be greater than the value of the goods to the thief. Society has a WTP (or rather a WTA) to find theft illegal. Now when, however, one is considering whether or not theft should be

illegal then the values of criminals in this matter should be explicitly counted as the law is in question.[29]

Benefit-cost analysis is not an efficient instrument for determining the "right thing to do" nor even for determining the decision but is rather a tool for furnishing information for the decision process. To not count bad values, without, as it were, legal authorization, is to substitute values of the analyst and to dilute the reliability of the analysis.

5.8 Double Counting

McConnell (1997) suggests that whether or not existence value should be included depends on the motivation for the sentiments. Diamond and Hausman (1993) similarly show that, for the type of altruism McConnell calls non-paternalistic, to include existence value is to double count. This appears to be a mistaken interpretation. What these authors have shown instead is that the size of existence value will depend in particular on the availability of substitutes and this will vary with the type of moral sentiment.[30] Existence values should always be included but may be close to zero in cases where substitutes are abundant.

Following McConnell (1997) suppose there are two groups, users and altruists and that users are not altruists nor altruists users. A project will be desirable when

$$W = NG_u + NG_a > 0 \qquad (1)$$

where NG_u and NG_a are the net gains to the users and altruists respectively and W represents the overall welfare gain. McConnell then shows that where one cares about the general welfare of others, (non-paternalistic altruism) the moral sentiments of the altruists, that is NG_u, should not be included so that the relevant condition is just

$$W = NG_u - Ca > 0. \qquad (2)$$

Where Ca are those costs borne by the altruists.

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[29] For more on this matter see Zerbe 1998 and 2001.

[30] Moral sentiments about others or other things may be expressed in four ways: One may care about: (1) the general positive well-being (utility) of others (love) or non-paternalistic (altruism) (2) the well being of others but believe it is promoted only by their consumption of particular goods (paternalistic love); (3) the consumption of particular goods unrelated to the well being of others; (4) the existence of particular goods regardless of use by any person.

This conclusion implicitly but mistakenly assumes that moral satisfaction may be purchased at no cost other than the money transferred. In calculating WTP from compensated demand functions, the relevant expenditure functions are a function of a vector of prices of substitute and complementary goods. Where the altruists care about the general well being of other persons defined by those persons own preferences a relevant substitution is direct compensation. Assuming direct compensation may be made at zero costs, the demand function is perfectly elastic and the existence value is zero so that McConnell's conclusion holds that existence value should be ignored.

But perfect substitutes are rarely available. In general the existence value for the altruists will be the cost of achieving the same gain to the users through the best available alternative project (say direct compensation) minus the gain to the users for the project minus the cost to the altruists of the project in question. The consumer surplus to the altruists will be limited by the costs of carrying out compensation or by the extent of their altruism. Suppose the relevant alternative is the direct transfer of cash. In transferring cash to these consumers there will be a loss due to the costs of determining the injured, the extent of injury, and the costs of carrying out the actual transfer. We will call this cost ϕ. Existence value will then equal:

$$NG_a = NG_u/(1-\phi) - NG_u - C_a = NG_u\,\phi/(1-\phi) - C_a \qquad (3)$$

Where C_a is the portion of the project's costs borne by the altruists.

The total value of the project will be the net gain to the users plus the existence value, or

$$W = NG_u/(1-\phi) - C_a \qquad (4)$$

When cost of providing a substitute good, ϕ, is zero, equation 4 reduces to McConnell's condition shown above in equation 2.

Where ϕ is greater than 1, there is no possibility of gaining value from a cash transfer. In this case substitute projects are not available so the existence value is given by the altruists willingness to pay, usually called the warm glow parameter, times the net gain. If α is the aggregate warm glow parameter, the net gain to the altruists will be αNG_u. In general the existence value can never be greater than the smaller of αNG and

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These cases can be discussed simply on the basis of the extent to which substitutes exist for the

$NG_u[\phi/(1-\phi)]$. The total value of the project will be the net gains to the users plus the existence value. This will be the smaller of

$$= NG_u/(1-\phi) - C_a \qquad (5)$$

$$NG_u + \alpha NG_u - C_a = NG(1+\alpha) - C_a$$

The fact is that existence value should always be considered and should be included when it can be measured but that in those rare cases where perfect substitutes are available it will be zero. It is easy to see also that when the cost parameter is high, for example greater than 1, and the number of altruists large, existence value can be huge.

5.9 Measurement

One may legitimately point to problems in measuring moral sentiments. The courts have denied standing to sue in certain environmental cases in which moral sentiments were at issue and have generally disallowed claims based on sentimental values or emotional distress. I suggest these exemptions are due to costs of measurement.

