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March, 2007

The Legal Foundation of Cost-Benefit Analysis

Richard O. Zerbe, University of Washington

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THE LEGAL FOUNDATION OF COST-BENEFIT ANALYSIS

Richard O. Zerbe, Jr.
The Evans School of Public Affairs
And
The Law School

The University of Washington

Box 353055
Seattle, WA 98195

206-616-5470
zerbe@u.washington.edu
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A LEGAL FOUNDATION FOR COST-BENEFIT ANALYSIS

TUESDAY, DECEMBER 15, 2015

Richard O. Zerbe, Jr.*
University of Washington

I. INTRODUCTION

The foundations of cost-benefit analysis (CBA) are legal,¹ and this understanding provides a different view of it. This paper proposes to provide a fully realized foundation for CBA. It creates a distinction between an approach based on such a foundation, which I refer to as benefit cost-analysis (BCA) as a subcategory of mainstream CBA.² Such a foundation rests on legal rights and also amends the failure of CBA to include moral sentiments, which arose in the attempt to avoid interpersonal comparisons. This amended legal foundation largely vitiates the extreme positions that have come to dominate thinking about CBA.³ CBA is increasingly

* I thank the John D. and Catherine T. MacArthur Foundation, which has provided support for the Virtual Center for Cost-Benefit Analysis and for this paper. William Talbott, Michael Blake and William Stoeckel made valuable suggestions. Louis Wolcher gave the paper a careful reading and offered a number of expansive and intriguing suggestions. I have attempted to take advantage of the suggestions offered but all responsibility remains mine. Shayna Higa and Brant Paulson helped with footnotes and with suggestions.


² Normally BCA and CBA are used interchangeably.

³ See the fine article by Kysar and Salzman’s offering an analysis of the tendency towards intellectual tribalism in law. See Douglas Kysar & James Salzman, Environmental Tribalism, 87 MINN. L. R. 1099 (2002-2003). One reason for this tendency that they do not offer, but which I observe, is the legal tendency toward advocacy, rather than analysis. In extensive experience over many years, I see this difference between law students and public policy students.
questioned in the legal literature, even as it is being promoted by government practice and the economics literature, and the positions that have arisen from the ongoing debate make uncomfortable territory out of the hard-to-hold middle ground that attempts to find the proper combination of judgment and quantification.\(^4\)

The criticisms of CBA are wide-ranging, frequent and repetitious. They are embodied mainly in a legal-philosophical, academic literature and appear motivated by the increasing use of CBA in decision-making, by the encroachment of economic thinking into law, and by the absence of clearly defined foundational values for CBA. The critical literature is not, generally, aimed at improving the practice of CBA, or at identifying deficiencies of particular analyses. Rather, it critiques the foundational deficiencies of CBA, i.e., it criticizes the use of CBA itself.

The criticisms primarily concern moral and ethical limitations, though also technical ones.\(^5\) An important claim by critics is that CBA is a mechanical algorithm that is used to answer questions about what people want – the result of what Ted Porter describes as “lust after mechanical objectivity.”\(^6\) This is undoubtedly the view of some practitioners as well, who see such a claim as a virtue.\(^7\) Critics say that CBA is missing values; that it pays too little attention to “good” values such as integrity and perhaps too much attention to “bad” values such as envy;\(^8\)

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\(^5\) See RICHARD O. ZERBE JR., ECONOMIC EFFICIENCY IN LAW AND ECONOMICS 8-10 (2001) [hereinafter ZERBE, ECONOMIC EFFICIENCY].


that it is rooted in a narrow utilitarianism;\textsuperscript{9} that it uses private values where public values are relevant;\textsuperscript{10} that it favors the preferences of the rich and does not consider issues of income distribution or fairness; that it ignores transaction costs; that it is rendered useless by the Scitovsky reversal paradox;\textsuperscript{11} that in attempting to combine incommensurables in a single metric it provides an answer that is without meaning; and that in general CBA is a flawed science that deprives citizens of the opportunity to participate in democratic processes that influence resource allocation. Others believe that CBA can indeed provide useful information through sufficient refinement.\textsuperscript{12} Increasingly, practitioners include these refinements in their work and therefore tend towards what I here call a fully realized CBA.

Economists and other practitioners actually performing CBA generally ignore these criticisms for three reasons. First, the critics fail to offer viable substitutes, except for rather sketchy references to political discussion.\textsuperscript{13} The critics do not compare the results of CBA with those of alternative approaches, so they are unable to answer the question of whether CBA is better than alternatives. Second, the critics fail to address whether CBA is useful and, if it is, how it might be improved.\textsuperscript{14} This is as true of recent criticisms, such as those by Ackerman and Heinzerling, as it is of the huge volume of past criticisms. Until recently, defects found by the critics were generally unsupported by examination of actual CBAs, so it is unclear whether, as a

\textsuperscript{10} See generally ELIZABETH ANDERSON, \textit{VALUES IN ETHICS AND ECONOMICS} (1993); Sagoff, \textit{supra} note 7; John C. Smart & Bernard Williams, \textit{Utilitarianism: For and Against} (Cambridge Univ. Press, 1973).
\textsuperscript{11} See Jules L. Coleman, \textit{Efficiency, Utility and Wealth Maximization}, in \textit{MARKETS, MORALS AND THE LAW} 95-132 (1988); see also Richard S. Markovits, \textit{A Constructive Critique of the Traditional Definition and Use of the Concept of "The Effect of a Choice on Allocative (Economic) Efficiency": Why the Kaldor-Hicks Test, The Coase Theorem, and Virtually all Law-and-Economics Welfare Arguments are Wrong}, U. ILL. L. REV. 485, 512–515 (1993). Scitovsky’s original article may be found at Tibor de Scitovszky (he later changed his name to Scitovsky), \textit{A Note on Welfare Propositions in Economics}, 9 REV. ECON. STUDIES 77-88 1941
\textsuperscript{13} See Richardson, \textit{supra} note 7. \textit{See SAGOFF, supra} note 7. Many of the critics, however, are concerned with approaches to promoting a political framework for results-where, e.g. peoples' preferences can change in the course of discussion. \textit{See} Wolcher, \textit{Senseless Kindness: The Politics of CBA} 25 LAW & INEQUALITY: A JOURNAL OF THEORY AND PRACTICE 147-2022 (2007).
matter of fact, these defects exist. In addition, recent attempts by critics to examine actual studies are unconvincing, containing important errors. Not surprisingly, practitioners find little to learn from these criticisms. Without determining empirically whether or not CBA is useful, how is it possible to argue persuasively against its use? Without being provided with suggestions for improvement, why should practitioners pay attention? The criticisms fundamentally fail at a policy level because critics provide little or no information about the usefulness or the proper role, if any, for CBA and, importantly, fail to provide a viable alternative that is superior.

CBA is, however, not to be separated from political discourse so that its use raises the question of whether or not it can enhance such discussion. In this regard, the most cogent criticism is that in attempting to portray preferences, CBA makes static what is fluid. Preferences are formed out of human interaction and are not pre-existing values to be plucked from the brains of respondents. Yet, sophisticated generators of questionnaire (contingent valuation as stated preference) studies recognized that; values are created and discovered in the course of administrating questionnaires. The proponents of CBA and benefit/risk analysis maintain that the data from CBA can be used to enhance the relevant discussion. For example, Cook et al. (2007) examine the effect of giving respondents time to think about their stated choices (SC) in a survey of cholera and typhoid vaccine preferences in Hue, Vietnam. Because neither vaccine is widely available in Vietnam, they use a stated preference technique and gave

15 One exception to this is Professor Calandrillo who notes figures for the “value of life” used in benefit-cost analysis studies. Steve P. Calandrillo, Responsible Regulation: A Sensible Cost-Benefit, Risk Versus Risk Approach to Federal Health and Safety Regulation, 81 B. U. L. REV. 986–87 (2001). He then goes on to agree that it is disturbing to put a value on life but finds that doing so produces better results than not. See Hildred & Beauvais, supra note 14, at 1029.
16 See Alan Carlin, The New Challenge to Cost-Benefit Analysis, 28 REGULATION 18-32 (Fall 2005) (criticizing Ackerman, Heinzerling and Massey’s empirical analyses).
17 This is well illustrated in the exchange between Steven Kelman, Cost-Benefit Analysis: An Ethical Critique, 5 REGULATION 33-40 (1981) criticizing benefit-cost analysis and several economists replying to the criticisms in James V. Delong et al., Defending Cost-Benefit Analysis: Replies to Steven Kelman, 5 REGULATION 39 (1981).
18 This is recognized by sophisticated critics such as Wolcher, supra note 12.
19 Wolcher delivers a particularly trenchant and clear criticism along these lines. See Wolcher, supra note 13.
20 That this is often the result is my own experience in creating and presenting CBAs, but this experience is hardly definitive.
half of their respondents overnight to think about their choices to make the hypothetical valuation scenario as similar to a real-life choice situation as possible. Respondents who were given extra time made fewer choices that violated internal validity tests of utility theory, and had lower average willingness to pay (WTP), confirming a result found in similar studies in the contingent valuation literature.\textsuperscript{22}

Finally, practitioners and critics alike are unclear what they mean when they speak of CBA, and it is difficult to effectively criticize what is undefined. Even within the body of critics or of practitioners there is no uniformity of concept. The issue of the validity of these criticisms is thus unresolved, and indeed irresolvable, within the existing framework because there is no general agreement about what CBA either is or should be.

The fault here lies with the practitioners. Economists have failed to rationalize and clarify the foundations of their methodology. They have failed to understand and illuminate how benefits and costs are related to legal rights.\textsuperscript{23} They have inadequately addressed the question of whether “bad” utility (in such forms as envy, malice, sadism, or gains from theft) is to be counted. Currently unresolved is the question of whether the value of moral sentiments and considerations of equity are to be counted as part of CBA, as are the questions of whether the role of CBA is to inform the decision-making process or to provide the answer to it. Answers to these questions, which I attempt to furnish, bear on the moral stature of CBA and its acceptability.\textsuperscript{24}

In this paper I reclaim the hard middle ground by showing the logical connection between CBA, the law and moral sentiments. I place CBA within the context in which it is most useful: that of providing information, not the decision. To do this, in Part One, I explicate the history of CBA and its underlying economic theory. I first show how deficiencies in CBA arose from its history and define a “mainstream” version of the dominant Kaldor-Hicks (KH) approach to CBA. I then develop the concept of a fully realized CBA under the rubric of BCA. That is, as a

\textsuperscript{22} Id.


\textsuperscript{24} Some critics start from an apparent dislike of markets and simply extend this dislike to benefit-cost as an approach that mimics markets. Economists on their part are often reluctant to recognize the normative nature of their discipline when applied to policy.
matter of convenience, I treat BCA as a better-defined subcategory of CBA. The purpose here is to show that the legal foundation for BCA tends to ameliorate or eliminate the criticisms of CBA. In Part Two, I consider empirical analyses of CBA and the extent to which BCA is becoming the preferred choice.

PART ONE
THE THEORY AND HISTORY

II. A HISTORY OF BENEFIT-COST ANALYSIS

CBA attempts to solve collective action problems, which arise when individuals or groups pursuing narrow self-interest without coordination arrive at outcomes that are collectively inferior to those that could be achieved with coordination. CBA was developed as a coordinating decision rule that could solve collective action problems and lead to outcomes that are preferred.

A. The Army Corps of Engineers and CBA in Practice

The motivating force behind CBA in the United States was a desire to allay conflict and reach agreement. Apparently, efficiency had sufficient moral appeal to serve as a coordinating principle for Congress. The U.S. Army Corp of Engineers introduced benefit-cost methods in the U.S.

Before the creation of the Corps, evaluations of public investments were almost completely ad hoc. Congress used the prestige of the Corps, along with its increasing quantification of project costs and benefits, to simplify their decision-making and avoid the

25 As mentioned, the terms BCA and CBA are generally interchangeable, though a distinction is sometimes made. See for example, Donald Kenkel, Costs of Illness Approach, in VALUING HEALTH FOR PUBLIC POLICY 49 (George Tolley et al. eds., University of Chicago Press 1994).
26 See, for example, Ackerman et al., supra note 4; ACKERMAN & HEINZERLING, supra note 4; Heinzerling, Markets for Arsenic, supra note 4; Heinzerling, Regulatory Costs, supra note 4. Alternatively, BCA is called “New Cost-Benefit Analysis,” or NCBA.
27 PORTER, supra note 6.
28 Id. at 149. According to Hammond, the use of formal benefit-cost ratios goes back at least as far as the Rivers and Harbor Act of 1902, and were explicitly mandated in the amendment to the Act in 1920. Richard J. Hammond, Convention and Limitation in Benefit-Cost Analysis, 6 NAT. RESOURCES J. 195-222 (1966).
29 PORTER, supra note 6, at 150.
wildly uneconomic projects produced by logrolling. After 1902, water projects needed to be certified as beneficial by a Board of Engineers for Rivers and Harbors that was established within the Corps. The Corps was far from a rubber stamp: they rejected more than half of the proposed projects, usually on the basis that their economics were unfeasible. By the 1920s, the Corps required its recommended projects to promise benefits in excess of costs. Through in the 1930s, the numbers put forward by the Corps were generally accepted without question. Congress recognized the Corps as a relatively neutral and respected arbiter in Congressional fights over water projects. The creation of the Corps, then, represented not only the creation of an agency to build projects, but an agency to increase Congressional and public efficiency.

The Flood Control Act of 1936 mandated what was already Corps practice: the requirement that benefits of a project exceed its costs. More importantly, the Act allowed Congressional authorization only for projects that had been approved by the Corps. The Corps’ economic analyses limited debate in Congress over water projects so that the number of really disgraceful projects became rarer. Political influence and special interest legislation were not, of course, eliminated – the Corps tended to transgress its standards when political forces were overwhelming – but they were curtailed.

After 1940, Corps decisions became the subject of bitter controversy as the Corps was challenged by powerful electric and railroad utilities, by shipping interests, and by rival Federal agencies, especially the Bureau of Reclamation and the Department of Agriculture. The further development of CBA and its increasing quantification was not the product of technical elites but of disagreement, suspicion, and conflict, particularly bureaucratic conflict. Rival techniques or standards for CBA became the norm, although an attempt was made to resolve differences by relying on first principles of economics. The closest result to reaching agreement was the “Green Book.” Although agreement was significantly incomplete, the grounds for decision-

30 Id. at 148 (The Corps was fashioned after the famous Corps des Ponts de Chausse’es)
31 Id.
32 Id. at 153.
33 Id. at 155-57.
34 Id. at 161-75.
35 See PORTER, supra note 6.
36 Economic and Environmental Principles and Guidelines for Water and Related Resources Implementation Studies, These were developed in accordance with Section 103 of the Water Resources Planning Act as amended (42 U.S. C. 1962a-2). New standards were developed in September 9, 1982
making were reasonably well established as rooted in economic theory. CBA was thereby transformed by conflict into a set of rationalized economic principles.

The redefinition of CBA according to economic standards began “in earnest” in the mid-1950’s. Porter notes that economists agreed with budget officials that the standards for passing a benefit-cost test had not been set strictly enough. They recommended, for example, using uniform, higher discount rates than the rate on government bonds. Economists were open to placing monetary values on what had been regarded previously as intangibles, such as the value of landscapes, so that the scope of values potentially included in CBA expanded. The result of the new economic respectability of CBA was its spread to all kinds of government expenditures and to regulatory activity.

The use of CBA at the federal level significantly increased in 1981 President Reagan issued an Executive Order declaring that Regulatory Impact Analyses be conducted for major initiatives. President Clinton issued an additional Executive Order in 1994, confirming the government’s commitment to CBA and highlighting the bipartisan support for CBA in federal regulatory decision-making. While comprehensive legislation requiring the broad use of formal CBA has yet to be approved by Congress, the presence of CBA is nonetheless apparent within various levels of governmental decision-making. Moreover, public pressure for increased governmental efficiency increases the need for CBA in practice.

B. The Pareto Criterion and CBA in Theory

As benefit-cost analysis became more the province of economists than engineers, its foundations became rooted in the Kaldor-Hicks criterion. Although this criterion has the virtue

when the Water Council voted to repeal the existing Principles and Standard and Procedures (18 CFR, Parts 711, 713, 714) and to establish new guidelines. President Nixon approved these on February 3, 1983 in accordance with Executive Order 11747 (38 FR 30993, Nov 7, 1973).

37 Id. at 188.
42 Id. at 5-6.
of attempting to be definite, it is not wholly successful. Moreover, it retains logical flaws rooted in its history.

Although many economists are themselves unclear about the core assumptions of CBA, we can derive what can reasonably be called the main view of it by considering its origins. The modern form of CBA, developed by Nicholas Kaldor, built on the foundation provided by Vilfredo Pareto. Pareto introduced a welfare criterion, the Pareto optimum, which became a foundational concept in welfare theory.\(^3\) A Pareto optimum is a state of affairs such that no one can be made better off without making someone else worse off.\(^4\) A change in the economy is said to represent a Pareto improvement over what came before it, or to be Pareto superior to what came before it, if at least one person is made better off as a result of the change and no person is made worse off.\(^5\) The Pareto criterion is not useful for most practical purposes for exactly the same reason that a criterion of unanimity is not useful in most voting situations.\(^6\) The practical substitute for the Pareto criterion is the potential Pareto criterion, also known also as the Kaldor-Hicks criterion.

\[\text{C. The Development of the Kaldor-Hicks Criterion and the Mainstream Approach}\]

The Kaldor-Hicks (KH) is the standard for CBA.\(^7\) It arose during the late 1930s out of discussions among prominent British economists about repealing the Corn Laws.\(^8\) Before that

\[\text{\footnotesize
44 In its strong form, Pareto efficiency states that state A is preferred to state B when state A is ranked higher than state B for one person and all other persons rank A at least as high as B. If the utility (well-being) of each individual is higher in state A, then state A is preferred according to the weak form of Pareto efficiency. See Robin W. Boadway & Neil Bruce, Welfare Economics (1984).
45 The attraction of the Pareto notion of efficiency is that it seems to eliminate interpersonal comparisons of welfare. Some economists feel that “the inescapable conclusion” is that if one precludes interpersonal comparisons of welfare the only logically consistent foundation analysis is the Pareto principle. Its obvious limitation is that it is not very policy relevant; few policies have no losers. This limitation resulted in a search for a more applicable measure of welfare that continues to this day and of which this article is a part.
46 See Duncan Black, On Arrow’s Impossibility Theorem, 12 J.L. & Econ. 227 (1970) (who shows that such a rule did not work very well for the Polish legislature).
47 As envisioned by Kaldor, non-pecuniary effects were to be included in benefit-cost analysis. Kaldor, supra note 48, at 551 n.1. "An increase in the money value of the national income (given prices) is not, however, necessarily a sufficient indication of this condition [the potential compensation test or Kaldor}\]
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. 49 By 1939, however, leading British economists, including the future Nobel Prize winner Sir John Hicks, were raising questions about such policy prescriptions because they involved interpersonal comparisons of utility. 50 Kaldor provided a solution: he acknowledged the inability of economists to establish a scientific basis for making interpersonal utility comparisons but suggested that this difficulty could be made irrelevant. 51 He argued that policies that led to an increase in aggregate real income are always desirable because the potential exists to make everyone better off:

'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

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criterion] being fulfilled: for individuals might, as a result of a certain political action, sustain loses of a non-pecuniary kind, e.g., if workers derive satisfaction from their particular kind of work, and are obliged to change their employment, something more than their previous level of money income will be necessary to secure their previous level of enjoyment; and the same applies in cases where individuals feel that the carrying out of the policy involves an interference with their individual freedom. Only if the increase in total income is sufficient to compensate for such losses and still leave something over to the rest of the community, can the project be said to be 'justified' without resort to interpersonal comparisons." Clearly it is sentiments that are to be valued and not just objects.


