1999

Rethinking Cost-Benefit Analysis

Eric A. Posner

Matthew D. Adler

Recommended Citation

Eric Posner & Matthew D. Adler, "Rethinking Cost-Benefit Analysis," 109 Yale Law Journal 165 (1999).

Articles

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Matthew D. Adler[†] and Eric A. Posner[††]

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I. INTRODUCTION

The reputation of cost-benefit analysis (CBA) among American academics has never been as poor as it is today, while its popularity among agencies in the United States government has never been greater. Many law professors, economists, and philosophers believe that CBA does not produce morally relevant information and should not be used in project evaluation. A few commentators argue that the information produced by CBA has some, but limited, relevance. Defenders of CBA form an increasingly beleaguered minority, consisting mostly of applied economists who feel compelled to respond to attacks on the methodological underpinnings of their work. Modern textbooks on CBA are plentiful, and some of them are optimistic about the usefulness of the procedure, but most of them frankly acknowledge its serious flaws and the inadequacy of the standard methods for correcting these flaws.[1]

Government agencies now routinely use CBA. This was not always the case. Before the 1980s, agencies did not systematically rely on CBA when evaluating regulations and other projects. But executive orders issued by the Reagan and Clinton administrations have since made the use of CBA by agencies common,[2] and Congress has enacted numerous statutes requiring agencies to perform cost-benefit analyses.[3] The Environmental Protection Agency (EPA) alone has spent tens of millions of dollars on CBA over the last fifteen years.[4] Other agencies are as committed as EPA to using and improving the techniques of CBA. The academics' skepticism appears to have had no influence on them. What accounts for this divergence between academic opinion and government practice? Are the academic criticisms of CBA valid?

This Article provides a qualified defense of the use of CBA by administrative agencies. It makes the following claims. First, a common criticism of CBA—that it sometimes produces morally unjustified outcomes—overlooks the fact that CBA is a decision procedure, not a moral standard. A decision procedure is a method for achieving desirable results, and some decision procedures are more accurate or less costly than

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1. *See* sources cited *infra* notes 10-18.

2. *See* Exec. Order No. 12,866, 3 C.F.R. 638, 639 (1993), *reprinted in* 5 U.S.C. § 601 (1994); Exec. Order No. 12,291, 3 C.F.R. 127 (1981), *revoked by* Exec. Order No. 12,866. Clinton's order qualified Reagan's order a bit but essentially endorsed the use of CBA. *See* Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1, 6-7 (1995).

3. *See* Edward R. Morrison, *Judicial Review of Discount Rates Used in Regulatory Cost-Benefit Analysis*, 65 U. CHI. L. REV. 1333, 1333 (1998) (citing statutes requiring cost-benefit analyses).

4. *See* Richard D. Morgenstern & Marc K. Landy, *Economic Analysis: Benefits, Costs, Implications*, in ECONOMIC ANALYSES AT EPA: ASSESSING REGULATORY IMPACT 455, 461-62 (Richard D. Morgenstern ed., 1997) [hereinafter ECONOMIC ANALYSES AT EPA].

others. CBA is justified, even if it sometimes produces undesirable outcomes, as long as the total costs associated with CBA (the costs of undesirable outcomes, plus procedural costs) are lower than the total costs associated with alternative decision procedures. We argue that alternatives that are proposed in the literature—risk-risk analysis, feasibility-based assessment, direct interpersonal comparisons, and so on—will typically be costlier than CBA, as long as CBA is used in the right way.

Second, CBA will produce reasonably accurate results only as long as it is used in the right way, and this means that under certain conditions agencies may need to modify the traditional understanding of CBA, or even depart from CBA entirely. When a proposed project would affect people who have highly unequal levels of wealth, or who are poorly informed about the consequences of the project, or whose preferences fail for other reasons to register projects that would enhance their well-being, agencies should modify or depart from CBA. One possible modification to CBA is the weighting of costs and benefits by a factor that reflects the marginal utility of money for the persons affected. Another is a revision of the standard methodology for computing costs and benefits, the "willingness to pay" and "willingness to accept" methodology, so as to take account of the disjunction between the mere satisfaction of a person's preferences and the enhancement of his well-being. The proper adjustments to standard CBA cannot be described at a high level of abstraction, but depend on such things as the competence of agencies, the degree to which they can be monitored by politically responsive actors, and the extent to which people's stated preferences and market choices track their own welfare.