The distinction among individuals and among sentiments that needs to be drawn, both in law and in economics, is between values that are reasonably measurable and those that are not. By reasonably measurable I mean measured sufficiently for the purposes at hand. Consider the value of property that the government proposes to take. The value of the property to the owner is measured as its market value both in law and in economics (Posner 1986). In principle, however, the correct economic measure, as with any loss, is the owner's WTA. As a practical matter this will be difficult to determine.[31] To offer WTA measures will encourage holdup and unverifiable assertions of value. Thus, the panel of experts (Arrow et al, 1993, p. 4601-4614) suggests that the "willingness to pay format should be used instead of the compensation required because the former is the conservative choice" (p. 4608), and this is the rule that is followed in practice.[32] It is arguably correct that the WTP measure should be used as a matter of practicality, not because it is the conservative choice, but because measurement problems are liable to be more severe for the WTA.

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good in question.

[31] The market value would be a lower bound on the WTA, because if the WTA was below market value, the current owner would have sold.

[32] See also Arrow 1996.

Measurement considerations, however, do not justify excluding moral sentiments as a class in principle. Such sentiments are not necessarily unmeasurable. For practical considerations measurement is needed only to the extent relevant for policy decision and this need not be full or very exact measurement. For environmental goods, contingent valuation studies have been used to determine values that often involve moral sentiments, as in the case of existence values. These can be applied also to other values such as the value of compensating those who suffer a project's costs. Harberger (1978) has suggested a defensible method of determining the value of moral satisfaction that is consistent with traditional benefit-cost valuations in situations with income distribution changes where there are available perfect substitutes. The maximum value of a change is limited to the costs of achieving the same change by the most efficient alternative mechanism.

6.0 Advantages of Inclusion of Moral Sentiments

6.1 The Analysis Of Legal Entitlement

To analyze the example of Ronald and Richard in the previous example under KHZ first consider legal rights. Suppose first that legal rights are clear and that Ronald in fact legally owns the property so that Richard's claim is mistaken or fraudulent. An analysis built on legal rights will then find that the award of the property to Ronald is legally correct and is economically efficient. There will be no gain nor loss except for transactions costs. The decision to reaffirm Ronald's legal right is worthwhile as long as the transactions costs are less than the $120 value to Ronald. That is, if no legal determination of rights occurs, the loss is $120. The decision to affirm Richard's right is justified under the KHZ measure but is not, arguably, under KH.

Suppose instead that the ownership right to property is unclear, and that both parties have a convincing prima facie claim. They each have a degree of economic or what may be better called, psychological ownership which represents their expectations.

Let P_R represent the ownership expectations of Ronald and P_r represent the ownership expectations of Richard. The gains to R and r are measured by the WTP and their losses by the WTA. The gain to R is R's WTA weighted by the extent to which he does have economic (psychological) ownership. Similarly for r, the right goes to R when:

$$WTP_R(1- P_R) + WTA_R(P_R) > WTP_r(1- P_r) + WTA_r(P_r) \quad (4)$$

Where P_R and P_r represent expectations expected as probabilities. Equation 1 can be expressed as:

$$WTP_R + (WTA_R - WTP_{R)} (P_R) > WTP_r + (P_r)(WTA_r - WTP_r) \quad (5)$$

This is an interesting result as it says that the *divergence* between the WTA and WTP is relevant to the decision concerning whom should receive the entitlement. In a contest between two parties over an unclear entitlement in which the first party has the higher WTP but the second is willing to fight to the death for it, equation 2 suggests that the one most willing to fight should get it.

Suppose Ronald's WTA is $140 and Richard's is $200, while the WTP's are $120 and $100 as before and ownership remains at 80% probability for each person. The value to Ronald of receiving good title is his WTP of $120 plus 80% of the divergence between is WTA and WTP of $120, for a total of $136. The value to Richard is $180 so, even though Ronald has the higher WTP, the entitlement should go to Richard. Where there is no prior psychological ownership, equation 2 reduces to

$$WTP_R > WTP_r \quad (8)$$

That is, the right should be auctioned off.

When the economic ownership of both R and r are 100%, then (2) reduces to:

$$WTA_R > WTA_r \quad (9)$$

When R has the right and r does not the condition is just:

$$WTA_R > WTA_r \quad (10)$$

Elsewhere I (2001a) show the value of these legal rules. They follow naturally from an aggregate WTP-WTA formulation based on rights but are difficult to justify based on KH.

6.2 An Aggregate Welfare Measure Dominates KH

The KHZ test dominates KH with respect to the PCT test. I ask would the move from KH to KHZ itself, pass the PCT test. The answer is yes. First, consider the problem suggested by Baker in which KH fails PCT when uncertain rights are considered. Suppose that no moral sentiments are involved. KHZ counts efficiency gains ignored by KH so there is a net positive WTP to move from KH to KHZ, and the PCT is satisfied.