49 See EZRA J. MISHAN, AN INTRODUCTION TO NORMATIVE ECONOMICS 120–21 (1981); Peter Hammond, Welfare Economics, in ISSUES IN CONTEMPORARY MICROECONOMICS AND WELFARE 406 (George Feiwel ed., 1985). For example, Harrod argued that the net social benefit from a policy could be established on the assumption that the individuals affected were equal in their capacity to enjoy income. That is, an improvement can be assumed by looking at changes in income as long as, in modern terminology, the marginal utility of income with respect to income changes is the same for all individuals. See Harrod, supra note 48, at 387. Harrod used this reasoning to justify the 1846 repeal of the English Corn Laws, a classic test case for British economists. In response, Lionel Robbins pointed out that interpersonal comparisons of utility couldn't rest on a scientific foundation since utility cannot be measured, and that the justification for such comparisons is more ethical than scientific. 49 Harrod complained that in the absence of comparability of utility of different individuals, “the economist as an advisor is completely stultified.” See Harrod, supra note 48, at 396–97.

50 See Hicks, supra note 48, at 670. This debate about whether or not prescriptions of economics were scientific is paralleled by the 1980s debate, mostly in the legal literature, about the normative foundations of wealth maximization. For example, see 8 HOFSTRA L. REV., issues 3 and 4 (1980). The 1980s debate was haunted, and confounded, by the issues that we consider in this article.

51 See Kaldor, supra note 48, at 549–550; Robbins, supra note 48, at 640.
off without making anybody worse off.\textsuperscript{52}

According to Kaldor, a project is desirable if the money measure of gains exceeds the money measure of losses. With regard to the potential compensation that could turn losers into winners in such situations, Kaldor notes that whether actual compensation should take place “is a political question on which the economist, qua economist, could hardly pronounce an opinion.”\textsuperscript{53} Hicks, perhaps the most prominent economist of the time, accepted the Kaldor approach, which eventually became known as the KH criterion.\textsuperscript{54}

KH attempts to avoid interpersonal utility comparisons by separating equity from efficiency. Kaldor proposed that decision makers address sentiments regarding equity outside the purview of CBA.\textsuperscript{55} The change in aggregate gains was to be the measure of efficiency, so according to KH there is a separation of efficiency and distributional effects.\textsuperscript{56} Kaldor endorsed the procedure adopted by Pigou, which Kaldor describes as “dividing welfare effects into two parts: the first relating to production, and the second to distribution.”\textsuperscript{57} The KH approach produces outcomes that are equivalent to those produced by the assumption that the marginal utility of income is the same across all individuals, i.e., that each dollar of benefit or cost is

\begin{thebibliography}{10}
\bibitem{52}See Kaldor, \textit{supra} note 48, at 549–550.
\bibitem{53}See Kaldor, \textit{supra} note 48, at 550. It was thought that politicians or non-economists should make judgments and decisions about income distribution effects.
\bibitem{54}See Hicks, \textit{supra} note 48, at 671. A few years after the creation of KH, Scitovsky (1941) introduced a parallel, but slightly different, criterion that states that a project is desirable if the losers are unable in the original state of the world to bribe the potential winners not to undertake the project. Both of these criteria are referred to as potential compensation tests. Shortly after this Sir John Hicks showed that the Kaldor and Scitovsky criteria are related to measures of willingness to pay for a good and willingness to accept payment for a good.
\bibitem{55}It cannot be said that this second assumption of equal marginal utility of income avoids interpersonal comparisons; indeed it embraces them in a very particular way: all people are treated equally in terms of the value they place on changes in income. A leading writer on welfare economics Mishan certainly was aware that questions of distribution belonged to welfare economics and recognized that the separation was useful, since there was less agreement about the income distribution issues. \textit{See} Ezra J. Mishan, \textit{The Principle of Compensation Reconsidered}, 60 J. POL. ECON. 312 (1952).
\bibitem{56}Kaldor, \textit{supra} note 48, at 551.
\bibitem{57}The eagerness of economists to separate considerations of efficiency from those of distribution arose from a desire to put economics on a firm base as a policy instrument. Kaldor suggests, “the economist should not be concerned with prescriptions at all . . . For, it is quite impossible to decide on economic grounds what particular pattern of income-distribution maximizes social welfare.” Kaldor, \textit{supra} note 48, at 551; \textit{see also} A.C. Pigou, \textit{The Economics of Welfare} (4th ed. 1932).
\end{thebibliography}
treated the same regardless of who received it. Hicks agreed also with this separation and noted that “if measures making for efficiency are to have a fair chance, it is extremely desirable that they should be freed from distributive complication as much as possible.” To Hicks, it would be “rather a dreadful thing” to have to accept the view that welfare analysis was unscientific. If it were, its conclusions would “depend on the scale of social values held by a particular investigator. Such conclusions can possess no validity…one’s welfare economics will inevitably be different according as one is a liberal, or a socialist, a nationalist or an internationalist, a christian [sic] or a pagan.”

This separation of efficiency and equity has remained the common, though not universal, basis of normative economic analysis to this day. The more modern justifications for the separation are that changes in the income distribution are usually better effected through macroeconomic policy rather than through individual projects. This defense, however, leaves unaddressed matters of equities for identifiable peoples or groups, or sentiments attached to particular projects that cannot be handled by macroeconomic policy; equity and justice are particular as well as general.

59 Hicks, supra note 48, at 712.
60 Hicks, supra note 48, at 696.
61 Posner’s term wealth maximization appears identical to KH except that he would allow altruistic concerns where there is a WTP for them. A strong theory of wealth maximization is said to have three crucial features. First, wealth maximization is an aggregate concept. Id. at 251. That is, it is more concerned with societal well-being than with individual welfare. For example, a wealth maximizer is not concerned with the distribution of wealth among citizens, and any coerced payment to affect distribution is presumed unproductive. See, e.g., Richard A. Posner, Wealth Maximization Revisited, 2 NOTRE DAME J.L. ETHICS & PUB. POL’Y 85, 103 (1985) (“To the wealth maximizer, altruism is neither good nor bad; but given that it exists, there is a legitimate if limited role for public wealth redistribution.”). Second, to the extent that altruism exists within society, public efforts to reduce poverty may be justified because poverty reduction will benefit both non-donors and donors. Finally, questions of need and desires are irrelevant. (“The individual who would like very much to have some good but is unwilling or unable to pay anything for it – perhaps because he is destitute – does not value the good in the sense in which we are using the term ‘value.'”). Note that this is not the same as including altruism in a benefit-cost analysis as its inclusion may change the sign of a benefit-cost analysis yet the altruistic component might not benefit both parties as when the transfer from altruists is greater than they would prefer.
63 For example, Boardman, Greenberg, Vining, and Weimer note that, “Strict use of the Kaldor-Hicks test means that information on how benefits and costs are distributed among groups is ignored in decision
D. Measurement of Benefits and Costs

In 1943, Hicks defined the compensating and equivalent variations (CV and EV) and from these derived the concepts of the willingness to pay (WTP) and willingness to accept (WTA). These concepts apply to both CBA and BCA. In the context of a simple world of market goods and narrowly self-interested individuals, Hicks described the relationship between the CV and the WTP or WTA test, which became the standard for CBA. The move from A to B passes the KH test if and only if the sum of an individual’s willingness to pay for the change could be used to hypothetically compensate the losers from the move. The WTP reflects the amount that someone who does not have a good would be willing to pay to buy it; it is the maximum amount of money one would give up to buy some good or service, or would pay to making.” See DAVID L. WEIMER & A.R. VINING, POLICY ANALYSIS: CONCEPTS AND PRACTICE 412 (2d ed. 1992). Friedman also notes, “Some analysts would like to ignore equity altogether and use the compensation test as the decisive analytic test… [A] second rationale for relying on the compensation test is the belief that concern for equity is simply unfounded.” See LEE FRIEDMAN, MICROECONOMIC POLICY ANALYSIS 170 (1984). Additionally, Posner notes that wealth maximization is simply the Kaldor-Hicks test and that wealth maximization ignores distributional effects. See RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 13 (3d ed. 1986); Richard A. Posner, The Justice of Economics, 15 J. PUB. FIN. & PUB. CHOICE 23, 132–33 (1987). McCloskey incorrectly contends that the consumer surplus measure of social happiness is the same as the national income measure. See DONALD MCCLOSKEY, THE APPLIED THEORY OF PRICE 229 (1982). Of course, the national income measure contains no measure of income distribution. Posner’s claim is, however, at variance with his acceptance of valuing moral sentiments by the WTP. See Posner, supra note 61.

64 This CV is not to be confused with Contingent Valuation. To understand the concepts of compensating and equivalent variations, consider an individual who will be affected by a move from state A to state B. Her compensating variation (CV) for the move from A to B is the income adjustment necessary in state B in order to make her indifferent between A and the income-adjusted B (If she prefers B to A, her CV is positive and reflects the maximum amount she would be willing to pay to move from A to B; if she prefers A to B, her CV is negative and its absolute value reflects the minimum amount she would be willing to accept to move from A to B). Her equivalent variation (EV) for the move from A to B is the income adjustment necessary in state A in order to make her indifferent between B and the income-adjusted A. (If she prefers B to A, her EV is positive and reflects the minimum amount she would be willing to accept to move from B to A; if she prefers A to B, her EV is negative and its absolute value reflects the maximum amount she would be willing to pay to move from B to A). It follows from these definitions that the compensating variation for a move from A to B gives the same value, but with the opposite sign, for the equivalent variation for a move from B to A. It is also true that either of these variations are exact utility indicators in the sense that for a single individual they rank preferences correctly: an individual’s CV or EV for the move from A to B is positive if and only if the individual prefers B to A.

65 The equivalent variation uses the WTA for gains and the WTP for losses and is a test proposed by Scitovsky test. See ZERBE & DIVENLY, supra note 39.
avoid harm. The WTA reflects the amount that someone who has the good would accept to sell it; it is the minimum amount of money one would accept to forgo some good, or to bear some harm. The benefits from a project may be either gains (WTP) or losses restored (WTA). The costs of a project may be either losses (WTA) or gains forgone (WTP). Both the benefits and the costs are the sum of the appropriate WTP and WTA measures. The relation of benefits and costs to the WTP and the WTA is summarized in Table 1 below.\textsuperscript{66}

<table>
<thead>
<tr>
<th>Benefits</th>
<th>The Compensating Variation (KH Measure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAIN: WTP–the sum of CVs for a positive change–is finite.</td>
<td></td>
</tr>
<tr>
<td>LOSS RESTORED: WTA–the sum of CVs for a loss restored–could be infinite.</td>
<td></td>
</tr>
<tr>
<td>Costs</td>
<td>LOSS: WTA–the sum of CVs for a negative change–could be infinite.</td>
</tr>
<tr>
<td>GAIN FORGONE: the sum of CVs is finite.</td>
<td></td>
</tr>
</tbody>
</table>

Since the KH test is satisfied when the gains are sufficient to hypothetically compensate the losses, (ignoring administrative costs) it is also referred to as the potential compensation test (PCT). The economic worth of a good to an individual is determined by his or her desire for it, whether a gain or a loss is involved, the income and wealth of the person and the uniqueness of the good. These features are all captured by the WTP and WTA measures.

### E. The Mainstream View

The discussion and set of characteristics outlined above define what can reasonably be called the mainstream view of economic efficiency and of CBA, a view based on KH. A full description of the assumptions of the mainstream view of CBA is reasonably characterized by:

\textsuperscript{66} The difference between benefits and costs is simply their sign: positive for benefits and negative for costs. Thus, without loss of accuracy, costs can be counted as negative benefits and benefits can be counted as negative costs.
(1) the use of WTP for gains and for losses;\(^6^7\) (2) a reliance on potential compensation tests so that a project is KH efficient only when it passes a potential compensation test; (3) an emphasis on efficiency that is separated from equity; (4) an assumption that a dollar is to be treated the same regardless of who receives it, so that a dollar is assumed to have the same value to each person (equal and constant marginal utility of income); (5) a recognition and inclusion of non-pecuniary effects; (6) the omission of values represented by moral sentiments; (7) a reliance on externalities and market failure to determine where CBA might be useful in making corrections; (8) an assumption that transactions costs are zero;\(^6^8\) (9) the treatment of CBA as a mechanism to provide the answer rather than an approach proving information as part of an ongoing discussion. The mainstream view of CBA is well shown in practice by some of the CBAs of the federal developmental agencies, and illustrated by the critical analyses of Lothrup, Ackerman and Heinzerling and others.\(^6^9\)

Unfortunately, KH or the PCT has been judged a failure with respect to its initial aims of avoiding value judgments. Chipman and Moore in their trenchant survey of post-1939 welfare economics conclude that “judged in relation to its basic objective of enabling economists to make welfare prescriptions without having to make value judgments and, in particular interpersonal comparisons of utility, the New Welfare Economics must be considered a failure.”\(^7^0\)

\(^6^7\) Although it is recognized that the willingness to accept is the correct measure for losses, traditional opinion has held that there is little difference between the two measures so that WTP may be used in practice. This is, however, untrue in many important cases.

\(^6^8\) For an explanation of why this leads to difficulties See RONALD H. COASE, THE FIRM, THE MARKET, AND THE LAW 5 (1988). Coase’s view is that the major failing of welfare economics lies in its assumption of zero transactions costs. By transactions costs I mean the costs necessary to transfer, establish and maintain property rights (See Douglas Allen, What are Transaction Costs? in RES. L. & ECON. 14, at 4 (Zerbe & Goldberg eds., 1991).)

\(^6^9\) Robert C. Lothrup, The Misplaced Role of Cost-Benefit Analysis in Columbia Basin Fishery, 16 ENVTL. L. 517 (1986). Lothrup assumes BCA is unrelated to law and to legal rights, that the willingness to pay is the correct measure for both gains and losses and that moral and ethical values are excluded. He apparently arrives at this view in part from looking at actual BCA studies. Because even mainstream BCA is incompletely defined, my characterization of it is necessarily inadequate as it makes definite what is in fact vague. However, it is a useful starting point from which to consider other possibilities. Also, this characterization of the mainstream view is convenient as it is fairly close to the view critics of BCA hold, although the critics' view is narrower than actual practice suggests.

\(^7^0\) See Chipman & Moore, supra note 58.
III. CRITICISMS OF COST-BENEFIT ANALYSIS

The use of CBA has led to widespread criticisms of it. These are summarized in Table 2 below.

Table 2: Criticisms of the Kaldor-Hicks Criterion and Benefit-Cost Analysis

<table>
<thead>
<tr>
<th>Criticism</th>
<th>Basis for Criticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  BCA results will reflect the existing pattern of wealth.</td>
<td>Thus, the results will be unfair.</td>
</tr>
<tr>
<td>2  Missing and immoral values</td>
<td>No weight is given to concerns for the income distribution and other moral sentiments such as charity. Thus, CBA is morally deficient and suspect.</td>
</tr>
<tr>
<td>3  Private values are used when community values are appropriate.</td>
<td>The choices an individual makes as a public citizen may differ from those she makes as a private person. Thus proper community values are missing in CBA.</td>
</tr>
<tr>
<td>4  CBA ignores inter-generational equity.</td>
<td>Again, moral values are neglected.</td>
</tr>
<tr>
<td>5  One aspect of disregarding moral considerations is the use of discount rates to, for example, value future lives.</td>
<td>Thus, improper concern for future generations is incorporated into CBA.</td>
</tr>
<tr>
<td>6  CBA cannot recognize moral values without recognizing immoral values including “bad” utility.</td>
<td>Thus, immoral values are inappropriately included or moral values are omitted. Thus, it fails to condemn rape or slavery in all cases.</td>
</tr>
<tr>
<td>7  CBA compares the incomparable and prices the priceless. It rests on market values.</td>
<td>Thus, values are aggregated in improper ways. In addition, market values are inferior and degrade the value of moral sentiments.</td>
</tr>
<tr>
<td>8  Absence of any “scientific” method of aggregating preferences</td>
<td>Since one cannot measure utility, one cannot in general say if total happiness has increased if a project increases the wealth of some more than it decreases the wealth of others.</td>
</tr>
</tbody>
</table>
CBA favors the status quo. Thus, it is biased against change. It assumes the existing pattern of rights so that when there is sufficient disagreement it would choose position A if starting from A; or B, if starting from B.

Role of BCA: Discussion is better than CBA. CBA claims to be a mechanical algorithm that avoids discussion.

BCA may result in a neglect of non-quantitative values. Thus, it may miss important values.

Scitovsky reversals Using KH, it is possible to suggest a move from A to B but then, having arrived at B, to suggest a move back to A, and so on endlessly. Thus, CBA is useless.