Similarly, when one considers moral sentiments there will be a net positive WTP to move from KH to KHZ as long as the *sum* of the value that all others attach to a wealth transfer from altruists to users is greater than 1 and the waste from the transfer is less than 100%. The sum is found by multiplying the number of altruists by the weight each gives to the value of a transfer to a user. If each altruist gives a weight of say 1/10 of one cent, than the sum of the altruistic value over all altruists is the number of altruists, N, times the .1 cent. When N is greater than 1000, the value of a dollar of wealth transferred would be greater than 1. When this issue is considered for society at large, N will be large, and a decision by society to move from a KH to a KHZ test would pass the PCT. Milgrom's example is essentially 2 person and he assumes an α less than one. Suppose instead that α is > 1.5. It is then impossible to construct the Milgrom example so that there are losers as long as the transfer is from altruists to users and the costs are less than αY. If, for example, the costs are \$160 and α is 1.7 the project which transferred \$160 to users at a cost to altruists of \$165 would produce a net benefit of \$272 to the altruists and of \$160 to the users.

Finally, it is easy to show that when moral sentiments are ignored, one may choose a project which passes PCT, not counting moral sentiments, but whose NPV is negative, counting moral sentiments, over one which is has a positive NPV even if it does not involve moral sentiments. This does not seem a good choice.

6.3 Are Projects with Compensation Different?

No criticism of the KH criteria is more widespread than that they neglect distributional effects. The views of the former Solicitor General of the United States, Charles Fried (1978, p. 93f) are representative. He sees the economic analysis of rights as using a concept of efficiency that is removed from distributional questions. He holds that economic analysis does not consider whether the distribution is fair or just. He then concludes from this that the fact that a given outcome is efficient does not give it "any privileged claim to our approbation" (1978, p. 94). The view that efficiency is unconcerned with distributional issues, or with fairness, (e.g. 1984) is widespread in both law and economics. Economists generally pay little attention to criticisms from outside the profession. If acceptability of our criteria is important, however, this is a mistake.

Consider the following example:

I give you the choice between 2 projects. One involves adding an additional bridge to abate traffic congestion around Seattle. No moral sentiments are involved. The other improves access to the Warm Springs Indian Reservation also around Seattle. The improved access will increase jobs on the reservation where unemployment is now running at 35%. The residents of Seattle care about the Native Americans on the reservation: in particular they gain half the net gain in moral satisfaction of the Native Americans. The residents also gain from their own improved access to the reservation. Their WTP is $50 plus one-half of the gains to the Native Americans. The Native American WTP is just $100. Table 1 below compares the two projects **when moral sentiments are ignored**.

Table 1

BRIDGE PROJECT		NATIVE AMERICAN PROJECT	
Benefits	$149	Benefits	$150
Costs	$140	Costs	$140
NPV	+ 9	NPV	+10

Under KH and PC the Native American project is superior since moral sentiments can not be counted. Suppose, however that the actual breakdown of benefits and costs for the NA project is as shown below in Table 2.

Table 2

NATIVE AMERICAN PROJECT					
	Native Americans	Altruists (Seattle Residents) [**Not** Counting Moral Sentiments]	Altruists (Seattle Residents) [**Counting** Moral Sentiments]	Total Not Count. Moral Sent.	Total Count. Moral Sent
Benefits	$100	$50	$30	$150	$130
Costs	-140	0	0	-140	-140
Total	-40	50	30	+10	-10

The Native American project is actually a very bad idea for the Native American population since they bear all of the costs and have a loss from it. Thus, in the example

at hand, to exclude moral sentiment leads to acceptance of an inferior project that offends moral sentiment. Moreover to include moral sentiments makes it clear that with a different distribution of costs the Native American project is superior to either of the firsts choices as shown below:

Table 3

NATIVE AMERICAN PROJECT WITH DIFFERENT DISTRIBUTION OF COSTS			
	Native Americans	Altruists (Seattle Residents) [**Counting** Moral Sentiments	Total Counting Moral Sentiments
Benefits	$100	$100	$200
Costs	0	140	140
Total	+100	-40	+60

To ignore moral sentiments is to ignore information that affects welfare. As I have shown, to ignore moral sentiments can lead to the acceptance of projects that reduce welfare although they pass the PCT and to acceptance of inferior over superior projects.

Any efficiency criteria will find its justification in its usefulness and its acceptability.[33] KH has been reasonably acceptable because it has the potential to increase wealth for all parties. Some parties will gain from a project and lose from other projects. As long as gains exceed losses all parties can gain over many projects. Yet this moral justification for KH applies a fortiori to a measure that includes moral sentiments. That is society will be better off and would pay a positive amount to have a regime that included moral sentiments in benefit-cost analysis decision making over one that did not.

6.3.1 The Municipal Incinerator

Here, I am concerned with the analysis of two projects, identical except that one provides compensation in the form of mitigation and the other does not. Consider a benefit-cost analysis of the efficient location of a municipal incinerator. The decision to

[33] One objection to including moral sentiments may arise from these examples in which net benefits are always highest when the altruists pay the entire costs. Is this fair? Fairness is also a moral sentiment and there is no reason to assume that its incorporation will result in results that are less fair than current practice.

locate the incinerator in the poorest neighborhood on the grounds of economic efficiency will typically raise issues of environmental justice. It may then be said that KH leads to an unjust result. A typical simplified analysis may look as follows.

Table 4. A Standard Benefit-cost Analysis

	Project with No Mitigation	Project with Mitigation
Cost Of Land	$500,000	$500,000
Present Value Of Operating Costs	$100,000	$100,000
Costs Of Incinerator	$1,000,000	$1,000,000
Costs from Environmental Health Damage to Poorer Residents	$200,000	0
Costs of Preventing Environmental Health Damage	0	$200,001
Benefits (Savings From Not Using Other More Expensive Locations)	$2,000,000	$2,000,000
Total Benefits	$2,000,000	$2,000,000
Total Costs	$1,800,000	$1,800,001
Benefits - Costs	**$200,000**	**$199,999**

The standard KH benefit-cost analysis would choose the project without mitigation. But this result typically arises because the analysis has not taken into account the moral sentiments of those who care about the equity effects but are not otherwise affected. One might give standing to these sentiments of justice in Table 5 below by considering the moral objection that others have to the imposition of costs onto the poor. Such an inclusion is required by KHZ. This is shown in Table 5 where the WTP is by members of the community at large who do not live in the poorer neighborhood. The benefits are the net costs avoided by not building in the best alternative site.

Table 5: Benefits and Costs When Moral Sentiments are Included

	KHZ Analysis (no mitigation)	KHZ(with mitigation
Cost Of Land	$500,000	$500,000
Present Value Of Operating Costs	$100,000	$100,000
Costs Of Incinerator	$1,000,000	$1,000,000
Environmental Health Damage	$200,000	$200,000
Moral Harm to Current Generation	X	0
Benefits (Net Costs Avoided From Not Using Best Alternative Site	$2,000,000	$2,000,000
Total Benefits	$2,000,000	$2,000,000
Total Costs	$1,800,000 +X	$1,800,001
Benefits - Costs	**$200,000 -X**	**$199,999**

The project with mitigation will be superior as long as the moral harm is greater than $1, that is X> 1. As long as others (those not directly affected) care sufficiently about the welfare of those harmed, that is as long as they care sufficiently about environmental justice, then the project with mitigation is superior. Since these sentiments about equity are part of KHZ, they should in principle be taken into account. Hence under KHZ, a project to locate the incinerator in a poor neighborhood without mitigation of damages to those residents who will suffer is different from the same physical project when the damages are mitigated. The same conclusion applies to products with and without compensation under KHZ. That is, under KHZ but not under KH, projects that involve no mitigation or compensation, are different from ones that provide mitigation only, compensation only or some combination of mitigation and compensation. [34] These differences are obscured by the traditional analysis.

7.0 Standing and The Discount Rate Problem

In benefit-cost analysis, future benefits and costs are discounted using an interest rate referred to by economists as the discount rate. There are a number of issues in

considering the problem of discounting, particularly when discounting beyond the lives of the decision makers (Aherne, 2000). Here I are concerned with only one, the widespread criticism of the use of discounting in benefit-cost analysis on the grounds that it is unethical to discount the benefits to be gained and the costs to be borne by future generations (e.g., Parfit 1992, 1994; Schultze et al 1981). It is said that the utility of future generations should count equally with the utility of the present generation (Schultze et al. 1981; Pearce 1989). For example, Parfit (1992, p. 86) argues that "the moral importance of future events does not decline at n % per year. . . . ." This sort of criticism has been noted with favor by economists (e. g. Schultze et al 1981; Pearce et al 1989), lawyers (Plater et al. 1998, pp. 107-109), and philosophers (Parfit 1992, 1994). Similarly Brown (1991) notes that ". . .discounting imperils the future by undervaluing it.."[35]

Consider the following example of the sort of problem with which these critics are concerned:

> A nuclear project is being considered that produces benefits of about $65 billion at a cost of about $30 billion but, in addition, produces a toxic time-bomb that will cause enormous environmental costs sometime in the far future.[36] (I remove questions of uncertainty from this example). Suppose that current waste-disposal technology will contain this waste for 500 years after which it escapes its sarcophagus but will remain toxic for 10,000 years. The estimated cost of the future environmental damage in constant, year 2000 dollars will be about $16 trillion, about the size of the current U. S. GDP. The present value of these damages discounted at a 3 % real social rate of time preference (SRTP), assuming the waste escapes at the first opportunity 500 years from now, is about $12 million, not insignificant, but far far less than the damage that will occur in 500

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[34] Elsewhere Zerbe (1998) has shown that moral sentiments concerning the justice of who pays will also affect the economic analysis of a project's viability.