These criticisms have bite to the extent that KH neglects equity and other moral values. However, they are effectively vitiated by a version of CBA that rests on rights and is inclusive of values. In this version, moral sentiments, including those of equity, fairness, and the income distribution are considered as well as the role of legal rights in determining values. Over time, the use of CBA approaching this more sophisticated version increasingly reflects ongoing work by both academics and practitioners.  

IV. THE ALTERNATIVE APPROACH TO CBA: THE NEW CBA

The basis for BCA is an expansion of KH that I call the Kaldor-Hicks-Moral (KHM). KHM adds to KH the requirements (1) that all sentiments for which there is a WTP or WTA are included in the analysis, including those concerning distributional and moral sentiments more generally, (2) the elimination of the PCT test and its replacement with the simple requirement that the net present value of a project be positive, where (3) the definition of benefits and losses are grounded in law, (4) the understanding that proper use of BCA is to furnish information and predictions and not to furnish the decision, (5) that transactions cost economics rather than

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71 See Part Two of this paper.
market failure is the basis for a justification that government intervention might be useful, and (6) that there is a moral basis for BCA.

The most important of these requirements are the recognition of moral sentiments and the grounding in law. By moral sentiments I mean concern for others, what Jefferson regarded as virtue. Although economists have been concerned to separate utility maximization from altruism, and altruism from utility, generally, these distinctions are unnecessary and are ignored here. As Sudgen notes, the existence of large charitable giving makes the assumption of utility maximizing, without regard to others, suspect. There is no reason to ignore moral sentiments

73 The more important 18th century Scottish philosophers, including Hume, argued that virtue consisted of the proper balance between other regarding and self regarding sentiments. Jefferson regarded virtue as residing only in other regarding sentiments. See R.G. Frey, Moral Sense Theory and the Appeal to Natural Rights in the American Founding, in LIBERTY AND AMERICAN EXPERIENCE IN THE EIGHTEENTH CENTURY (David Wermseley ed., Liberty Fund, 2006).

74 The distinction leads to confusion. See SAGOFF, supra note 7. Sen carries forward this view of utility as a thing in noting that “commitment is counterpreferential choice . . . Commitment . . . drives a wedge between personal choice and personal welfare and much of traditional welfare relies on the identity of the two.” Amartya Sen, Rational Fools: A Critique of the Behavioral Foundations of Economic Theory, 6 PHIL. & PUB. AFF. 317, 328-29 (1977). By regarding utility as a thing, choice becomes different from utility. Such treatment is a holdover from utilitarianism. Utility is better regarded as a mechanical device for modeling problems of choice. When we say that we are maximizing utility, we mean or should mean only that we are predicting or explaining choice. The consequence of treating utility as a thing has been attempts to determine existence values separate from moral considerations an exercise fraught with undesirable consequences. Thus, we find economists arguing that “a moral commitment to others – regardless of the consequences to one’s own well being – challenges neoclassical theory. Steven Edwards, Rethinking Existence Values, 68 LAND ECONOMICS 120 (1992).

75 See Robert Sugden, On the Economics of Philanthropy, ECON. J. 92, 341-50 (1982) and Robert Sugden, Reciprocity: The Supply of Public Goods Through Voluntary Contributions, ECON. J. 94, 772-87 (1984). Sugden proposes that the existence of large charities refutes the classic concept of the individual as a pure utility maximizer. Making a connection to public goods, he argues that government provision of such goods rests on three assumptions: that the good in question is public, that individuals act only to maximize their own utility, and that they rely on the so-called Nash conjectures when deciding whether to donate to a charity (i.e., they assume everyone else’s donation to be unaffected by their own). From these premises, the free rider problem naturally develops: positing a sufficiently large group of donors, the marginal difference of one person’s donation to the fund will rapidly become trivial, leading to the reasonable conclusion that donating is foolish from an individual utility maximization standpoint (e.g., I will benefit much more from my $50 than will a charity). The consequences of everyone operating on this conclusion could lead to the demise of charities.

Thus, given the existence of large charities, Sugden claims that at least one of the assumptions must be false. While in principle, all three assumptions are open to challenge, he deems only the publicness of the good and utility maximization to be very likely targets—he points out that few people believe that others’ donations (save those very close to us) are affected by our own; thus the Nash conjectures probably hold. The usual strategy to account for charitable giving, then, is to modify the first assumption and make the gift itself part of the individual’s utility function (e.g., my $50 gives me a
in determining values. Thus, BCA logically includes values represented by moral sentiments. Evidence suggests that the inclusion of moral sentiments as values in cost-benefit calculations would improve the range and accuracy of such analyses. This distinction between moral goods and others arises from the tendency of economists to incorrectly regard utility as something more than as a convenient rubric for preferences.

The non-specialist reader may nevertheless ask, “How on earth do you find out the numbers representing values for moral sentiments?” Although this paper largely concerns foundational principles, it is worth while noting that economists have increasingly improved the ability to measure non-market values. Charitable sentiments may, for example, be found by examining the market for charity, as Andreoni has done. Efficiency and the sentiments underlying it can often by found in experience—the sociological point of view. Evidence suggests, for example, that the common law tends towards economic efficiency. Zerbe argues that this tends to be true because efficiency often corresponds with justice and that a better correlation is found between changes in the common law and justice, which includes distributive measures. Thus, a BCA explanation of common law tendencies is enhanced by attention to issues of distribution and other moral sentiments. Schorr has found, for example, that considerations of distributive justice have played an important role in the evolution of property rights. Zerbe and Anderson found that fairness played an important role in the creation of rights in the California gold fields after 1848. KHM codifies what has to a considerable extent

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80 David B. Schorr, Appropriation as Agrarianism: Distributive Justice in the Creation of Property Rights, 32 ECOLOGY L.Q. 3 (2005).

been occurring in practice.\textsuperscript{82} Larry Goulder recently suggested an approach that incorporates important elements of the KHM framework.\textsuperscript{83}

BCA builds, however, on the same WTP and WTA measures as CBA. The WTP and WTA measures in Table 1, apply equally to BCA. Economists have shown how and why WTP and WTA need to be embedded in legal rights.\textsuperscript{84} The nexus between legal rights and economic measurement has become apparent and is discussed in relevant literature. Many have argued for the inclusion of equity effects, including those on income distribution, and suggested various schemes to accomplish it,\textsuperscript{85} and some have applied these suggestions to actual policy issues.\textsuperscript{86} Recently, economists have found it important to understand the role of social and cultural factors like altruism.\textsuperscript{87} Kaplow’s and Shavell’s views of efficiency accord with KHM and they note that “the only limit on what is included in well-being is to be found in the minds of the individuals themselves.”\textsuperscript{88} Similarly, for environmental economists the importance of existence values, which are a type of moral value, has forced their consideration. Although some economists would like, and some claim to achieve, the separation of the altruistic component from existence values, it is not clear that this is possible, as Dana and others note.\textsuperscript{89} The evidence suggests that recognition of the importance of non-use values is intrinsically bound up with issues of moral

\textsuperscript{82} See Zerbe, Economic Efficiency, supra note 5, at 15–27. See also Part II of this paper.
\textsuperscript{83} Goulder, supra note 12.
\textsuperscript{88} I expressed this view earlier in several publications; KHM was introduced in 1998 and 2001. See Louis Kaplow & Steven Shavell, Fairness versus Welfare 19 (2002).
\textsuperscript{89} David A. Dana, Existence Value and Federal Preservation Regulation, 28 HARV. INTL. L. REV. 343, note 16. Dana cites Kenneth E. McConnell, Does altruism undermine existence value?, J. ENVTL. ECON. & MGMT. 32, 22–37 (1997), who suggests that to include existence value may result in double counting. This has been shown, however, to not be the case. See Zerbe et al., An Aggregate Measure for Benefit-Cost Analysis, ECOLOGICAL ECON. (2005).
sentiments. Respondents to surveys and to experiments show a willingness to pay reflecting moral sentiments for the existence of environmental amenities that will be used by people other than the respondents.\textsuperscript{90}

Margaret Radin argues for certain restrictions on private property as necessary, because of collective actions issues, to protect the intrinsic value of community. Under BCA these intrinsic values can be recognized but such values themselves have limits, and restrictions on transfer of property have costs. BCA can aid in reaching for a balance.

George Stigler, the Nobel Prize-winning economist, neatly summarizes this difference between BCA and CBA in a statement to the effect that people don’t always want efficiency.\textsuperscript{91} This can, however, only be the case when efficiency is defined incorrectly. As defined here, BCA is to reflect actual preferences. If there is indeed a discrepancy between calculated efficiency and what people will pay for, it must arise, error aside, from moral values not included in the efficiency calculation. For example, a critique of the recent CBA for the mercury standard finds that it does not pass a CBA test. The CBA, however, did not consider moral sentiments. In principle there should not be a discrepancy between what people want and the results of CBA. Similarly, the discovery that people may be willing to pay for goods they never expect to use, existence values, has created enormous controversy about the validity of counting them. This issue has brought the role of moral sentiments in CBA into sharp relief, but no consensus as to their proper place yet exists, although the weight of practice shifts ever more towards inclusion.\textsuperscript{92} Thus, KHM and BCA encroach upon traditional analysis.

\textsuperscript{90} An extensive flowering of the market failure concept has occurred in the field of law. The number of law review articles and court decisions using the concept run into the thousands, with 239 references turned up by a search of law review articles for the twelve months between June 1995 and June 1996 alone. Similarly, court decisions referring to market failure and to externalities are made with great frequency. The bankruptcy of this approach is shown in Richard O. Zerbe Jr. & H. McCurdy, The Failure of Market Failure, 18 J. POL’Y ANALYSIS & MGMT. 4, 558–578 (1999). Since Coase’s work in 1960, the raison d’être for government intervention has been shifting from market failure and externalities to transactions costs.

\textsuperscript{91} Ted Gayer & Robert Hahn, The Political Economy of Mercury Regulation, REGULATION 26 (Summer 2005).

\textsuperscript{92} See Part Two of this paper. In the Tennessee Valley Authority analysis of the Tellico dam, however, the value of sacred burial grounds to the Cherokee was ignored. This might, however, be more properly regarded as a failure of the legal system to specify rights in accord with reasonable psychological expectations.
To include moral sentiments as part of CBA under the rubric of BCA does not and cannot resolve many moral issues. That is one can not legitimately say that now that BCA includes moral issues, moral, or other, objections to its use or its conclusions is obviated. No ethical imperialism seems desirable, including that of CBA imperialism. Where moral issues are very contentious, the BCA analysis will simply support the status quo where rights are well defined. Yet, BCA can be used to illustrate and predict the effects of a different set of rights. When residents around an airport have a right to quiet, the CBA or BCA analyst asks, “what would you accept to endure the noise.” When they have no such right, the CBA or BCA question is “what will you pay to eliminate the noise.” So when rights are undefined or ill defined, or seriously contentious, analysts need to predict the consequences of the two different questions. Now in a “bad” society, preferences will be “bad” and these will be reflected in the CBA. If almost all people believe that people with red hair should be badly treated, a CBA can conclude no differently, unless it can be shown that such preferences are trumped by a broader constitutional understanding. It is not the job of BCA, or even BCA, to provide answers to moral questions; rather it is to show the consequences of different assumptions.

MORAL CRITICISMS OF CBA AND BCA ANSWERS

I divide criticisms into two groups: Foundational and Consequentialist Criticisms. Foundational criticisms are those that concern the philosophical basis of BCA. Ethical theory tends to rely upon either consequences or upon non-consequentialist moral categories. The latter cannot ignore the importance of consequences, as all theorists and agents need to know the likely effects of their acts. This is what BCA is set up to provide. Since Max Weber’s famous critique, it does not seem possible, as a matter of moral practice, not to include both the categorical and consequential considerations. Weber noted that conduct must “give an account of the foreseeable results of one’s action.” The role of BCA is to help to provide this account. The purpose of BCA is to supply information to the decision process by predicting the likely

93 Kant and Dworkin emphasize the categories of duty: DWORKIN, RONALD. LAW’S EMPIRE (1986). and Taking Rights Seriously 180 (rev.ed. 1978
94 Nussbaum emphasizes the categories of virtue. See? .
95 Max Weber, Politics as a Vocation, in FROM MAX WEBBER: ESSAYS IN SOCIOLOGY (H.H. Gerth and C.W. Mills, eds., 1954), p. 24. As Weber, notes, “…however, a man who believes in an ethic of responsibility takes account of precisely the average deficiencies of people…he does not even have the right to presume their goodness and perfection.” (p. 23).
consequences of alternative courses of action. True, its prediction embodies particular moral assumptions about what is to be predicted. If the moral assumptions, however, are reasonable, the only remaining objection lies in what judges or administrators might do with the results of BCA. Undesired consequences of the use of BCA or CBA must exist but the limited evidence suggests that on the whole its consequences are socially preferred and its moral categories not objectionable when applied to furnishing information. The important point about BCA is that it does not defend positions. It furnishes predictions about the consequences of alternative actions and can show also how the assignment of rights changes the BCA calculation.

**Foundational criticism 1: The Effect of Wealth**

Both BCA and CBA valuations reflect the existing pattern of wealth. Critics say that this is unjust or inappropriate. This criticism fails to recognize that the role for BCA is not to answer fundamental ethical questions about the existing distribution of rights but to suggest improvements *given the existing pattern of rights.* It is true that KH and particularly KHM reflect the existing pattern of wealth. This is appropriate. How could it be otherwise? BCA rests on a legal foundation that includes legal rights to wealth. Although BCA can inform the law, it cannot and should not rise above the law, and it cannot be understood without understanding its connection to the law. This sort of criticism is clearly better aimed at the relevant law.

In fact, the very pattern of legal rights offers protection to those with less wealth under BCA. The WTP is used for gains and the WTA payment is used as the value of losses. Because *willingness* to pay is bounded above by *ability* to pay, the rich man’s WTP to avoid hair loss, for example, could exceed the poor man’s WTP to avoid contracting AIDS. Given a right to treatment for AIDS, however, the correct measure of value under BCA would be the poorer man’s WTA, not his WTP to give up the right to treatment. It is unlikely that the poor man’s WTA to give up treatment would be less than the WTP of the rich man to avoid hair loss. But even if it were, in so far as there are moral concerns about the situation of the poor man’s illness, the WTP or WTA of those with moral sentiments about such a matter would count as part of the value of the treatment under BCA, which recognizes moral sentiments. Clearly, this right of the

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97 I owe this example to Yoram Bauman.
poor man emerges from moral considerations. In short, the value of AIDS treatment arises in the main from the moral considerations to establish such a right. The values of these moral considerations count in BCA.

This choice between WTP and WTA is based on legal ownership and its connection to psychological expectations. From a legal perspective, the use of WTA to measure losses and WTP to measure gains rests on a normative decision to recognize ownership. Gains and losses are to be measured from a psychological reference point, which stems from one’s beliefs about ownership. Legal rights largely determine one's beliefs about ownership. The WTP measure assumes that one does not have psychological or legal ownership of the good, and asks how much one would pay to obtain it. The WTA measure assumes that one owns the good, and asks how much one would accept to sell it.98

Ownership establishes a reference point from which losses are to be calculated by WTA, and gains by WTP. In a sense, this has long been noted. Atiyah pointed out that Hume and Adam Smith both said that expectations arising out of rights of property deserved greater protection than expectations in regard to something that had never been possessed. To deprive somebody of something which he merely expects to receive is a less serious wrong, deserving of less protection, than to deprive somebody of the expectation of continuing to hold something that he already possesses.99

The law has long recognized that it is more serious to stop an owner from conducting an ongoing activity than to prohibit the owner from undertaking the same activity if he has not yet begun it. The currently fashionable expression of this may be found in Justice Brennan’s phrase in *Penn. Central Trans. Co. v. City of New York*,100 that a restriction is more likely to result in a taking if it destroys “investment backed expectations.”

One’s sense of psychological ownership will usually conform to one’s knowledge of legal ownership. Most people feel that they have a moral right to what they legally own, and do not feel that they have the moral right to something they do not own. The sense of right or

entitlement and the law itself arises from what Weber has called a sociological point of view. Thus the sociological point of view tends to determine the psychological. For most cases, then, the law will determine whether the WTP or WTA will be used. Even if the economic standard is psychological ownership, the psychological point of view and the law will correspond to each other and to the sociological point of view. The assumption that a choice based on assigned legal entitlements will be correct because of the correspondence between the legal and psychological states; it is not correct as a matter of economic principle. Levy and Friedman incorrectly assert “the determination of the conceptually appropriate form of CV query is a matter of property rights, not economics or psychology.” They imply that where the law and a psychological sense of ownership establish different reference points, the law ought to govern. This is incorrect from the logic of CBA. It is, of course, true that the law will be the major determinant of psychological reference points. However, this is different from saying, as Levy and Friedman imply, that the law ought to govern. Economic efficiency in the KHM form would recognize the psychological status quo as primary and change ownership to conform to it. As a matter of practice, the relevant psychological reference point cannot be just that of the individual but rather of society generally. Thus, in so far as the law embodies the general understanding, Levy and Friedman are correct that the law should govern. The underlying basis is the general psychological reference point. Where this reference point differs from the law, it furnishes a guide for further development of the law as indeed it has done with the development of common law.

101 Max Weber, supra note 95.
102 See Richard O. Zerbe, Jr., supra note 79, arguing that the common law tends towards efficiency as a matter of justice.
103 The authors use the term “CV query” in reference to questionnaire studies. “CV” here stands for “contingent valuation,” not compensating variation.
104 See Levy & Friedman, supra note 98, at 509.
105 See id.
106 This approach makes clear the irrelevancy of the critical legal studies objection to CBA as Heyne has shown. See Heyne, supra note 96. In brief, the critical legal studies argument is that we cannot use the concept of efficiency without endorsing some concept of property rights, from which it is seen to follow that the concept of efficiency cannot be used to resolve disputes over property rights without begging the question. CBA takes, as does the law, the existing structure of rights as extant. But there are disputes that reflect uncertainty about some small portions of these rights. CBA merely furnishes information relevant to the legal decision about the allocation of such a right. Take a simple case: a change in technology makes valuable rights to the radio wave spectrum which has hitherto been
The law can, however, differ from the general understanding. Although examples are many, a famous one is found in the case of *Plessy v. Ferguson*.107 *Plessy* upheld a Louisiana statute that provided for “separate but equal” accommodations for white and African-American train passengers and provided for fines and imprisonment of passengers and train employees who refused to comply with the rules.108 Contrary to popular belief, *Plessy* did not require that the facilities for whites and African Americans be equal; it held only that a racially discriminatory law is constitutional if it is “reasonable” in light of the “established usages, customs, and traditions of the people.”109 Because the statute was consistent with Louisiana’s “social conventions,” the statute was held constitutional.110 Clearly the *Plessy* decision was norm-seeking, which norms and laws are the bases for BCA calculations.