[35] Shrader-Frechette has argued that both the decision and the process by which it is made require informed consent. This is not possible when decisions affect future generations. See Ahearne (2000).

[36] Cases in which this sort of issue has risen include Baltimore Gas & Electric v. Natural Resources Defense Council, Inc. 462 U.S. 87, (1983); Pacific Gas and Electric Co et al. v.

years and far too small to affect the results of the benefit-cost analysis. Discounting these damages then results in the project going forward as the benefits are said to exceed the costs by almost $35 billion.

It is said that this project would be unfair to future generations and on this basis it is argued that the use of discount rates is immoral.

A commonly proposed solution to the problem of unethical harm to future generations is to use low, or even negative, discount rates (e.g., Schultze et al. 1981) or not to use discount rates at all (Parfit 1994). This sort of argument is, I believe, a moral plea about what our sentiments should be towards future generations, but not an effective statement about what or whether discount rates should be used. The proposed solution of using no or low discount rates is *ad hoc* and, if generally applied, will lead to other ethical problems – for example, the adoption of projects that give less benefit to both present and future generations.[37]

This argument for unacceptability is not based on the preferences of future generations, which one cannot know exactly, but on our own preferences, based on our empathy with future generations. Under KHZ one can give standing to moral sentiments about future generations as long as these can be reasonably measured. This allows a solution to the ethical dilemma of the discount rate problem that acknowledges ethical concerns as valid and seeks an ethical solution, while acknowledging the values that commend use of a discount rate. To use a discount rate below the rate at which people will trade off present for future consumption, i.e., a rate of time preference, will lead to economic inefficiency by justifying investment with insufficient returns. To use a rate that is too low attempts to cope with inequity by adjusting prices. The result is that an inequity appears to be an inefficiency.

State Energy Resources Conservation and Development Commission, 461 U.S. 190, (1991). see also 123 U. S. 45 (1999).

[37] For example, consider two projects with initial costs of $100. Project A has benefits of $150 in the first period. Project B has benefits of $150 in 100 years. With negative or sufficiently low discount rates project B is preferred. Project A however, may result in greater wealth in 100 years so that it is superior both the current generation and the 100th year generation. One may object that these future benefits to the 100th year generation associated with project A that arise from reinvestment of proceeds need to be counted. This is not required, however, where the discount rate is equal to the growth rate and only serves to show the peculiar adjustments that would need to be used to get the best decisions with too low or negative discount rates.

The economic efficiency of the project will then depend on the sentiments of the present generation. For example, the present generation may feel that future generations should be free of problems caused by the current generation. Evidence from Kunreuther and Easterling (1992, p. 255) and from Svenson and Karlsson (1989) suggests that, at least as regards nuclear waste disposal, individuals tend to place a high weight on future consequences. On the other hand, the present generation may find that compensation for environmental harm is unwarranted, given a likelihood that future generations will be wealthier than the present one.

If the law grants those with moral objection to future damage a right (legal standing) to veto the project, the economic reference point incorporates this right so that the measure of the value of failing to provide compensation would be through the WTA. If there is no such right then the provision of compensation is a gain for those others who desire it and the correct measure is the WTP.

7.1 Discount Rate Example

Table 6 shows the KHZ solution to the discount rate problem. Where the current generation cares about compensation, the relevant choice set includes a project A, with compensation and project B, without compensation. For project B there will be a WTP (or WTA) associated with loss to the current generation from providing no compensation. This amount is the X in Table 6 and it is entered as a loss.[38] Where people care nothing about providing compensation, the same two projects now labeled C and D should be considered. In this case harm to future generations should not be counted at all—to have one's values counted is the issue of economic and legal standing.[39]

Table 6: A Discount Rate Problem Resolved

	When People Care About Harming Future Generations		**When People Don't Care About Harming Future Generations**	
	A The Project **With** Compensation (billions)	B The Project **Without** Compensation (billions)	C The Project **With** Compensation (billions)	D The Project **Without** Compensation (billions)

[38] The X might be determined by a contingent valuation survey.
[39] But see Whittington and Macrae (1986).