But, it was not norm finding. Justice Harlan argued in dissent that the “reasonableness” of the statute in light of Louisiana’s “social conventions” was irrelevant.111 Justice Harlan’s opinion makes it clear that it is not Louisiana’s social conventions that are relevant, but those of the United States.112 Thus, the Fourteenth Amendment renders Louisiana’s policies unconstitutional.113 Using the language of KHM, Justice Harlan argued that Louisiana’s custom of segregation should not be considered because the United States had made a reasonable social judgment that the costs of governmental racial discrimination outweigh any benefits the citizens unowned. No party has a superior claim. The assignment of the right to a particular party will be a gain. Gains in economic analysis are to be measured by WTP, which will be partly determined by the existing pattern of wealth, which rests on the existing system of rights. Economic analysis suggests auctioning off the right. The right in general should go to that party who would pay the most for it if transactions costs were zero. Cases in which conflicting prior claims exist raise more difficult questions but these are answerable with BCA logic. See Zerbe, ECONOMIC EFFICIENCY, supra note 5.

108 See id. at 541, 550-551.
109 See id. at 550-551.
110 See id. Justice Harlan points out, in dissent, that racial segregation was not Louisiana’s social convention in any event, because it prevented an African-American servant from waiting on a white patron during the ride, something that Louisiana’s social conventions not only allowed but demanded of African Americans. See id. at 553. The point is not that a norm of servitude is morally superior to a norm of segregation, but merely that the alleged norm of segregation was not even historically accurate. See *Plessy*, 163 U.S. at 550-51, 557.
111 See id. at 554. Justice Harlan notes, “[T]he Constitution of the United States does not, I think, permit any public authority to know the race of those entitled to be protected in the enjoyment of [constitutional] rights.” See id. at 554. Saying that a public authority may not “know” a certain fact when making a decision is an apt description of what it means to deny economic standing.
113 See id.
of the state would receive from it.\textsuperscript{114} Just as a thief lacks standing to argue that his WTP for stolen goods is higher than his victim’s WTA, Louisiana lacked standing to argue that its statute was efficient because of its consistency with Louisiana’s norms.\textsuperscript{115}

There is an “indeterminacy” problem in law as a matter of pure legal language. That is many interesting cases can go either way.\textsuperscript{116} This does not mean, however, that such cases are sociologically indeterminate since there may be widespread agreement among the public about the relevant norms and among legal scholars and jurists about what the “right answer” is. Moreover, neither CBA nor BCA are silent where there is legal indeterminacy. Where there is a dominant social and psychological perception of rights, this is the reasonable starting point for the BCA analysis.\textsuperscript{117} Where there is no such psychological or legal perception, there is not psychological ownership, and the BCA solution is to auction the good; that is to assume no preexisting right. That CBA reflects the existing pattern of wealth is a consequence of the fact that it rests on rights. Both WTP and WTA will be substantially affected by wealth. Why would one expect otherwise? Economic theory takes for granted, far more extensively than either economists or their critics explicitly recognize, the normative force of established rights and obligations and thus the existing pattern of wealth.\textsuperscript{118} For some time, it has been recognized that the policy and welfare implications of any substantive economic analysis depend upon the legitimacy of the property rights that underlie the relevant supply and demand functions.\textsuperscript{119} Heyne goes on to note that “because this legitimacy depends on existing law…the foundations of economics may be said to rest in the law.”\textsuperscript{120}

It is fair to say, however, that economists have not always, or even usually, been clear on this point. Mishan notes that an economist might as well flip a coin when trying to decide between using the CV measure (which uses the WTP for benefits and the WTA for costs) and the EV measure (which uses the WTA for benefits and the WTP for costs).\textsuperscript{121} Indeed, as Knetsch

\begin{footnotesize}
\textsuperscript{114} See id. at 555.
\textsuperscript{115} See ZERBE, supra.
\textsuperscript{117} See Zerbe, supra note 79.
\textsuperscript{118} Heyne, supra note 96, at 56.
\textsuperscript{119} Id. at 53–71.
\textsuperscript{120} Id. at 11.
\textsuperscript{121} Ezra J. Mishan, Cost-Benefit Analysis 183 (3d ed., 1982).
\end{footnotesize}
notes, the conventional but wrong assumption has been that the WTP and WTA measures will usually lead to similar valuations “under conventional assumptions economists expect that the difference between them will be small in most cases.” Empirical research shows otherwise. Legal rights provide a guide to social preferences and largely determine which sentiments should be granted standing and which should be denied standing. The wealth-based criticism advanced above can be more properly levied at existing rights and not at CBA, which is simply a tool of those rights. Because BCA based on KHM makes legal rights explicitly the basis of CBA, it is more coherent, fair and acceptable.

A. Foundational criticism 2: Missing Values.

Many see CBA as missing important values such as integrity and equity, as rooted in a narrow utilitarianism, and as using private values where public values are relevant. These are cogent criticisms of much of the use of CBA but also of CBA at the theoretical level. With

125 See Zerbe, ECONOMIC EFFICIENCY, supra note 5, at 96-105.
126 See SMART & WILLIAMS, supra note 10, at 98; Kelman, supra note 17, at 35. Williams considers the case of George: George, who has taken his Ph.D. in chemistry, finds it extremely difficult to get a job. An older chemist who knows about the situation says that he can get George a decently paid job in a certain laboratory, which pursues research into chemical and biological warfare. George says that he cannot accept this, because he is opposed to chemical and biological warfare. The older man replies that George’s refusal is not going to make the job or the laboratory go away; what is more, he happens to know that if George refuses to take the job, it will certainly go to a contemporary of George’s who is not inhibited by any such scruples, and who is likely, if appointed, to push along the research with greater zeal than George would. What should George do? Williams argues that under a utilitarian analysis, George must accept the job, since it improves the position of his family, and advances the work more slowly (a desirable aim). Kelman extends this sort of analysis to benefit-cost on the grounds that it is derivative of utilitarianism. But this line of attack does not work as CBA does not rest on utilitarianism of this sort, as Posner, Nussbaum and Zerbe have noted. See Richard A. Posner, supra note 61; Zerbe, ECONOMIC EFFICIENCY, supra note 5; Nussbaum, supra note 8. Rather CBA is a pragmatic approach whose justification must lie in its usefulness; economists understand this and this is why they have paid little attention to this sort of criticism.
127 See generally ANDERSON, supra note 10; SAGOFF, supra note 7; SMART & WILLIAMS, supra note 10.
128 See Chipman & Moore, supra note 58, at 548.
With respect to distributional effects, the views of the former solicitor general of the United States, Charles Fried, are representative of these criticisms. He sees the economic analysis of rights as using a concept of efficiency that is removed from distributional questions. He believes that economic analysis does not consider whether the distribution is fair or just, and then concludes from this that the fact that a given outcome is efficient does not give it “any privileged claim to our approbation.” These criticisms arise from the original separation of efficiency and equity and the disregard of equity in much of CBA.

BCA, in contrast, is not missing values in the sense the critics claim. The moral sentiments expressed by Fried are those that would be included in BCA as it considers moral sentiments generally, including distributional effects just as any other good, to the extent there is a WTP or WTA for them. The WTP for greater equity can be taken as the measure of equity’s value and the WTA can be taken as the measure of value when equity is lost. Such an approach would be more logical, treating all goods, including equity goods, the same. It would also have the virtue of providing greater relevant information to the decision-making process. In some cases the distribution effects will be unimportant and might be efficiently ignored. In some cases they may be too difficult to determine. Yet no moral, ethical or practical barrier other than custom stands in the way.

Consider as an example a project that will increase the welfare of one group, the rich, by $1 billion and decrease the welfare of the poor by $900 million. This would pass the usual KH-CBA test. BCA based on KHM, however, would consider also the sentiments of others regarding the justice of the distributional effects. The project would not pass BCA-KHM if others not directly affected are willing together to pay more than $100 million to prevent it from happening. The question that KHM asks then is whether those unaffected directly by a policy, but with moral sentiments concerning it, would be willing to pay to promote it or prevent it. Such inclusion can materially affect the outcome. Now in taking moral values into account, the

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129 See Anderson, supra note 10, at 194; Smart & Williams, supra note 10; Nussbaum, supra note 8.
130 See Charles Fried, Right and Wrong 93 (1978).
131 Id. at 94.
132 See Fried, supra note 130, at 16.
133 See Richardson, supra note 4, at 987–990. See also Fried, supra note 130, at 15; Kelman, supra note 17, at 33.
134 Recently we showed how this approach can be applied in practice. See Zerbe & Knott, supra note 86.
values of those outside the formal auction that are morally concerned about the outcome must also be considered.

Existence values normally reflect a type of moral sentiment, and existence values have been recognized by the Courts. The Ohio court defined existence value as “the dollar amount an individual is willing to pay although he or she does not plan to use the resource, either at present or in the future.” The Ohio court notes that though an individual lacks any interest in personally enjoying the resource, that person may attach some value to it because he or she may wish to have the resource available for others to enjoy. The Ohio court said:

“...we instruct DOI that its decision to limit the role of non-consumptive values, such as option and existence values, in the calculation of use values rests on an erroneous construction of that statute. Option and existence values may represent ‘passive’ use values but they nonetheless reflect utility derived by humans from a resource and thus, prima facie, ought to be included in a damage assessment.”

Clearly, existence values have in part or in whole a moral component.

According to Dana, more than 2,000 contingent valuation (CV) studies have been completed, a significant number of which have been directed toward determining existence values. The Ohio court goes on to note that existence values may be quite large, a finding that has been substantiated elsewhere.


137 See supra, note 135, at 2.

138 See Ohio, 880 F.2d at 464.

139 See Dana, supra note 89, at 369.

140 The law has also expanded the nature of injury required for standing to sue to include enjoyment of nature and aesthetic harm. For example, in Sierra Club v. Robertson, 28 F.3d 753, 758 (8th Cir.1994), the Court held that “[c]omplaints of environmental and aesthetic harms are sufficient to lay the basis for standing.” See also Mausolf v. Babbitt, 85 F.3d 1295 (8th Cir. 1996), citing Robertson with approval.

The mainstream view extends the prohibition on considering equity as part of CBA to exclude moral sentiments generally. The inclusions of moral sentiments in damage calculations, existence value calculations, and benefit-cost calculations are not only disputed by some economists but arguably are foreign to the underlying economic theory on which BCA and efficiency determination are based.\textsuperscript{142} For example, the economist Robert Shiller states of modern utility theory: “In effect it portrays people as nothing more than ‘maximizers’ of their own ‘expected utility.’ This means that people are supposed to be totally selfish, constantly calculating their own advantage, with no thought of others.”\textsuperscript{143} This is not the approach of BCA.

i. Community and Commodity Values

That CBA must properly rest on community values is recognized by Mark Sagoff and Elizabeth Anderson, who expend a good deal of effort distinguishing our preferences as consumers and our choices as citizens.\textsuperscript{144} They maintain that CBA treats goods such as health, safety, and environmental quality as mere commodities, and that CBA assumes that the public nature of some instances of these goods is merely a technical fact about them, and not itself a valued quality. The possibility that national parks or public safety might be valued as shared goods does not enter into our evaluations. Anderson sees CBA as assuming that the preferences people express in private consumer choices should be those used in making public choices, as if the valuations people make as consumers exhaust their concerns.\textsuperscript{145}

Anderson and Sagoff adopt the mainstream view of CBA and assume that CBA measures people’s valuations of non-commodity goods only as “they are privately appropriated, exclusively enjoyed goods.”\textsuperscript{146} For example, Anderson finds that the opportunity to earn a living

\textsuperscript{142} See Zerbe, \textit{ECONOMIC EFFICIENCY}, supra note 5, at 181–82 and \textsc{Allen Bellas \& Richard O. Zerbe Jr.}, \textsc{A Primer for Benefit-Cost Analysis}, Edward Elgar, 2005. See also \textsc{Zerbe \& Dively}, \textit{supra} note 39.


\textsuperscript{144} See \textsc{Anderson}, \textit{supra} note 10, at 189; \textsc{Sagoff, supra} note 7, at 10.

\textsuperscript{145} \textsc{Anderson, supra} note 10, at 193–194.

\textsuperscript{146} \textsc{Anderson, supra} note 10, at 193.
is “a need and a responsibility.” She finds, therefore, that using wage premiums for risk as the basis to estimate the cash values people place on their lives is incorrect, because these premiums also reflect the risks people feel obliged to accept in order to discharge their responsibilities. That is, using wage premium data to measure the cost of risk results is a miscalculation, because what is being measured also includes the values of responsibility and duty, which are not included in the wage premium. Sagoff uses child labor laws as an example where choices based on narrow, market-consequentialist ends may differ from our choice as citizens. Anderson and Sagoff’s views are rooted in their assumption about the “commodity fetishism of welfare economics: the assumption that people intrinsically care only about exclusively appropriated goods, and that they care about their relationships with others only for their instrumental value in maximizing private consumption.”

These criticisms do not apply to BCA, which recognizes that all values affected by the decision count. That is, if there are community questions, it is a community value that is relevant, not just values as private purchasers. KH, however, is unable to deal adequately with this issue because of its exclusion of equity values. No such limitation applies to KHM so it incorporates the suggestions of Anderson and Sagoff. What Anderson and Sagoff bring to the table is the reminder of the existence of community values that may not be reflected in personal values. Values may, of course, reflect partly community and partly personal values. Both are included in BCA.

ii. CBA ignores inter-generational equity

Ethical arguments for using low or zero discount rates for long-term projects are widespread. Recently these arguments have gained policy currency. The Office of Management and Budget (OMB) Report on BCA suggests using lower discount rates for long-term projects

147 ANDERSON, supra note 10, at 199.
148 SAGOFF, supra note 7, at 25.
149 See ANDERSON, supra note 10, at 203.
based on ethical reasons. The Report claims "special ethical considerations arise when comparing benefits and costs across generations." It notes that it is "ethically impermissible to discount the utility of future generations." The Report provision reflects the longstanding arguments of critics that discounting benefits and costs borne by future generations is immoral because we should regard future generations as equally important as our own.

The OMB Report avoids recommending zero discount rates only by its invocation of a declining marginal utility of income. That is, they suggest that future generations will be wealthier and that the value of additional income will therefore be less:

"[D]ue to the expectation that future generations will be wealthier and thus will value a marginal dollar of benefits or costs by less than those alive today. Therefore, it is appropriate to discount future benefits and costs relative to current benefits and costs, even if the welfare of future generations is not being discounted." The Final Report cites discount rate estimates based on declining marginal utility of income "from 1 to 3 percent per annum" for long-term projects, although generally the OMB Report recommends the use of a discount rate of 7 percent real (adjusted for inflation).

The use of low or zero discount rates for future events is not justified, except in the important cases of uncertainty over rates as discussed by Weitzman. Such use can lead to a choice of projects in which both future and present generations lose relative to other possible projects.

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152 The normal term structure of interest rates is upward sloping, suggesting that discount rates for long-term projects should be greater than for short-term projects. That is, longer term market rates are higher than shorter term rates, because the lender must bear the risk of a change in rates over time and the probability of a change increases with time. Recently Weitzman in Gamma Discounting, 91 AMER. ECON. REV. 260-271 (2001) showed that rates for longer-term projects could be lower than for shorter term if there is uncertainty about the correct rate. This result does not contradict the existing upward term structure, as it is not based on bearing the risk of a rate change over time but rather on the uncertainty about what is the true rate. This paper does not consider uncertainty about rates.

153 See OMB, supra note 151, at 152.

154 See id., at 152.


156 See OMB, supra note 151, at 143.

157 See OMB, supra note 151, at 150.

A proper accounting will keep these separate and will offer greater insight into whether an investment decision is desirable. In what follows, I show that discounting is part of a larger concern over missing values and that the proper approach is to find and count the missing values rather than adjust the discount rate.

iii. The Discount Rate Problem and Moral Harm

A category of the missing value criticisms is found in concerns that CBA ignores the value to future generations. In BCA, future benefits and costs are discounted using an interest rate termed the discount rate. Critics argue that the utility of future generations should be on par with the utility of the present generation. For example, Parfit contends “the moral importance of future events does not decline at n% per year.” Similarly, Brown notes that "discounting imperils the future by undervaluing it." Ackerman and Heinzerling suggest that the use of discounting will lead us to focus on near term projects rather than focusing on stopping a catastrophe on a planetary level. This sort of criticism has been noted with favor by economists, lawyers, and philosophers.

159 Jonathan Lesser and Richard O. Zerbe Jr., A Practitioner’s Guide to Benefit Cost Analysis, in THE HANDBOOK OF PUBLIC FINANCE (Fred Thompson and Mark Green eds., Marcel Dekker 1998). 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 $160 in 100 years. With zero or sufficiently low long-term discount rates, Project B is preferred. Project A, however, may result in greater wealth in 100 years so that it is superior for both the current generation and the 100th year generation.


161 See, e.g., Schultze et al., supra note 155; See also PEARCE ET AL., supra note 155; Parfit, Attack on Social Discount Rate, supra note 155; Parfit, Social Discount Rate, supra note 155.

162 See Parfit, Attack on Social Discount Rate, supra note 155, at 86.

163 Peter G. Brown, Greenhouse Economics: Think Before You Count, in THE REPORT FROM THE INSTITUTE FOR PHILOSOPHY & PUBLIC POLICY 10 (Summer/Fall 1990). 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, supra note 160.