Present Value of Benefits	$65	$65	$65	$65
Present Value of Costs	-$30	-$30	-$30	-$30
Present Value of Harm to Future Generations	-$0	-$0.012	-$0	$0.00 (no standing)
Present Value of Compensation for Future Generations	-$0.012	-$0	-$0.012	-$0
Present Value of Ethical Harm to Present Generation	0	-X	0	0
Net Present Value (billions)	**$34.988**	**$34.988 -X**	**$34.988**	[3] **$35**

The KH value of the project is $34.988 billion whether or not future generations are compensated.[40] KHZ departs from KH in this respect in that it requires us to consider four projects, one in which future generations are compensated and one in which they are not, and one in which the future generations have standing to have their values counted and one in which they do not. An interesting result of Table 6 is that when the current generation cares about compensating the future generation, the project with compensation, project A, is always superior to the project without compensation, project B. This is true even if the amount the current generation is willing to provide for compensation is less than the amount required, ignoring transactions costs. For compensation itself will just be a transfer, and its failure will generate some harm for the current generation as long as they care about compensation.

To keep Table 6 manageable assume (reasonably) that the future generation fails to have standing only when the current generation does not care about the future generation. In project D the damage estimates to the future generation are excluded so discounting does not arise. In project C the future damage is counted but there is no loss of moral satisfaction associated with the failure to compensate the future generation.

[40] For a discussion of the practicality of compensation see Lind (1999)

Table 6 is simplified in that it does not take into account the administrative costs of providing the compensation. The project with compensation will entail additional administrative costs. The project with compensation will be superior as long as X, the value to the current generation of providing compensation exceeds the administrative costs A. That is the project with compensation is superior as long as X>A.

8.0 The Issue of Compensation

Compensation may be made by mitigation, replacement, restoration, or by reparations. Suppose first that compensation of the future generation is possible through mitigation. Let $X(\overline{D}-C)$ be the present value of the moral damage the current generation suffers from knowing that future generations will suffer a loss with present value, damages, D, for which they are provided compensation C. The effect of compensation C is to provide moral satisfaction. Moral damage or satisfaction may be general or particular. As noted earlier the more particular the higher will be existence value, ceteris paribus. I make the following assumptions:

$$X(D-0) = X(D) = 0$$

$$X'(D-C) < 0, \quad C < D$$

$$X''(D-C) > 0, \quad C < D$$

$$A(0) > 0$$
$$A'(C) > 0$$
$$A''(C) < 0$$

The assumptions state first that satisfaction achieved by providing zero compensation is zero and that the value of the satisfaction from compensating the future generation rises as the level of compensation rises, but at a decreasing rate. Administrative costs involve some fixed costs even with zero compensation and marginal administrative costs increase with the level of compensation but at a decreasing rate. I assume that the moral damage suffered by the current generation may also be considered as potential gain from compensation.[41] If the present value of the damage done by a project is $\overline{D}$, then the

[41] A potentially important difference here is that one view of the issue may represent WTP while the other represents WTA, but this is left for future investigation.

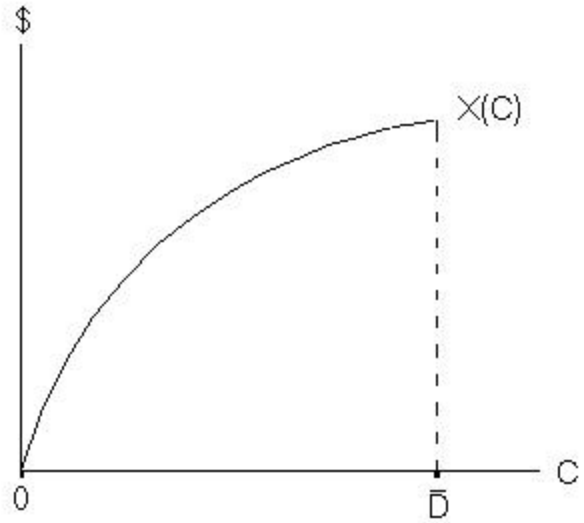
moral benefit of compensation may be thought of as a function of the level of compensation, C, given $\overline{D}$.[42]

For the project to be better than the status quo, it must also be the case that NPV is positive. Let NPV_o be the net present value without considering harm to future generations. When the future generation has standing so that the estimate of their damage is counted and the current generation has standing for their moral harm, then, the compensated net present value, NPV_c, will be:

$$NPV_c = NPV_o - D - A(C) - (X(\overline{D} - C)) \qquad (11)$$

That is, the net present value including consideration of the harm to future generations is equal to the NPV without such consideration, less the damage to future generations, the administrative cost of compensation and the residual damage to the moral sentiments of the current generation, $X(\overline{D} - C)$.[43] This will be positive as long as $NPV_o > (D + A(C) + X(\overline{D} - C))$. The optimum level of C will be found where NPV is at a maximum. This

[42] Looking at the issue from this point of view yields the following diagram:



[43] The compensation provided by the current generation is a transfer to the future generation and thus would enter equation 2 as both a positive and a negative were it to be included. So that it would not affect the result expressed in equation 2.

level of compensation, C*, will occur where A'(C) = X'($\overline{D}$ - C) subject to the usual second order conditions.

The project with compensation will be preferred to the project without compensation as long as

$$X(D) > A(C^*) + X(\overline{D}-C^*) \quad (12)$$

for some positive value of C. That is the moral harm from no compensation is greater than the administrative costs of compensation plus the residual moral harm after compensation.

NPV_c will be maximized at a level of compensation C* which may be zero, representing no compensation, $\overline{D}$, representing complete compensation, or some intermediate level, representing partial compensation. Consider three cases. The first is where zero compensation is optimal. This will result if X(C) < A(C) for all values of C. The costs of compensating a future generation outweigh the benefits, C=0 and, assuming no infrastructure for compensation has been created (so that A(0) = 0),

$$NPV_c = NPV_0 - \overline{D} - X(\overline{D}-0) \quad (13)$$

If infrastructure for compensation has already been established, zero compensation will be optimal if X(C*) < A(C*) – A(0). It is no surprise that if the infrastructure for compensation is in place, it is more likely that compensation will take place. This is a non-trivial matter when considering the potential difficulties in compensating people living far in the future

The second case to consider is where there is full compensation for the future damage, so that C* = $\overline{D}$. This will result if the marginal cost of increasing compensation from C to $\overline{D}$ is less than the marginal reduction in the damage to moral sentiments, subject to second order conditions which require that the NPV be positive.
In this case,

$$NPV_c = NPV_0 - A(\overline{D}) - X(\overline{D}-C) \text{ or}$$
$$NPV_c = NPV_0 - A(\overline{D}) \quad (14)$$

The final term, X($\overline{D}$ – C) disappears here as C = $\overline{D}$ and there is no residual damage to the moral sentiments of the current generation. It might be that there is some discontinuous benefit from achieving full compensation relative to that achieved by, say, 99% compensation.[44] This possibility would make it more likely that the optimal compensation was 100%. The net value of full compensation may be greater than partial compensation.

Some insight is gained into the conditions necessary for complete compensation by considering the derivative of NPV_c at some level C_D near $\overline{D}$.

$$\left.\frac{dNPV_c}{dC}\right|_{C=C_D} = -1 - AC'(C_D) + X'(C_D) \tag{15}$$

If increasing compensation from C_D to $\overline{D}$ will increase a project's NPV this derivative must be positive. This suggests, if AC′>0, that X′(C) must be positive as C approaches D, or that full compensation offers some important moral advantage over, say, 99% compensation so that a discontinuous increase in X(C) occurs in moving from (100-ε)% compensation to 100% compensation.

The third case is where some intermediate level of compensation, C*, is optimal. This situation may be seen as an internal solution to the problem

$$\begin{aligned} &\max_C NPV_C = NPV_0 - C - A(C) - (X(D) - X(C)) \\ &\frac{d}{dC} = -1 - A'(C) + X'(C) = 0 \\ &X'(C) = 1 + A'(C) \end{aligned} \tag{16}$$

In addition to this first order condition, the second order condition for maximization requires that $|X''(C)| > |A''(C)|$ if both second derivatives are negative, or that the

[44] Indeed, there need be nothing special about 100%. Such a discontinuity could occur at any level providing some sort of moralistic focal point.

marginal change in moral satisfaction from an additional dollar of compensation fall faster than the marginal cost of administering compensation. If it is assumed that X(0)=0 and A(0)>0, X(C) must be sufficiently large for small values of C to overcome the gap before turning sharply toward horizontal. This is shown in Figure 1 below:

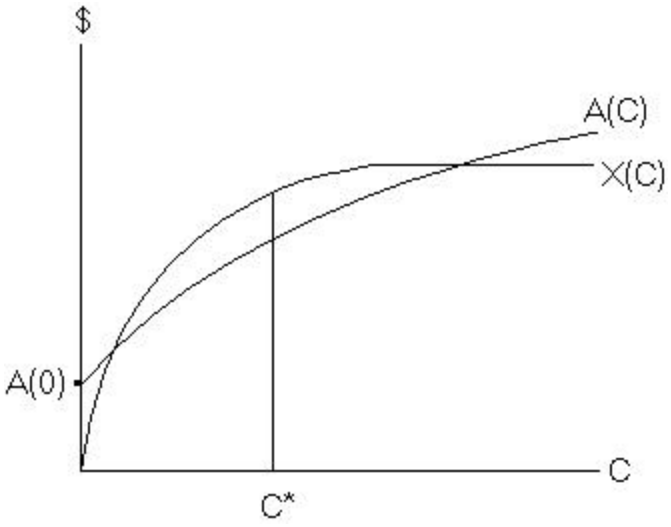


Figure 1: The Purchase of Moral Satisfaction

If an internal solution is optimal, the NPV of the project will be

$$NPV_c = NPV_0 - C^* - A(C^*) - X(\overline{D} - C^*) \qquad (17)$$

Comparison of these three cases leads to the observations that:

1. If $X(\overline{D}) < A(\overline{D})$, no compensation is preferred to full compensation. That is, if the cost of full compensation outweighs the benefits to the moral sentiments of the current generation, then there should be no compensation.
2. If $A(C) > X(C)$ for all C, no compensation is preferred to any compensation.
3. If $X'(C) > A'(C)$ for all values of C, then full compensation is preferred, subject to the second order requirement that the NPV_c is positive.