165 See, e.g., Schultze, supra note 155; Pearce et al., supra note 155.


167 See, e.g., Parfit, Attack on Social Discount Rate, supra note 155; Parfit, Social Discount Rate, supra note 155.
The following hypothetical\textsuperscript{168} exemplifies the sort of problem that concerns critics of discounting:

A nuclear project is being considered that produces benefits of about $100 billion at a cost of about $60 billion in real 2007 dollar terms but, in addition, produces a toxic time bomb that will cause enormous environmental costs sometime in the far future.\textsuperscript{169} Suppose that waste-disposal technology will contain this waste for 500 years, after which it will escape its sarcophagus and generate environmental damage of $44,384 trillion in constant current-year dollars an amount equal to the world’s GDP in 2005. The present value of these damages discounted at a 3 percent real social rate of time preference (SRTP) is about $0.017 trillion. This amount is not insignificant, but it is far less than the damage that will occur in 500 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 determined to exceed the costs by almost $40 billion.

Critics say that this project would be unfair to future generations and therefore that the use of discounting in cost-benefit analysis is immoral. A commonly proposed solution to the problem of unethical harm to future generations is to use low, or even negative, discount rates or not to use discount rates at all.\textsuperscript{170} This sort of argument is 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 or even about the relevant actual moral sentiments. The proposed solution of using no or low discount rates is \textit{ad hoc} and, if generally applied, will lead to other ethical problems. For example, the adoption of projects that provide less benefit to both present and future generations.\textsuperscript{171}

Under KHM we can give standing to moral sentiments of the present generation about future generations. This provides a solution to the ethical dilemma of the discount rate problem

\begin{footnotesize}
\begin{enumerate}
\item[(168)] This hypothetical is motivated by the nuclear waste problem at Rocky Flats, Colorado
\item[(170)] \textit{See}, for example, Schultze et al., \textit{supra} note 155; Parfit, \textit{Attack on Social Discount Rate, supra} note 155; Parfit, \textit{Social Discount Rate, supra} note 155.
\item[(171)] 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 for both current and future generations.
\end{enumerate}
\end{footnotesize}
by acknowledging the validity of ethical concerns while also acknowledging the values that commend use of a discount rate. Consider Table 3 below.
### Table 3: A Comparison of KH and KHM*

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<tbody>
<tr>
<td>Ordinary Benefits</td>
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<tr>
<td>Ordinary Costs</td>
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<td>60</td>
<td>60</td>
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<td>Harm to future Generations</td>
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<td>0.017</td>
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<td>Administrative Costs of Actual Compensation</td>
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<tr>
<td>Mitigation Costs</td>
<td>[7.5]</td>
<td>[7.5]</td>
<td>7.5</td>
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<tr>
<td>Moral Harm to Present Generation</td>
<td>50</td>
<td>[50]</td>
<td>[50]</td>
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<tr>
<td>KH NPV</td>
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<td>39.983</td>
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<tr>
<td>KHM NPV</td>
<td>-10.017</td>
<td>29.981</td>
<td>32.5</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Neither compensation nor mitigation appears worthwhile under KH as moral harm is ignored. The project is not worthwhile under KH.</td>
<td>Compensation eliminates moral harm</td>
<td>Mitigation eliminates moral harm</td>
</tr>
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* A real discount rate of 3% is used to discount all figures. The .017 figure is the discounted value of future damage expressed in billions. Figures in brackets are costs not incurred in the given scenario. Note that not all figures are relevant to KH and that mitigation and compensation are substitutes so that one or the other but not both are included in the KHM calculation.

For purposes of this example, mitigation and compensation measures are assumed to completely eliminate future harm. Mitigation does not, however, enter the KH calculus as the mitigation costs are less than the present value of the future harm. That is mitigation does not
occur under KH as its costs are $7.5 billion and it eliminates only $0.018 billion in harm. This occurs because KH ignores the elimination of moral harm. Similarly KH does not consider compensation as it ignores distributional effects and the costs of compensation. Therefore, the NPV under KH is the same under all scenarios. KH misses values and information by ignoring moral harm and the cost of actual, as opposed to hypothetical, compensation.

The analysis of the nuclear waste example is quite different under BCA using KHM; the NPV for a scenario without mitigation or compensation is negative, a negative $10 billion under KHM, instead of the positive nearly $30 billion under KH. This is because moral sentiments are included as required by KHM, but not included under KH. When compensation or mitigation occurs, the moral harm is eliminated and the missing values are now included under KHM. Some economists object to say that moral harm cannot exceed the present value of the future loss. They would ask, “If the current generation can compensate future generations for $0.017 billion, then wouldn’t this represent the maximum willingness to pay?” The answer is no, for two reasons. First, the costs of compensating are clearly not $0.017 million. The administrative costs of providing compensation so far into the future must be included, and these may well be enormous, perhaps infinite. The ability to provide the required long-lived institutions that would carry out compensation has been found to be improbable.

Second, the parties deciding on compensation may not be the same parties that suffer moral harm. That is, for goods supplied by the public, there is a distinction between those who would purchase moral satisfaction and those who make the decision to purchase it. The transactions costs of actually persuading decision makers to compensate may be prohibitive, especially since any attempt at agreement may suffer from a free rider problem.

172 Under KH compensation costs are hypothetical and are merely the present value of the costs of future harm, or $0.017 billion.
173 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 through a contingent valuation survey to determine, at least in principle, the WTP or WTA of "others" who have moral sentiments about the project.
174 This was an objection raised when presenting this example at the Western Economic Association conference.
176 Critics of benefit-cost analysis suggest that the values individuals hold as private persons differ from those they hold for public decision-making (See Anderson, supra note 10; SAGOFT, supra note 7).
purchase of moral satisfaction occurs, one must conclude that the transactions cost of purchase is at least as great as the moral harm to the present generations.

The highest NPV under KHM is $32.5 billion, which occurs with mitigation. The inclusion of the value of moral sentiments to reduce harm to future generations provides a justification for mitigation as long as its costs are less than the moral harm. Under KHM, then, rough estimates of moral harm might suffice for the correct decision. The KHM approach is superior as it gives a truer and fuller accounting. In this example mitigation gives a KHM net present value of about $32 billion. The use of BCA-KHM accounts for all relevant values and results in a valuable project, whereas KH results in a project with a $10 billion loss.

Under KHM we can give standing to moral sentiments about future generations. KHM allows us to correctly compare compensation, mitigation and non-action. It avoids projects that appear worthwhile but impose moral harm greater than their value. It provides a solution to the ethical dilemma of the discount rate problem that recognizes ethical concerns as valid and seeks an ethical solution, while at the same time acknowledging the values that commend use of a discount rate. The economic efficiency of the project will then depend on the sentiments of the present generation. For example, the present generation may feel future generations should be free of problems caused by the current generation. Evidence from Kunreuther and Easterling and from Svenson and Karlsson suggests that, at least with regard to nuclear waste disposal, individuals tend to place a high emphasis on future consequences.177 On the other hand, the present generation may find that compensation for environmental harm is unwarranted, given their belief that future generations will be wealthier than the present one.178 Or, the present

argument, however, works better as a caution to measure the actual values than as a criticism of the methodology of benefit-cost analysis. See ZERBE, ECONOMIC EFFICIENCY, supra note 5.


178 The assumption of declining marginal utility of income with increasing income applies to distributional effects in general, as well as to short-term rates, and not just to long-term discount rates. If there is a declining marginal utility of income then the benefits accruing to the wealthy should receive less weight. The 2003 Final Report cannot, without being inconsistent, recognizes such decline for one purpose and not for another. These considerations do not affect the approach here though they may affect relevant values. Taking into account the effect of declining marginal utility of income with wealth can be done directly though valuations of benefits and costs rather than by changes in the discount rate. The magnitude of moral sentiments about compensation or mitigation as expressed by
generation may feel that future generations should be free of problems caused by the current generation.\textsuperscript{179}

\textbf{B. Foundational Criticism 3: Immoral Values}

Generally, it is thought that CBA must embrace immoral sentiments unreservedly if it accepts moral sentiments at all. It is considered that all persons and all types of sentiments affected have economic standing to determine economic efficiency.\textsuperscript{180} This fact helps explain the reluctance of economists to accept the inclusion of moral sentiments in CBA.\textsuperscript{181} Quiggin for example notes, "the unattractive policy implications…may be illustrated by the case when some individuals have sectarian preferences, characterized by altruism toward members of their own racial or religious group and zero or negative altruistic WTP for others."\textsuperscript{182} This issue, sometimes referred to as bad utility, is discussed extensively in the philosophical and legal literature.\textsuperscript{183} Nussbaum makes the point that WTP does not make the necessary exclusionary moves, e.g., omitting preferences based on ignorance or haste, preferences deformed by malice, WTP amounts might be affected by the way benefits and costs are calculated, but such sentiments will still exist and should be taken into account as far as possible.\textsuperscript{179} See Kunreuther and Easterling, \textit{supra} note 179, at 252, 255; See Svenson and Karlsson, \textit{supra} note 179, at 385. 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 information could be determined, at least in principle, by a contingent valuation survey measuring the WTP or WTA of those who have moral sentiments about the project.\textsuperscript{180} The exception is moral sentiments. There is no good reason for this exception except historical accident. The accident lies in the history of the Kaldor-Hicks or potential Pareto criterion, the criterion that underlies efficiency calculations. The exception in practice is much wider. Municipal governments restrict the results of their benefit-cost studies to effects on their own municipal revenues or on their own residents, ignoring effects on non-residents who are thereby denied economic standing. Federal benefit-cost studies routinely ignore effects on residents of foreign nations. Economists usually omit giving values to outcomes associated with unattractive emotions such as those of envy or jealousy, as well as to the sentiments of bad actors such as a murderer, or a rapist, or, slightly more controversially, to the value of goods in the hands of a thief. See ZERBE, ECONOMIC EFFICIENCY, \textit{supra} note 5, at 108-11.\textsuperscript{181} See John Quiggin, \textit{On the Optimal Design of Lotteries}, 58 ECONOMICA 1, 2 (1991).\textsuperscript{182} John Quiggin, \textit{Altruism and Benefit-Cost Analysis}, AUSTRALIAN ECONOMIC PAPERS 68, at 151 (1997).\textsuperscript{183} See generally Philip Mirowski, \textit{More Heat Than Light}: Economics as Social Physics, Physics as Nature's Economics (1991); Robert H. Nelson & Max L. Stackhouse, \textit{Economics As Religion}: From Samuelson to Chicago and Beyond (2003).
envy, resentment or fear, and preferences that reflect adaptation to a bad state of affairs. Indeed, Lothrop goes so far as to claim that CBA ignores legal and moral rights.

It is true that CBA and BCA must consider immoral values; they are built on sentiments and preferences and there is no guideline or theory within CBA for the exclusion of certain values and not others, other than those found in the normative or sociological and legal arrangements. All philosophic systems struggle with this issue. Nussbaum notes the general absence of an agreed upon system for valuation even within philosophy. CBA will do no better. However, just as CBA must count immoral values, it must also count sentiments against including them, including constitutional exclusions. That is, BCA constrains the inclusion of immoral sentiments, and BCA can make exclusionary moves in so far as they are based on law and norms. Since 1986, and certainly since 1991, progressive BCA has incorporated the concept of “standing” that determines whether one’s values are to count in an economic analysis. On this basis, it can be argued that the thief’s valuation of his stolen goods is not to count, since theft is illegal. The illegality of theft may be taken, in a benefit-cost context, to reflect a social judgment that the value of goods to the thief does not count. That is, it reflects the judgment that if one were in fact to conduct a CBA of society generally the finding would be the same as with the exclusion of the value of the gains from the illegal act. An example modified from Dworkin highlights this understanding:

Derek sues Amartya for stealing his book. He asks for return of the book and costs. Derek is poor and Amartya is rich. Derek loves the book but Amartya cares only a little for it. Derek would have sold the book to Amartya for $2 had he had it. Amartya values it at $3. A benefit-cost analyst hired by Amartya testifies at trial that the value of the book is greater for Amartya than for Derek in the sense that Amartya’s willingness to pay exceeds Derek’s willingness to accept. So, the CBA suggests that wealth is maximized if the book goes to

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184 See Nussbaum, supra note 8.
187 Nussbaum, supra note 8.
189 See ZERBE, ECONOMIC EFFICIENCY, supra note 5, at 108-11.
Amartya. The court finds, however, that Amartya did, in fact, steal the book, and awards the book the Derek, the CBA notwithstanding.190

A version of CBA grounded in law, that is BCA, however, awards the book to Derek because its value to Amartya in the role of thief is counted as zero. Consider a real world analogue to the Derek-Amartya problem that arose when I was consulting with the Federal Trade Commission (FTC). A major national utility collected payments one month in advance. The issue before the FTC was whether the utility should be required to return these credit balances to customers who discontinued service. Company policy was to retain the credit balances—which totaled several million dollars—except for customers who explicitly requested them. Any CBA approach (ignoring deterrence effects), that gives the thief’s valuation of the stolen goods standing, will result in the conclusion that the company should keep the funds because there are transactions costs incurred in their return. Note that were we considering the issue of whether theft should be illegal, Amartya’s values would count fully.191 But theft is illegal.

The KHM answer to both the Derek-Amartya problem and the FTC’s problem is that the thief cannot claim the funds or the book; the value of stolen goods in the hands of the thief is zero. Such a conclusion is derived from the legal status of theft. Although KHM makes the necessary exclusionary moves, it cannot, however, do this on its own.192 The values calculated in CBA necessarily and by definition rest on the sentiments of society, so they are dependent on the prior determination of rights, particularly as embodied in law.193 As noted above, however, where the question is whether or not theft should be illegal, than the values of the thief would count.

Sen provides the example of Ali, modified here as follows:194

Ali is a successful shopkeeper who has built up a good business in London since emigrating from East Africa. A group of racists hate Ali and would like to beat him up. Because there are so many of them, their WTP to beat up Ali might exceed the willingness to accept payment by Ali to allow bashing. Yet suppose that allowing the bashing of Ali is against the

191 This brings into question the denial of voting rights to felons.
192 See Zerbe, ECONOMIC EFFICIENCY, supra note 5; Zerbe, Is Cost-Benefit Analysis Legal, supra note 1, at 419–456.
193 Id., at 419.
law. The bashers have no standing to have their values counted in a CBA rooted in law. In the context of CBA itself, the law can be taken as the results of a prior CBA that justifies making assault and battery illegal. That is, the general question of whether or not bashing ought to be legal has been already decided by a prior CBA. Were we to consider the question of whether battery should be illegal, in a CBA framework, the sentiments of the bashers should then count. In fact, I have never encountered an instance in which values of envy or malice were counted in a CBA. These criticisms miss the connection of BCA with the law. The question of what sentiments are to be excluded from economic calculation can be seen as one of economic standing based on law. Of course it is possible as mentioned that bad preferences overwhelm good ones and that there is no recourse to a constitutional limiting provision of such bad preferences. The BCA offers no moral foundation for avoiding this issue. It can only help to make it apparent.

By extension, one can reject, as a matter of convenient and reasonable practice, widely recognized immoral values on the grounds that the sentiments against inclusion would exceed the value of inclusion; that is the WTP to exclude would likely be greater than the WTP to include values like envy or malice. Neither furnishes a cause of action at law and neither should be the source of gain in CBA. People are not compensated for actions that cause them envy or prevent them from say picking wings from flies. One cannot claim damages for envy. BCA gives weight to the concern of some persons for others. Social norms determining immoral values are then sufficient to reasonably assume that the social WTA, to give no weight to such immoral values exceeds the WTP to be able to indulge them. Of course, instances will arise in which one’s values are at odds with society’s values or in which one society’s values are in conflict with another’s. In these cases, the practitioner can only conduct an analysis under alternative value assumptions. It would be far worse for the analyst or the philosopher to substitute her own values for those of society in undertaking a CBA. This would gainsay the fundamental claim of CBA that it tries to represent social values. CBA cannot do what philosophy and law have not provided, namely rest on a set of widely accepted ethical principles.

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195 Dale Whittington and Duncan MacRae, Jr. develop the concept of standing in The Issue of Standing in Benefit-Cost Analysis, 5(4) JOURNAL OF POLICY ANALYSIS AND MANAGEMENT 665, (1986); Trumbull, supra note 124; Zerbe, Comment, supra note 124, at 96, Zerbe, ECONOMIC EFFICIENCY, supra note 5, at 181–82.
196 See Kelman, supra note 17, at 33–40.
that stand apart from social sentiments. Nussbaum comes to the point by stating that “we badly need an independent ethical theory of basic entitlements…”197 BCA does not offer such a theory nor aspire to. If BCA critics cannot furnish such an independent foundation, it seems churlish to argue against its use on the grounds that it also does not do this job, a job for which it was never intended. Such criticism should be directed at the legal or political system, which must underlie any acceptable normative analysis concerned with less than revolutionary changes. The source of the objection implicitly lies in a concept of CBA that incorrectly holds it separate from the legal environment in which it operates. The concept of any coherent CBA is tied (explicitly so under KHM) to the legal system and to existing normative sociological values.

C. Foundational criticism 4: Non-Commensurability and Market Values

Many critics, most recently Ackerman and Heinzerling, complain that CBA and by extension BCA mixes apples and oranges by including incommensurable values in the analysis. Indeed, for Ackerman and Heinzerling, this is the primary criticism of BCA. Market values are treated as inferior values which degrade the value of moral sentiments and result in the use of private values when public values are appropriate. Putting a price on moral sentiments degrades them, as if the value of life could or should be monetized such that one could, for example, put a monetary value on friendship or preventing the abuse of one child. In general, critics of CBA object to what they see as the limitations of market values, which are embedded in normative economic analysis; in this view, economics is at most concerned only with market values.198 The view of CBA as expressing only market values is consistent with both the mainstream view and perhaps with wealth maximization. This misguided view unnecessarily limits CBA.

The purpose of BCA is not to monetize values per se, but rather to provide a ranking of choices expressed in monetary terms. In the language of CBA, the market is a metaphor for a mechanism for determining value. Market values, in the language of the metaphor, need not represent “mere commodities” but instead represent choices. Choices, of course, exist outside a

197 See Nussbaum, supra note 8, at 14.
198 The criticism is elegantly expressed by Lumley: “[I]f a single discount rate is applied to environmental resources, the implications of non-monetary aspects of those resources are often ignored for these intangible factors are the ends to which money is not a means.” See Sarah Lumley, The Environmental and the Ethics of Discounting: An Empirical Analysis, ECOLOGICAL ECON. 20, at 72 (1996).
commodity-type market. Goods that are not purchased with money may nevertheless be ranked in monetary terms.