Returning to Table 6, Project A will be superior to B as long as people care sufficiently about the future generation. Where people do not care, the project without compensation will always be superior.[45] Note that one is not required to determine the magnitude of the WTP of the current generation to compensate future generations. One is instead only required to determine that there exists some WTP for it that is greater than either the administrative costs of providing the compensation or the value of the damage itself.[46]

The moral issue is not the discount rate or the use of benefit-cost analysis, but what people care about. Ethical concerns are better incorporated directly. This keeps the accounting clear.

8.1 When Compensation is Not Possible

There are three reasons compensation may not be possible: (1) the amount of compensation can not be reasonably determined (2) the injury is not compensable and (3) there is no method to provide compensation even if the amount is known. When compensation can not be provided, the moral sentiments of others remain important. Thus in the nuclear waste example compensation may not be possible because no institution can be devised with reasonable guarantees of being able to provide it in the far future. In this case the moral harm from the project which might be considerable should be included as part of the benefit-cost analysis. Colleagues tell us, for example, that in the benefit-cost analyses of clean up of nuclear wastes at Hanford, WA and Rocky Flats, CO they did not include such moral harm and recommended short term fixes rather than more permanent clean up.[47]

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[45] It would be superior as long as future individuals have no standing. See Whittington and Macrae (1986).

[46] One might ask in arriving at the analysis of Table 6 what has been discounted? When compensation is possible, the discount rate used to determine the size of the compensation investment today to compensate in the future will depend on the estimate of what rate of return can be obtained not the time preference rate. The damage to future generations, or more accurately our assessment of this damage, has been discounted. The sentiments of the current generation if they prevail for a lifetime are discounted over the lifetime of the current generation. The administrative costs of providing a mechanism for compensation have been discounted as has the cost of compensation.

[47] Conversation with Howard McCurdy of American University, Steve Tarlton of the Colorado Department of Public and Environmental Health, Max Powers of the Department of Ecology of the State of Washington, and Elaine Faustman of the University of Washington.

In this case it is not the amount of compensation actually required for those injured that is directly relevant here. Rather, it is the amount of compensation the current generation thinks is correct. This is information that is likely to be obtainable at least in principle. (In the absence of good information about actual damage, however, people may have no opinion.) Even when compensation is not possible, it is generally possible through contingent valuation survey to determine at least in principle the WTP or WTA of "others" who have moral sentiments about the project.

10.0 Conclusion

Ronald Coase (1988) pointed out that law and economics can involve two different sort of tasks: economists taking into account institutional structures in economic analysis or economists using economic theory to consider what efficient law would be. He thought the former was the more neglected area. This paper combines economic reasoning with institutional considerations. Economics and law inform each other. Normative economic analysis requires a grounding in rights; yet at the margin such analysis can also suggest additional rights (Heyne 1988). This is nowhere better illustrated than in environmental law and economics.

The conclusion is that moral sentiments should be included in normative economic analysis as with all sentiments, limited as a practical matter by the ability to appropriately measure them. That is moral sentiments have standing subject to appropriate measurement.

This will only happen when the profession abandons the KH criteria in favor of one that drops the potential compensation criteria. Milgrom's argument for ignoring moral sentiments exposes the failures of KH analysis. I suggest a modification of KH efficiency that, inter alia, treats all goods for which there is a WTP or WTA as economic goods. Goods not considered are simply those whose value can not be reasonably measured. I suggest that the KH approach lends itself to the introduction of the concept of economic standing that combines valuation with a specification of legal rights. I suggest that this approach distinguishes between a project which provides compensation and one that does not. I suggest further that it illuminates the issue of discounting benefits and costs occurring in the far future.

Among the implications of our approach is that existence value, as a type of moral sentiment, should be included in economic valuation. McConnell's argument that existence value should not be included in the case of non-paternal altruism arises because he fails to note that moral sentiment can be purchased in various markets. Thus its value will be limited by the administrative costs of effecting transfers by the most efficient means. The distinctions that McConnell raises in general are best thought of as a matter of the extent of substitutes for the goods in question.

As a practical matter it is not efficient for benefit-cost analysis to consider all relevant goods and affected individuals so any analysis will fail to meet the requirements of theoretical perfection whether for KH or KHZ. Yet, in doing practical analysis it is always desirable to have the better theoretical template in mind so that decisions about practice can be well considered and not ad hoc. Our purpose has been to contribute to this template.

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