The distinction is crucial. For instance, the value that we place on a friendship is not one that is or that we wish was determined in a commodity market. When we harm a friend, to use an example of Sunstein’s, by canceling a lunch appointment at the last minute in order to attend a lecture of particular interest,\(^{199}\) we do not compensate or offer to compensate that friend by offering a sum of money. Yet we might perform other acts – perhaps acts with a monetary value – which are consistent with friendship, to show its value to us. We might offer to drive him when he needs a lift; we might give him a present; we might agree to participate in an activity he enjoys. So when we talk about the value of friendship and its value in the “market for friendship,” we are merely calling attention to the fact that friendship has a value. More importantly, in missing the lunch to attend the lecture, the person is making a choice, and the role of CBA is to reflect that choice. The value of friendship, in principle, has been neither missed nor undervalued by CBA. The legitimate concern is whether presenting values in monetary terms, as CBA does, distorts their discussion. There is no evidence that it does, but this remains a possibility.

Neither BCA nor CBA are the proper vehicles to consider fundamental questions of life and liberty. It is not that they will give wrong answers to these questions; rather that their answer will be governed by the status quo. That is, they have no answer to these questions other than the status quo. More importantly, they are not the right language for fundamental and controversial value questions. It does have answers to questions for which there are not such fundamental disagreements.

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\(^{199}\) See CASS SUNSTEIN, FREE MARKETS AND SOCIAL JUSTICE 73–74 (1997). Sunstein comments that “we may believe that goods are comparable without believing that they are commensurable.” Id. at 81. We would say further that the use of monetary figures to rank preferences can be done even where the choices are not made with respect to a monetized frame of reference. We don’t think of friendships in terms of money, but we make trade-offs with respect to them. The problem of the effect that using the discount rate has on future generations and the problem of estimating losses are endemic to any decision process that uses information.
D. Foundational criticism 5: The absence of any “scientific” method of aggregating preferences.

Utility cannot be measured so we cannot say in general if total happiness has increased if a project increases the wealth of some more than it decreases the wealth of others. This is a fact of nature. Critics see it as attempting to combine incommensurables in a single metric so that the answer it provides is without meaning. 200 This is not an effective criticism. The criticism is based on misunderstanding. Neither CBA, BCA nor economics more generally assumes that utility can be measured in a cardinal sense. That is, there can be no utility ranking of people. BCA suggests a method of aggregating preferences. The relevant questions are whether or not its method is acceptable, appropriate and useful. The benefit-cost rule is to treat the value of each dollar the same regardless of into whose hands it falls.

E. Consequentialist criticism 1: CBA is biased in favor of the status quo.

The results of a BCA can depend on the legal starting point. Benefits and costs are to be measured as changes from the status quo. Gains from the status quo are measured by the WTP, losses by the WTA. 201 The status quo position is determined by one’s expectations of what one has, and legal rights mainly define these expectations. 202 Since for normal goods the measure of


202 The older generation of economists, say those writing before the 1940s, well recognized the complexity of the notion of a standard of living, of measuring economic value and the role of human perceptions. Hewins, for example, providing a description of economics for the 1911 edition of Encyclopedia Britannica, notes: The concept of the standard of life involves also some estimate of the efforts and sacrifices people are prepared to make to obtain it; of their ideas and character; of the relative strength of the different motives which usually determine their conduct. . . . it is doubtful whether the most complete investigation in terms of money (q.v.) would ever enable us to include all the elements of the standard of life in a money estimate. (See ENCYCLOPEDIA BRITANNICA 900 (1911).)
a gain is less than the equivalent loss, and since this corresponds with psychological measurements, the status quo bias simply accords with existing values.

F. Consequentialist criticism 2: The Role of CBA

Many critics (e.g., Richardson) identify CBA with a sort of mechanical approach that purports to deliver the answer to public policy questions. CBA is seen as an algorithm for deep political discussion and consideration. Public decisions should be decided in public forums not by a formula. A common view is thus that CBA is a “flawed science that deprives citizens of the opportunity to participate in democratic processes that bear on resource allocation….”

This criticism suggests that advocates of CBA believe that its results come as close as possible to identifying the best decision subject to constraints of data and costs. Advocates impose no constraints on the sort of questions that CBA is suited to address. Posner’s earlier work probably best exemplifies this view, which is also held by a number of economists. The logic of Posner’s view is that CBA attempts to mimic the market and to create a result similar to what market forces would create if transactions were costs zero.

Leading textbooks and articles on CBA, however, explicitly treat CBA or BCA as a means of providing information to the decision process, not as providing the decision. This understanding of BCA immediately obviates many of the criticisms of it. Richardson, for

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This insight was lost in subsequent developments until the 1970s when economists were confronted with the unpleasant fact that many of their predictions about human behavior under uncertainty were incorrect. Kahneman and Tversky were instrumental in clarifying gains and losses as psychological concepts as well as measures of economic value. See Kahneman & Tversky, supra note 201, at 263. The psychological issues they addressed in the 1970s were not ones of individual idiosyncrasies, but rather concerned the way most people actually thought, valued, and made decisions.

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203 See Richardson, supra note 7, at 984–90.
205 See RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 15 (2d ed. 1977); Harberger, supra note 85, at 785.
206 To attribute this view to KH is perhaps somewhat unfair to its originator, Kaldor, who clearly did not see the role of CBA as providing the answer because he explicitly expected that decision makers would consider distributional effects.
example, sees CBA as foreclosing deliberate and intelligent discussion. But if CBA is seen simply as providing relevant information, then it does not foreclose deliberation; in my experience, it encourages deliberation. It does this by proving a reasonable framework for discussion that allows data to be challenged, allows new data to be presented, and increases the transparency of the process. A great advantage of CBA is that it is a framework for questioning and refutation. Instances of agency bias in preparing CBA are widespread. But these biases will be expressed in other, more opaque, ways in the absence of CBA. The advantage of CBA is that the biases can be more easily questioned, challenged and changed. For example, criticisms of CBA by Haveman of the Corp of Engineers have changed its practices. Work by the Department of the Interior showed that the CBA underlying the proposal by Tennessee Valley Authority to build the Tellico Dam was seriously flawed and that the benefit-cost conclusion was incorrect. The existence of even a flawed CBA facilitated discussion and revision that produced a different opinion.

If one accepts that the role of CBA is to provide information, KHM has a greater claim on our approbation than KH because KHM provides better information; KHM will give different and better answers than KH. Where the value of moral sentiments is not zero, their inclusion will affect the magnitude or the sign of the project’s NPV. This magnitude is relevant to policy. When inclusion of moral sentiments serves to increase an already positive NPV, it can affect the ranking of projects. In comparing projects, one chooses the project with the highest NPV. Because it is desirable to know the magnitude of NPV, inclusion of moral sentiments is desirable.

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208 See Richardson, supra note 7, at 971.
212 This is explored by Zerbe et al., supra, note 89.
KHM is associated with the view that the role of CBA is to provide information to the decision process, not to provide the decision.\textsuperscript{213} The justification for this is that no CBA can by itself capture all factors relevant to all decisions. Data will be missing or of questionable validity. Uncertainty about the future will exist. There will be effects that are difficult to quantify. The decision may be one in which the role of CBA is limited as there are fundamental value questions at stake not best addressed by CBA. Finally, decisions are the responsibility of those elected or appointed to make them, and not the responsibility of an economic algorithm. For these reasons, the proper view of CBA is that of furnishing information to the decision process and not as providing the decision. Once this view is accepted, the superiority of KHM lies in the fact that it can provide more information.

G. Consequentialist criticism 3: CBA may result in a neglect of non-quantitative values.

A realistic criticism of CBA and BCA, whether under KH or KHM, noted by a number of commentators is that CBA tends to bring undue focus on values that are quantified and thus on those that are most easily quantified.\textsuperscript{214} That is, in using CBA, hard numbers tend to drive out soft values.\textsuperscript{215} This is a real concern. Certainly, this problem justifies efforts to ameliorate it through the presentation of CBA results to give due weight to difficult or costly-to-quantify information, as Weisbrod and McDaniels et al. have done.\textsuperscript{216} Indeed the McDaniel et al. work is a model, tested in practice, of how to use CBA in a deliberative process. The hard-number bias appears insufficient to discontinue the use of CBA. In Part Two of this paper I show that most of the government studies consider non-quantitative values suggesting an amelioration of the bias in practice.

\textsuperscript{213} See Mark A. Wolfson, Earnouts: The Effects of Adverse Selection and Agency Costs on Acquisition Techniques, J. L. ECON. & ORG. (2001); Zerbe., Integration, supra note 85, at 349, 361; ZERBE & DIVELEY, supra note 39.
\textsuperscript{214} See McGarity, supra note 209; Sunstein, supra note 3.
\textsuperscript{215} See Calandrillo, supra note 15.
V. ECONOMIC CRITICISMS OF BCA

Criticisms of BCA have come from within economics. There are four major criticisms. Three of these criticisms relate to the inclusion of moral sentiments as values within BCA: the invariance claim, the double counting claim, the potential compensation claim, and the immoral sentiments claim. This section shows that none of these criticisms affect the argument for inclusion of moral sentiments. The fourth claim is that the existence of Scitovsky reversals vitiates the use of CBA, which, if true, would apply equally to BCA. This claim is false.

A. The Invariance Claim

The invariance claim is that non-paternalistic altruism is unimportant because such sentiments simply reinforce the conclusions that would be reached otherwise. As McConnell notes, “a project that fails the original test with beneficiaries…will also fail when it incorporates the willingness to pay of those who are altruistic towards the direct beneficiaries.” The idea is that a project must already create net benefits to the objects of altruism before altruism adds additional benefits. Consideration of altruism only adds fuel to the fire. A project that passes the original benefit–cost test will pass a fortiori when it includes positive altruistic sentiments. (It is recognized that this invariance claim does not hold when it includes negative altruism.) McConnell notes, “[I]n the standard case, when the benefits of resource preservation to users exceed the costs, consideration of non-use benefits is superfluous as long as they are not negative.”

This claim, while narrowly correct given the requisite restrictions, fails as a reason to exclude moral sentiments since it is untrue that their inclusion leaves the BCA result unaffected. First, inclusion of altruism may affect the ranking of projects being compared and thus affect which of several projects is chosen. Second, the inclusion of non-paternalistic altruism can change the actual sign of net benefits as Zerbe et al. have shown elsewhere. For example, a

217 See McConnell, supra note 89.
218 Id. at 25.
219 This is true even when the net present value without moral sentiments is already negative—meaning that including moral sentiments would further reduce the net present value—because one may be constrained to make recommendations among projects that all have negative net present values.
220 See Zerbe et al., supra, note 89.
project may have negative (or positive) net benefits due to negative (or positive) benefits for a group that is neither the object nor the source of altruistic sentiments. In these cases, inclusion of moral sentiments can offset the negative or positive sentiments of this group. Including moral sentiments can therefore contribute useful or even crucial information. No false result will occur due to inclusion of the value altruistic sentiments so that invariance is unimportant.

In this example, as illustrated in Table 4 there are three groups, altruists who care about User Group 1 but not about User Group 2, and the two user groups. There are two projects A and B. These are not alternative projects but independent projects. For project A when the moral sentiments of the altruists are not considered the NPV is -$10. When they are considered the NPV is +$40. This result is in contrast to the invariance claim that fails to consider that altruists may also have non-altruists values associated with the project. Project B has an NPV of -$20 when moral sentiments are not considered but a value of +$30 when they are considered.\(^{221}\) The invariance claim is only interesting when altruists’ values are restricted to only altruistic values and in which there are no groups affected who are not the object of altruism.

\begin{table}[h]
\begin{tabular}{|c|c|c|c|c|c|c|}
\hline
Project & Value of Moral Sentiments & Other Values & User Group 1 & User Group 2 & NPV excluding Moral Sentiments & NPV including Moral Sentiments \\
\hline
A & 50 & -100 & 90 & 0 & -10 & 40 \\
B & 50 & -100 & 150 & -70 & -20 & 30 \\
\hline
\end{tabular}
\end{table}

\textbf{B. The Potential Compensation Claim [PCC]}

The PCT requires that winners from a project are able hypothetically to compensate the losers while retaining some of their gains. No actual compensation is required. Milgrom argues that including non-paternalistic moral sentiments in BCA leads to potential violations of the

\[^{221}\text{Zerbe et al. point out this latter case, represented by project B, but not the first case.}\]
He considers a project that costs $160 and affects two people. Individual U, the user, gains $100 from the project and bears none of its costs. Individual A, the altruist, has a gross gain of $50 + 0.5 times U’s net surplus, i.e., a gross gain of $100; A also bears the entire $160 cost of the project, for a net loss of $60. The project passes a benefit–cost test if altruism is included but fails if altruism is excluded. The net benefits are $200 - $160 = $40 and $150 - $160 = -$10, respectively. The project fails the PCT: each dollar that U gives A in compensation provides a net benefit to A of only $0.50, so even transferring U’s entire $100 gain cannot overcome A’s initial net loss of $60. Milgrom concludes from this that altruism and other moral sentiments should not be included in benefit-cost analysis.

This is the wrong conclusion. First, the failure to pass the PCT occurs only in trivial circumstances. It depends on the sum of altruistic sentiments across altruists valuing the


Imagine that there is a project with benefits and costs distributed between groups of users U and a group of altruists A. Let \( \alpha \) be the "warm glow" experienced by the altruists from each $1 increase in U's net benefits. Aside from altruism, direct net benefits from the project are NBA and NBU for A and U, respectively. We assume that the sum of these is negative. A also gets indirect altruistic benefits based on the net benefits to U. These are measured by A’s willingness to pay, which is $\alpha$ per $1 net benefit to U. Therefore, the total net benefits including altruism are

\[
NBU + NBA + \alpha(NBU). \tag{2}
\]

The net benefits (including altruism) to A are

\[
NBA + \alpha(NBU) \tag{3}
\]

which we assume to be negative. To pass the PCT, U must be able to compensate A with some transfer T; the minimum acceptable transfer satisfies

\[
NBA + T + \alpha(NBU - T) = 0. \tag{4}
\]

However, applying this hypothetical transfer to A will result in total net benefits of

\[
(NBU - T) = (NBA + NBU)/(1 - \alpha). \tag{5}
\]

which will be negative for \( 0 < \alpha < 1 \) since the numerator is assumed to be negative. Thus it is said that to pass a PCT, benefits should exceed costs without considering moral sentiments. However, ordinary net benefits need not be positive to pass the PCT when \( \alpha > 1 \); we can compensate A by having him give money to U. Suppose, for example, that A transfers $200 to U at a cost of $210. This does not pass the ordinary benefit-cost test. But if A gains two dollars in satisfaction for every dollar transferred to U, then the gains to A are $400-$210 or $190; in this case the project passes a benefit-cost test counting moral sentiments and also the PCT since there are no losers. It is useful to distinguish between \( \alpha_i \), which represents the altruism of an individual, and \( \alpha \), which is this value summed over all altruists. Since the number of altruists can be very large, \( \alpha \) can also be very large, reflecting the fact that moral satisfaction has qualities similar to public goods. Consider, for example, a situation in which 200 altruists are charged $1 each to transfer $200 to users. If the value of \( \alpha_i \) is $0.10 (i.e., each altruist gets a gross benefit of $0.10 for each dollar transferred), then \( \alpha \) will be 20
transfers by less than a dollar per dollar transferred.\textsuperscript{225} This will only be the case where the moral sentiments are neither deep nor broad. Consider, for example, a situation in which 200 altruists are charged $1 each to transfer $200 to users. If each altruist gets a gross benefit of $0.10 for each dollar transferred, then the total value of the transfer to the altruists will be $20 and the altruistic gain will be $4000.

Second, neither a moral nor a scientific claim for the use of BCA lies with the PCT. The moral claim for the use of BCA rests on one or both of two claims. The first is that the widespread use of CBA will tend to benefit all over time so that its use tends to satisfy the Pareto claim. The second is that BCA will in any event produce better results than alternative techniques. The correct necessary criterion accompanying these moral foundations is that net benefits be positive. The PCT is irrelevant, and therefore should be abandoned as a criterion.

C. The Double Counting Claim

Diamond & Hausman and McConnell claim that including the value of non-paternalistic altruism is double counting.\textsuperscript{226} McConnell compares a particular project to a direct transfer of cash from the general public (here, the altruists) to users. He considers projects in which the benefits to users are less than the costs of the project and claims that the project will never pay, no matter what the sharing arrangement between users and altruists. He argues that to include the value of moral sentiments might transform a poor project into one that seemed good. This is an extension of the invariance argument. This criticism is incorrect.\textsuperscript{227}

McConnell’s criticism centers on the argument that altruists could simply make cash transfers to the targets of their altruism instead of supporting projects that benefit those individuals. He compares the project to a direct transfer of cash from the altruists, here the general public, to the users. Since direct transfer to users of some amount less than the cost of

\textsuperscript{224}See Zerbe et al., supra, note 89.
\textsuperscript{225}For a proof, see Zerbe et al., supra, note 89.
\textsuperscript{227}See Zerbe et al., supra note 89.
the project, C, is cheaper than the project while creating equivalent moral sentiments, counting benefits representing moral sentiments will distort the choice. More precisely, McConnell notes that instead of undertaking the project it would always be better to give the beneficiaries a cash payment equal to \( B_U + \Delta \) for any positive transfer \( \Delta \) such that \( B_U + \Delta < C \).^{228}

Let \( \phi \) be the loss per dollar of attempted transfer, meaning that \((1 - \phi)\) reaches the user and \( \phi \) is lost in administrative and other costs associated with the transfer. The amount that will have to be paid in cash in order for users to receive the same benefits as the project is \( B_U/(1 - \phi) \). This cash payment will be superior to the project only if \( B_U/(1 - \phi) < C \). Whether or not direct payment to users is more efficient than the project depends on the cost of transferring money directly and the amount by which the cost of the project exceeds the benefits to its users. The larger the costs of transferring money, or the smaller the divergence between the cost of the project and its benefits to users, the more likely it is that the project will be superior to direct cash transfer. In terms of McConnell’s argument, providing users with \( B_U + \Delta \) in cash requires altruists to pay \((B_U + \Delta)/(1 - \phi)\), and this is necessarily superior to a project with cost \( C \) only if \((B_U + \Delta)/(1 - \phi) < C \). The fact that \( B_U > C \) does not ensure that this requirement is met unless \( \phi = 0 \).

It will never be the case that counting moral sentiments results in double counting in principle. This is because the WTP for the project depends on the availability of substitutes. One such substitute is for altruists to provide a direct transfer to users. In order to provide benefits of \( B_U \) to users, the altruists need to allocate \( B_U/(1 - \phi) \), so the net social cost of the direct transfer is:

\[
(B_U) (\phi)/(1 - \phi),
\]

When \( \phi \) is zero, the price of the direct transfer substitute is zero. As one will not pay more for a good than its cost elsewhere, the WTP for the project will be zero. In this case there is no double counting as the benefits from moral sentiments are zero. For any \( \phi > 0 \), there will be a benefit from the moral sentiments. As \( \phi \) approaches one, the price of the direct transfer project in which income is transferred from altruists to users approaches infinity.

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228 See McConnell, supra note 89, at 29.
There will be, then, an existence value from the project’s benefits to users when and only when there are no perfect substitutes available at a lower price. A positive existence value does not violate the invariance result. To include it in benefit-cost evaluations will not result in double counting; it is a real value that should be included in the benefit-cost calculus. The bottom line is that it is necessary to count moral sentiments to know if benefits exceed costs as well as to know the magnitude of net benefits.229

D. Scitovsky reversals

A Scitovsky reversal occurs when a decision is justified by CBA or BCA, but after having made the decision, a reversal of the decision is also justified. That is, net benefits suggest a move from position from state of the world A to B but having arrived at B, net benefits then suggest a move back to A and so back and forth. Some have seen the possibility of Scitovsky reversals creating a problem for the use of BCA. Jules Coleman goes further and claims that the possibility of inconsistent results arising from the Scitovsky paradox renders CBA useless, and by logical extension BCA as well.230 On this basis, Coleman has held that CBA is incoherent or

229 The issue of double counting is treated elegantly at the level of a social welfare function by Johansson (1992). He shows that altruistic values will already be included in questionnaires to determine the optimum provision of a public good. The difficulty in ignoring altruism means that in a practical sense it is better to include it than to ignore it.

230 See Jules L. Coleman, Efficiency, Utility and Wealth Maximization, in MARKETS, MORALS AND THE LAW 95, 95-132 (1988); see also Richard S. Markovits, A Constructive Critique of the Traditional Definition and Use of the Concept of “The Effect of a Choice on Allocative (Economic) Efficiency” : Why the Kaldor-Hicks Test, The Coase Theorem, and Virtually all Law-and-Economics Welfare Arguments are Wrong, 1993 U. ILL. L. REV. 485, 512–515 (1993). In 1941, Scitovsky introduced a slightly different criterion from KH that states that a project is desirable if the losers are unable in the original state of the world to bribe the potential winners not to undertake the project. The Scitovsky criterion assumes that the value to winners from a change is the value they would have were they to have ownership of their winnings; the value to losers is the value where losers to have no right to be compensated for their losses. KH assumes winners have no such right and that the value of winnings is determined by what the potential winners would pay for them; losers value losses at what they would accept to bear them. Both of these criteria are referred to as potential compensation tests. Scitovsky suggested that both compensation tests, that is a dual test, be used as otherwise it is possible to use KH to recommend a move from a state of the world A to a new one B and then, having arrived at B, to recommend a move back from B to A. The dual tests would avoid this possibility known as the Scitovsky reversal, though at the expense of some indeterminacy when a project passes one test but not the other.
useless. The correct view is that Scitovsky reversals do not hinder the effectiveness of BCA. Scitovsky reversals can only occur when one of the choices of a state of the world is economically inferior. That is, it involves inferior goods. Goods are inferior when higher incomes lead one to desire smaller rather than larger amounts of the goods. The appendix to this article shows this for the first time in a simple manner. Because inferiority is rare and unimportant, rejection of CBA on this ground fails. Moreover, the Scitovsky paradox arises from PCT requirements. Since BCA would drop the PCT, the Scitovsky paradox is not relevant.

VI. A BCA ANALYSIS OF CBA REASONING

A. Whale Watching

Ackerman and Heinzerling suggest that in practice, CBA fails to produce desirable results and may produce bad ones. They give the value of whale watching as an example of where CBA can go wrong. They use the extreme example of a billionaire willing to pay $36 billion to capture and kill all humpback whales as a matter of use value, in a situation where contingent valuation has estimated the existence value to be only $18 billion. They then state that existence values are not meaningful because an ethical judgment is involved that is not made clear through assessing willingness to pay. This criticism shows a lack of understanding of CBA and more excusably of BCA. The issue here would be the distribution of legal rights. If the loss of whales to watch is perceived as a loss, then the correct measure of this loss is not the WTP but the WTA payment. That is, the relevant question is whether or not those who value the existence of whales would be willing to accept an amount less that $36 billion to eliminate all whales. Such a result would be unlikely to occur, but suppose it did. Ackerman and Heinzerling’s objection would necessarily reduce to complaints that either the income distribution that led to this result is immoral or to a disagreement with current values. Both of these criticisms might merit consideration, but their quarrel would not be with BCA but with the

233 Coleman appears to believe that the mere existence of reversibility is sufficient for rejection. The Appendix shows that reversals can only occur with inferior goods, an unimportant class of goods.
234 See ACKERMAN & HEINZERLING, supra note 4, at 160-162.
distribution of existing values and rights, not with BCA. By recognizing the connection of BCA to rights, and by recognizing the value of moral sentiments, BCA vitiates this category of criticism.

**B. Slavery**

Dworkin finds fault with CBA in the form of wealth maximization because he is unable to condemn slavery with it.\(^{235}\) Apparently, it is missing those values needed to condemn slavery. These criticisms by Dworkin, Nussbaum, Kelman and others are all variants of the fact that CBA, in considering issues where there are fundamental value differences, neither can, nor is meant to, rise above prevailing social sentiments. Since CBA necessarily presumes these existing rights embodying prevailing sentiments, it cannot then rise above the status quo in these cases.

Posner responds to Dworkin with a defense of wealth maximization (WM), which I hold to be a variant of KH and CBA.\(^{236}\) Both Dworkin’s attack and Posner’s response show a failure to understand either the role of BCA or the nature of efficiency. Posner says that probably WM would find it inefficient.\(^{237}\) Posner focuses on whether one would be more productive as a slave or as a free person and suggests in the latter state a person would be more productive.\(^{238}\) Fogel and Engerman, however, undercut this speculation by finding empirically that slavery was

\(^{235}\) See Dworkin, *supra* note 9.


\(^{238}\) Posner attempts to answer that wealth maximization condemns slavery, as wealth would be greater without it. There is no evidence that this was the case. Moreover, greater wealth is insufficient to pass a benefit-cost test of greater net benefits or even a potential compensation test. A slave owner with a taste for slavery might refuse the greater monetary wealth offered to give up his slaves, and in this case one could not say that slavery was inefficient. To answer this question one would need to ask, starting from a position in which slavery was legal, whether the WTP for the illegality of those opposed to it is greater than the WTA of slaveholders to give up their right to own slaves. Or starting from a position in which slavery was illegal, one would ask whether the WTP of potential slaveholders was greater than the WTA of those opposed to slavery. Little evidence is available on either of these questions. If the answer to the questions was no in both cases, as one could easily imagine, the benefit-cost approach is indeterminate. If the right is not clear, the CBA approach in this case suggests giving the right to whichever group had the greatest WTP. Nevertheless, introducing CBA does point to relevant policy information. If the WTP to end slavery was greater than the WTA to eliminate it, a financial transactions would have had the potential to eliminate slavery without the Civil War.
efficient at least in a sense in which Posner often uses the term.²³⁹ Fogel and Engerman ask whether the U.S. gross national product would have been greater if slavery had been eliminated; their answer is that it would not have been.

But this whole debate, including the finding of Fogel and Engerman, is wrong-headed in CBA or BCA terms. The wrong questions are asked and answered. The right question for CBA, under either KH or KHM, starting from a position in which slavery exists is: does the WTP to eliminate slavery exceed the WTA to give it up. Starting from a position in which slavery is illegal, the CBA question is: would the WTP to allow slavery exceed the WTA to allow it? The answer to both questions is almost certainly negative, so that the legal starting point determines the CBA answer. This is not an example of Nussbaum’s “tragic choice”;²⁴⁰ to choose against slavery is not tragic. Fogel and Engerman do not answer the question of whether slavery was efficient because they incorrectly define efficiency. What they show instead is simply that the system was economically productive, which does not mean it is KH—let alone KHM—efficient. Efficiency is not the same as changes in GNP.²⁴¹ To show that slavery was efficient, Fogel and Engerman need to calculate the relevant WTP or WTA, but they do not. Where substantial disagreement exists about fundamental rights, who would expect CBA to provide the answer? It cannot.

C. Abortion: An Example When Rights are Uncertain

The purpose of this example is to show again that when WTA amounts are large enough on both sides of an issue, the BCA solution is determined by existing legal rights that will favor the status quo. When legal rights are unclear, the BCA solution would be to auction off the existing right. BCA is not an ideal method when dealing with fundamental rights. For that reason the following CBA analysis of abortion by Meeks fails.

²⁴⁰ See Nussbaum, supra note 8.
²⁴¹ See Harberger, supra note 85.
Meeks uses an econometric benefit-cost approach to persuade us that “banning abortion of human beings would in general be efficient.”\(^{242}\) His approach is similar to Posner’s consideration of slavery. Meeks compares the consumer surplus that women derive from access to abortion with the expected loss of earnings that would have accrued to the aborted fetuses. The consumer surplus is estimated from a demand equation for abortion. Meeks finds that the present value of the expected loss of earnings of the fetuses would be greater than the women’s loss of consumer surplus, and that this result is “robust” to different specifications, and that, therefore, a ban is efficient. There are a number of technical and conceptual difficulties with Meeks’ work, which have been ably pointed out by Julianne Nelson.\(^{243}\) Posner, in a more sophisticated discussion, also attempts to use economic efficiency to favor a ban.\(^{244}\) He makes, however, the same two conceptual errors as Meeks.

The dominant conceptual error by both participants in this debate is that efficiency is not correctly defined. Two errors are made: First, the relevant parties are incompletely defined; that is, the sentiments of others not subject to or participating in abortion are ignored. Second, WTP measures alone are used when WTA measures are relevant.

Suppose we start with a situation in which abortion is clearly legal. Let us say that group A is in favor of a ban, and that group B is opposed. For a change to a situation in which abortion is illegal, a CBA test requires that the WTP for a change exceeds the WTA of the change, or \(\text{WTP}_b > \text{WTA}_a\). Because some of those that favor abortion rights would accept no sum for a change in the law, such a change cannot be efficient.

When we start with a situation in which abortion is clearly illegal, a similar result is obtained. For those who believe abortion to be wrong, there is no sum large enough for them to allow it, such that starting from a position of illegality, no change is efficient. As with slavery, the legal starting point determines the outcome.

Suppose we start from a position in which the legal starting point is ambiguous. If parties on both sides of the issue are seen without rights, the gains from moving to a clear set of rights


would be determined by the relative WTP of both groups so that an auction would determine the outcome. Clearly, however, this is no way to decide the issue.

Instead, let us start from a position in which both groups have psychological ownership of their position, in the sense that they would have a sense of loss from any change in the position they hold. In this case, the CBA would involve a comparison of the respective WTA of both groups. But because these are both likely to be infinite, no answer let alone a solution, is available here. Yet this result is not without meaning: although the WTP is not determinative, there might be a difference in the willingness to fight for the right, and the benefit-cost rule would suggest that the right should then go to the group most willing to fight. This can be seen more clearly by imagining that both groups possess some psychological ownership of a right.\textsuperscript{245}

To do a proper economic analysis, groups A and B must include not only the women who demand abortion and the fetuses that might be born, but all of those whose feelings about abortion are sufficiently strong that they are willing to pay or to accept to have abortion legal on the one hand, or banned on the other. In this case, there are indisputably a number of people on both sides of the abortion dispute with some degree of psychological ownership and whose WTAs would be infinite. Some people would not allow a woman to be forced to give birth, no matter how much they were “bribed” to vote for an anti-abortion law, and other people would not allow a fetus to be destroyed, no matter how much they were “bribed” to allow the abortion to occur. Indeed, many if not all people with a strong stance on abortion would find the question

\textsuperscript{245}Let the status quo is clearly one of conflicting expectations. In this case we regard this matter as one in which both sides to the debate have some sense of psychological ownership. Let P represent the extent to which the party has psychological ownership and let a and b represent the two parties. We want to compare the WTP and WTA of both parties weighted by their sense of ownership. The relevant condition for granting the right to person a is:

\[ \text{WTP}_a(1-P_a) + \text{WTP}_a(P_a) > \text{WTP}_b(1-P_b) + \text{WTA}_b(P_b) \]

This can be expressed as

\[ \text{WTP}_a + P_a(\text{WTA}_a - \text{WTP}_a) > \text{WTP}_b + P_b(\text{WTA}_b - \text{WTP}_b) \]

This is interesting because it says that the divergence between the WTA and the WTP is relevant. I call this divergence “the willingness to fight.” Not just income determines the efficient outcome but also the willingness to fight. For example, one party, a timber company, say, might value an environmental right to timber at only the commercial value of the timber so in the company’s valuation there was no divergence between its WTP and WTA. An environmental group, however, might be able to pay little to preserve the timber but have a very large WTA. The total value to the environmental group might then be greater in the situation where each party had an equal right to the timber so that the CBA would favor ownership by the environmental group.
of what sort of “bribe” would convince them to change sides highly offensive. Whether the fetus’ WTP or WTA should be included is, in the terms of the KH perspective, a matter of standing, and one which clearly has not been decided. Thus, we cannot say that either a ban on abortion or the legality of abortion is efficient. We can say, however, that this is an issue in which the language of economic efficiency is not the best suited to the discussion, though we are not sure it does worse than other attempts using different language. What is clear is that neither Meeks nor Nelson nor Posner are able to say that either abortion rights or the lack thereof is efficient.

Nussbaum suggests that the use of CBA causes us to miss more fundamental value questions. Her critique finds that CBA “does not help us either pose or answer the tragic question.” Nussbaum argues that “too much reliance on cost-benefit analysis…can therefore distract us from an issue of major importance (the tragic element in choice), making us believe that we have only one question on our hands, when in fact we have at least two.” In the way Nussbaum advances the argument, CBA is unable to weigh the moral values involved. This is an empirical assertion. It is hard to take it seriously as she offers no evidence that this is so or even explains why it might be this case.

I have indicated that CBA is not the best language to consider fundamental questions of value. The reason is that when the law is clear, CBA will simply lead to a reaffirmation of the status quo. This is because when value differences are great, the WTA to avoid a change will always exceed the WTP for a change, regardless of the starting point of the legal entitlement. When the right is unclear, the BCA and CBA solution is an auction, which does not seem the appropriate way to settle fundamental value issues. Would Nussbaum have CBA focus more on tragic choices? We doubt this would be a good use of it. Brodie’s biography of Sir Richard Burton furnishes an example of tragic choice:

Burton, while working as a civil servant in Kind, Pakistan, discovered the practice in which wealthy criminals condemned to death by British justice would buy replacements to be hung in their stead. This replacement buying was purely voluntary. Burton interviewed one pauper, Baudal, who had agreed to be executed for a murder he had not committed and asked him why he had agreed to do this.

246 See Nussbaum, supra note 8.
“Sain,” came the answer, “I have been a pauper all my life. My belly is empty. My wife and children are half starved. This is fate, but it is beyond my patience. I got two hundred fifty rupees. With fifty I will buy rich food and fill myself before going out of the world. The rest I will leave to my family. What better can I do, Sain?”

This dilemma is tragic both to the Baudal and to the British system of justice. To forbid the exchange between the merchant and the Baudal is as tragic as is allowing it. To forbid the exchange between the Baudal and the wealthy criminal is to forbid a wealth-maximizing voluntary exchange and, more to the point, to reduce the ability of the Baudal to provide for his family.

But the parties are not limited to the Baudal and the merchant, so we cannot say the exchange is Pareto superior. One should also consider the whole system of British justice and the moral weight that others attach to it. Then the obvious choice is clear: uphold British law. Once third parties, including the British justice system, are brought into the matter, however, it is clear that there is a non-obvious question that one might address. How can the condition of the Baudal be relieved so that he need not face such choices? One might imagine a morally superior alternative to this voluntary market exchange that, while not Pareto superior, creates wealth for the Baudal obviating the necessity of tragic choice both for the Baudal and for British justice. A non-Pareto choice, suggested by BCA, can be superior to a Pareto choice.

The problem here is not with CBA but with the distribution of rights and wealth. We can say that CBA is of limited help in considering these matters, not because it does not pose or answer the tragic question (contrary to Nussbaum), but because where there are disagreements about fundamental rights, the status quo will govern. CBA is not the best language to discuss issues of fundamental rights not only because it has difficulty in measuring the subtleties of moral distinctions, but more fundamentally because it only provides an answer to fundamental disagreements dictated by the status quo. Nussbaum’s criticism echoes that of Dworkin and Kelman, who complain that CBA does not always tell us the right thing to do. Who would expect that it would? Table 5 summarizes the results of this discussion.

248 Notice that once the existence of a morally preferred alternative is made known, the original seemingly Pareto superior alternative is no longer Pareto superior, because those who prefer the morally superior alternative would not consent, and would be harmed by the choice of the original alternative.
Table 5: BCA Answers to Criticisms of BCA and CBA

<table>
<thead>
<tr>
<th>Criticism</th>
<th>Basis for Criticism</th>
<th>BCA Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The Invariance Claim</td>
<td>The CBA result is invariant to the inclusion of non-paternalistic moral sentiments.</td>
<td>Not true in general. Inclusion can affect the rank of project ct and change the sign when there is a third party group.</td>
</tr>
<tr>
<td>2 The Potential Compensation Failure</td>
<td>Including moral sentiments can result in acceptance of a project that fails the PCT test.</td>
<td>The PCT should be abandoned. Moreover, the claim is true only in trivial cases.</td>
</tr>
<tr>
<td>3 The Double Counting Claim</td>
<td>Including moral sentiments can result in double counting benefits.</td>
<td>Claim is untrue and arises from a misreading of results in a JEEM article.</td>
</tr>
<tr>
<td>4 BCA results will reflect the existing pattern of wealth.</td>
<td>Thus, the results will be unfair.</td>
<td>True, but the results are unfair only if the pattern of wealth is unfair and the solution is to change the pattern of wealth not to throughout useful BCA.</td>
</tr>
<tr>
<td>5 Missing and immoral values</td>
<td>No weight is given to concerns for the income distribution and other moral sentiments such as charity. Thus, CBA is morally deficient and suspect.</td>
<td>This is not true for BCA as defined here.</td>
</tr>
<tr>
<td>6 Community values are used when community values are appropriate.</td>
<td>The choices an individual makes as a public citizen may differ from those she makes as a private person. Thus, proper community values are missing in CBA.</td>
<td>The correct measure is public preferences in the context of a public project, so criticism is not true of CBA.</td>
</tr>
<tr>
<td>7 CBA ignores inter-generational equity</td>
<td>Again, moral values are neglected.</td>
<td>Not the case with BCA</td>
</tr>
<tr>
<td>8 One aspect of disregarding moral considerations is the use of discount rates to, for example, value future lives.</td>
<td>Thus, improper lack of concern for future generations is incorporated into CBA.</td>
<td>This is not true of BCA though it does not require throwing out the use of the discount rate. To fail to use the discount rate will result in always waiting to save lives.</td>
</tr>
<tr>
<td>9</td>
<td>CBA cannot recognize moral values without recognizing immoral values including “bad” utility</td>
<td>Thus, either immoral values are inappropriately included or moral values are omitted. Thus, CBA fails to condemn rape or slavery in all cases.</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10</td>
<td>CBA compares the incomparable and prices the priceless. It rests on market values</td>
<td>Thus, values are aggregate in improper ways. In addition, market values are inferior and degrade the value of moral sentiments.</td>
</tr>
<tr>
<td>11</td>
<td>Absence of any “scientific” method of aggregating preferences</td>
<td>Since one cannot measure utility, one cannot in general say if total happiness has increased if a project increases the wealth of some more than it decreases the wealth of others.</td>
</tr>
<tr>
<td>12</td>
<td>CBA favors the status quo</td>
<td>Thus, it is biased against change. It assumes the existing pattern of rights so that when there is sufficient disagreement, it would choose position A if starting from A; or B, if starting from B.</td>
</tr>
<tr>
<td>13</td>
<td>Role of BCA: Discussion is better than CBA.</td>
<td>CBA claims to be a mechanical algorithm that avoids discussion.</td>
</tr>
<tr>
<td>14</td>
<td>BCA may result in a neglect of non-quantitative values</td>
<td>Thus, it may miss important values.</td>
</tr>
<tr>
<td>15</td>
<td>Scitovsky reversals</td>
<td>Using KH, it is possible to suggest a move from A to B but then, having arrived at B, to suggest a move back to A, and so on endlessly. Thus, CBA is useless.</td>
</tr>
</tbody>
</table>
I conclude from the forgoing discussion that criticisms of CBA are in general not apposite when CBA is viewed in a fully grounded version that I have labeled BCA. The next section will investigate whether or not criticisms of empirical CBA may reach a different conclusion.

PART TWO
EMPIRICAL ANALYSES

VII. Empirical Criticisms

A. Ackerman and Heinzerling’s Criticisms

In his review of Ackerman and Heinzerling’s book Priceless, Robert Verchick states “Ackerman and Heinzerling make clear from the beginning that they have come to bury CBA, not to save it….” There are three ways to do this and Ackerman and Heinzerling try all three. First, one could show that CBA is based on an undesirable moral foundation. This has been the thrust of the majority of criticisms of CBA that have been made over many years, now arising to somewhat of a crescendo. Second, one could show that in practice CBA and BCA have failed, and are likely to continue to fail to improve public welfare. Third, one could argue, as Verchick does, that the burden of proof is on CBA, and by implication BCA, to show they are useful and that this burden has not been met.

The critics do not succeed in these approaches. This paper has shown that morally based criticisms fail or are substantially ameliorated when applied to a subcategory of CBA given the rubric BCA. Ackerman and Heinzerling add nothing new to these past criticisms. The historical analysis of the introduction of CBA into decision-making strongly suggests that, at least for a considerable time, it resulted in an improvement in decisions. Moreover, there are many examples of CBA that have improved decision-making. The few citations of examples that

250 For example, Smart & Williams, supra note 10.
252 For example, see RESOURCES FOR THE FUTURE, ECONOMIC ANALYSIS AT EPA: ASSESSING REGULATORY IMPACT (Richard d. Morgenstern ed., 1997); John F. Morrall III, Saving Lives: A Review...
Ackerman, Heinzerling and Massey furnish, in which CBA has led to incorrect decisions, would not decide the matter of its overall usefulness, even were these examples correct. But the examples of failure used by Ackerman and Heinzerling do not appear to be examples of failures of BCA at all. Rather, they appear to be examples in which information was insufficient for decision-making. Moreover, failure is undefined as no baseline for the comparison of a world without CBA to one with CBA is established. Without a baseline it is difficult to argue that BCA is useless or worse than alternatives.

The most notable critical, empirical studies are Ackerman, Heinzerling, and Massey’s study that focuses on environmental decisions in the 1960s and 1970s, concluding that the CBA would have resulted in unwanted outcomes. Their analysis is peculiar in that they focus not on the use of BCA (or CBA) but on its hypothetical use. They ask, “if today’s methods of cost-benefit-analysis had been applied in the past would it have given its blessing to the early regulations which now look so successful in retrospect?” They answer in the negative. Their study consisted of three cases, removal of lead from gasoline in the 1970s and 1980s, the decision to not dam the Grand Canyon for the generation of hydroelectric power in the 1960s and strict regulation of workplace exposure to vinyl chloride. They find that “each case illustrates, in a different manner, the damage that cost-benefit-analysis could have done in the past, had it played the central role that is proposed for it today.”

Ackerman, Heinzerling and Massey’s analysis criticizes CBA on the grounds that data at the time was inadequate to provide the correct conclusion. What is one to make of this? Time will always prove some forecasts substantially incorrect. Information about the benefits of banning lead, for example, was arguably inadequate at the time. Since BCA is not the decision but instead is to be used to provide information to the decision, the only conclusion would be that of inadequate information. Thus, the decision to ban lead might well have been the same had CBA been used. The alternative is to appeal to decision-making using something other than data, which these critics seem to do. Past experience suggests this is a recipe for interest group

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See ACKERMAN & HEINZERLING, supra note 4.
politics gone amuck.\textsuperscript{254} The problem the critics need to address is how to better forecast, while recognizing that the inability to make perfect forecasts of future prices will exist no matter what decision process is used.

Alan Carlin critically examines empirical studies of Ackerman, Heinzerling and Massey. Carlin notes that:

"[i]n the case of the Grand Canyon dams, Ackerman, Heinzerling, and Massey’s conclusion was incorrect because they argue that a CBA would have led to an environmentally ‘negative’ conclusion. But in fact, a retrospective CBA using current data (but 1960 prices) would not support building the dams. In the vinyl chloride case, their conclusion [that a CBA done at the time may not have supported the ban] may be accurate based on data available in 1974—but not using current data."\textsuperscript{255} [And]“. . .if the authors stated assumptions of no new data were applied in the 1973 lead case, the outcome of a hypothetical 1973 lead CBA is much less certain than they state, and if current benefits were used, the outcome would almost certainly be environmentally ‘positive.’”\textsuperscript{256}

The issue then is how to handle uncertainty and benefit/risk analysis offers techniques for accounting for and addressing uncertainty, though of course it cannot be eliminated. Ackerman, Heinzerling and Massey do not offer an approach to this uncertainty issue. Carlin does, and concludes that the analyses of Ackerman, Heinzerling, and Massey “suggests the importance of investing in better cost and benefit data before a decision is made rather than in engaging in more leaps of economic faith in situations in which [it] is not necessary.”\textsuperscript{257}

The third claim, that the burden of proof should be on CBA, is at variance with normal economic and legal doctrine. The burden of proof is normally on those that wish a change. Given the long history of the use of CBA, it seems that its continual use should bear the burden of proof only if it has been shown to be materially deficient on one of the grounds raised above. This deficiency has not been shown. Nevertheless, the move from CBA to BCA will improve analyses for reasons the critics have suggested.\textsuperscript{258}

\footnotesize
\textsuperscript{254} See pages xxxx infra.
\textsuperscript{255} Though this conclusion is by no means clear. They use a 12\% discount rate for costs-higher than suggested by any texts or government protocols. They use different rates for benefits and costs, a situation for which justification rarely arises. See Alan Carlin, The New Challenge to Cost-Benefit Analysis, 28 REGULATION 18, 22 (2005).
\textsuperscript{256} Id. at 22.
\textsuperscript{257} Id. at 22.
\textsuperscript{258} Ackerman & Heinzerling also criticize the evaluations of the effectiveness of CBA that show how its further application could improve social welfare. This has resulted in responses from those economists
B. Moral Sentiments and Existing CBA

To examine the extent to which existing CBA tends to conform to the CBA standard or the BCA standard, I collected data from two sources. First, I collected all federal regulatory impact analyses (RIAs) that were in whole or part CBA studies, and that were under 300 pages, from the American Enterprise Institute site. This resulted in 62 studies. We also used non-federal studies that are in my files, collected randomly over several years. There are 24 such studies. Thus I consider a total of 86 studies. The categories of information were collected under the following headings and are presented in Appendix Two and summarized in Table 6 below:

- What were human considerations?
- What were non-human considerations?
- How were these values used?
- What other human or non-human groups could have been considered?
- How could these potential values have been used?
- How might the inclusion of (other) values impact the outcome of the study?
- Are there qualitative considerations that were not monetized?
- Recommendations of the study
- Other info

<table>
<thead>
<tr>
<th>Case</th>
<th>Human Health</th>
<th>Animal Species</th>
<th>Habitat</th>
<th>Explicit Consideration of Others</th>
<th>Missing Persons Native Am./Other Communities &amp; Future Gen.</th>
<th>Missing Values</th>
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<td>0.59</td>
<td>0.22</td>
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Data presented in Table 6 suggest that consideration for others, what I have called moral sentiments, plays a significant role in federal and non-federal analyses. The fact that most (74%) of the projects consider human health (health has standing) indicates some social commitment to health more broadly than purely self-regarding behavior might indicate. The same might be reasonably, and more strongly, inferred from the focus on other species, 17%, and on habitat, criticized. Although their criticisms are not without merit, these exchanges are not convincing that the major conclusions developed from these scorecards are likely to be wrong. See for example, Hahn, supra note 252 and Morrall III, supra note 252.
47%. More to the point, 15% of the studies directly indicate a concern for non-self regarding effects such as distributional consequences and the like. Only 22% of the studies make recommendations, a finding that supports the BCA view that the purpose of the study is to provide information rather than the “answer.” These results suggest that in its actual practice, CBA to a significant extent tends to incorporate important elements of what I have called BCA.

In recent years, economists have attempted to classify moral sentiments in a variety of ways, some depending on motive. I see no need to follow such classification in BCA work. It is true of course that concern may arise from purely selfish or purely altruistic motives. It is also the case that economists have been attempting to eliminate purely altruistic sentiments from empirical estimates, on the grounds that only selfish sentiments should count. At least one philosopher (Sagoff) has argued that economic values can logically rest only on such selfish concerns. I believe these attempts to attribute motives will fail. Contingent valuation or stated preference estimates, if correctly elicited, will reflect the choices that people will make as influenced by both selfish and unselfish concerns. To separate empirically selfish from unselfish concerns will both fail and miss values.

VIII. CONCLUSION

I have presented two archetypes of CBA. Both are consistent with existing literature. The KH version closely represents what a decreasing majority of economists have in mind when they refer to CBA. The BCA-KHM version represents an emerging version that combines elements of CBA that have long existed and that are associated with recognition of its grounding in rights and in an inclusive adoption of values.

This paper has demonstrated first that legal and philosophical based criticisms of CBA are fairly obviated when applied to the KHM version of CBA. It also demonstrates that there is value added in substituting a new version of CBA for the traditional version of KH. I have shown that the newer BCA-KHM version provides better answers than KH to the critics of CBA. The superiority of BCA-KHM lies in the fact that it better reflects preferences and is thus a better measure as judged by the benefit-cost standard itself. We have seen these better answers in examinations of abortion, slavery, nuclear waste disposal, the thief, and other examples. That is, the argument for KHM over KH is simply that KHM reveals more information about actual preferences and is thus more informative.
The greater value of the KHM version is being recognized, however slowly and controversially, by a change in the understanding in what is meant by CBA—from the mainstream view to something similar to BCA-KHM.\textsuperscript{259} Many if not most economists, for example, now recognize the importance of defining gains and losses from a status quo position. Recently, the importance of moral sentiments in determining charitable giving has been recognized. The concept of standing, as being used to make the proper exclusions that reflect broad public sentiment, has found its way into textbooks.\textsuperscript{260} Increasingly, the role of CBA is seen as that of providing information to a decision process rather than one of providing the answer. Market failure as a prescription has been challenged and shown to be wanting.\textsuperscript{261} Those practicing CBA realize they cannot ignore transactions costs. In making the choice between KH and KHM more formal, KHM provides the better template. Although in many cases moral sentiments may be unimportant or unobservable, it is desirable to have the better theoretical template in mind so that decisions about practice can be well considered and not \textit{ad hoc}. My purpose has been to contribute to this template.

\textsuperscript{259} This approach was given a boast by Kahneman’s receipt of the Nobel Prize in economics in part for his work showing the asymmetry of gains and losses, the importance of the status quo position and the economic relevance of fairness.
\textsuperscript{260} For one example, see Allen S. Bellas & Richard O. Zerbe, Jr., A PRIMER FOR BENEFIT-COST ANALYSIS (Edward Elgar Publishing, 2006).
\textsuperscript{261} See Zerbe & McCurdy, \textit{supra} note 90.
APPENDIX 1: THE SCITOVSKY REVERSAL PARADOX REQUIRES INFERIOR GOOD

RICHARD O. ZERBE JR.

This is a sufficient but non-technical proof that inferiority is required for Scitovsky reversals. I illustrate the following:

1. Normality is a sufficient condition to avoid the Scitovsky reversal paradox, and
2. Inferiority is a necessary condition for reversals

For goods that are normal, the WTA for the good will, by definition, be greater than the WTP for the good.\textsuperscript{262} Choices are inferior when higher incomes lead one to desire smaller rather than larger amounts of the choice. Inferiority requires that the WTP for a good is greater than the WTA to give up the same good for the same group of people.\textsuperscript{263} Suppose all relevant goods are normal (not inferior) and that there are two persons or groups and there are two states of the world, A and B. For a normal good for a single individual, the absolute value of the WTA exceeds the WTP by definition of a normal good.\textsuperscript{264} This is reflected in Table 1 by the fact that the WTA of $150 for person 1 exceeds his WTP of $100, and by the fact that the absolute value of the WTA for person 2 of $95 exceeds the absolute value of her WTP of $90. A move from state of the world A to state B is considered. Person 1 would pay $100 for the move. Person 2 would accept $95 to agree to the move so that the move satisfies KH and KHM with a NPV of $5.00.

Table 1: No Scitovsky Reversal\textsuperscript{*}

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<td>Value of a Move from A to B</td>
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<td>$5</td>
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<tr>
<td>Value of a Move from B to A</td>
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For a move back from B to A, person 2 would be the winner and person 1 the loser. To find the value of a move back from B to A it is useful to know that the WTP for person 2 for a

\textsuperscript{262} See ZERBE & DIVELEY, \textit{supra} note 39.
\textsuperscript{264} See Mishan, \textit{supra} note 121, at 121.
move back is equal to the negative of the value of her WTA for the original move from A to B. And, that the WTA for person 2 for the move back is equal to the negative of the WTP value for the move from A to B. Thus the value for a move back will be $90 minus $150 or a negative $60. There will be no reversal.

Table 2 shows that a reversal can occur when the WTA < WTP, that is the choice is inferior.

**Table 2: Scitovsky Reversals with Inferior Goods**

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<th>WTP</th>
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<td>($90)</td>
<td>($95)</td>
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</table>

The value of a move from A to B will be the WTP for person 1, who would win, and the WTA for person 2, who would lose. This would be $100 - $95 or $5 just as shown before. For a move back from B to A the signs get reversed, as do the winners and losers. The KH value of a move back from B to A would be WTP for person 2 which is $90 minus the WTA for person 1 which is $80. Thus, the net gain for a move from B to A is $10. If the move is inferior for one person (here person 1) this is necessary (but not sufficient) for reversal.

These examples generalize. Represent the values in Table 3 as abstract values a, b, c, and d, where losses are listed as absolute values, as follows:

**Table 3: Scitovsky Reversals are Not Possible for Normal Goods**

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<th>WT P</th>
<th>WT A</th>
<th>NP V</th>
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<tbody>
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<td>Person 1</td>
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<tr>
<td>Person 2</td>
<td>c</td>
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<td>Value of a Move from A to B</td>
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<td>Value of a Move from B to A</td>
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KH is passed in a move from A to B if a>d. The reverse move from B to A is passed if c>b. Normality requires that b>a and d>c. By normality d>c, so that a>c but a<b by normality. It is then not possible for c>b so no reversal occurs. Normality is a sufficient condition for no reversal.
With inferiority, \( a > d \) by assumption, \( a > b \) by inferiority, and \( c > d \) by inferiority. From this we can make no conclusion about whether or not \( c \) is greater or less \( d \); that is, \( c \geq b \) so reversal could occur but need not. This shows that inferiority is a necessary but not sufficient condition for a Scitovsky reversal.
## APPENDIX 2: SUMMARY OF DATA FROM FEDERAL REGULATORY ANALYSES

RICHARD O. ZERBE, JR.

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