Third, CBA suitably revised to reflect these concerns is consistent with a broad array of popular theories of the proper role of government. It is commonly and mistakenly believed that CBA presupposes a particular form of utilitarianism that assumes that the government should maximize the satisfaction of people's preferences, even when these preferences are uninformed or distorted. By contrast, we argue that CBA, properly understood, is consistent with every political theory that holds that the government should care about the overall well-being of its citizens— including non-utilitarian theories that supplement "overall well-being" with additional moral considerations, and non-preference-based theories that incorporate a different view about the nature of well-being. The use of CBA by agencies in suitable circumstances is consistent with commitments to distributive justice, deontological rights, and other moral values, and it is consistent with the view that objective values, hedonic pleasures, and other factors beyond preference-satisfaction figure in human welfare. We also claim that the traditional economic defenses of CBA, based on the Pareto principle and the Kaldor-Hicks principle, are wrong.

We develop this argument as follows. Part II provides some background on CBA, including a brief history of the procedure and some case studies that show how CBA is typically used by agencies today. Part III describes the mechanics of CBA and explains why the traditional economic defenses of CBA fail. Part IV lays the philosophical groundwork for our own defense of CBA: It categorizes theories of well-being, argues for the possibility of interpersonal welfare comparisons and the moral relevance of overall well-being, and distinguishes between moral criteria (such as overall well-being) and morally justified decision procedures (such as CBA). Part V compares CBA with other possible decision procedures in light of overall well-being, and concludes with a tentative recommendation about the justified scope of CBA. Part VI discusses nonwelfarist considerations, such as deontological rights and distribution.

II. BACKGROUND

Modern CBA is the outgrowth of three historical developments. The first is the growth of the central government in the United States and other countries over the course of the twentieth century. In the United States, the New Deal government initiated the use of CBA in 1936, when Congress ordered agencies to weigh the costs and benefits of projects designed for flood control.[5] The popularity of CBA among administrative agencies increased rapidly thereafter with the growth of the federal government.[6] The second development was the rise of Progressivism at the end of the nineteenth century and the beginning of the twentieth century. Progressives believed that government could be separated into a realm of value-laden politics and a realm of administrative expertise based on scientific principles.[7] The third development was the invention of modern welfare economics, which would supply these scientific principles. Early welfare economists believed that economic concepts could be used to rationalize the implementation of government policies.[8] Their efforts were encouraged in the 1950s and 1960s when the U.S. government and the governments of

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5. *See* AJIT K. DASGUPTA & D.W. PEARCE, COST-BENEFIT ANALYSIS: THEORY AND PRACTICE 12-13 (1972) (discussing the Flood Control Act of 1936, ch. 688, § 1, 49 Stat. 1570, 1570 (codified as amended at 33 U.S.C. § 701a (1994)), which held that projects should be approved if "the benefits *to whomsoever they may accrue* are in excess of the estimated costs") (emphasis added).

6. For a brief history, see THEODORE M. PORTER, TRUST IN NUMBERS: THE PURSUIT OF OBJECTIVITY IN SCIENCE AND PUBLIC LIFE 148-89 (1995). *See also* David Pearce, *Cost-Benefit Analysis and Environmental Policy*, 14 OXFORD REV. ECON. POL'Y 84, 88-91 (1998) (discussing the history of CBA).

7. *See* Robert H. Nelson, *The Economics Profession and the Making of Public Policy*, 25 J. ECON. LITERATURE 49, 52-54 (1987).

8. *See id.*

other countries sought technical assistance in the development of formal procedures of CBA.[9]

Modern welfare economics can be traced back to Vilfredo Pareto. Pareto proposed as a principle of evaluation that a project is desirable if it makes at least one person better off without making anyone else worse off.[10] The difficulty posed by the Pareto criterion is that it is too strong. Few projects satisfy the criterion, because just about every worthwhile government project will hurt people, and compensating those people is usually infeasible. This difficulty led to the proposal of hypothetical compensation tests by J.R. Kaldor, Nicholas Hicks, and others.[11] Compensation tests hold that a project is desirable if its beneficiaries are enriched enough that they could overcompensate those who are hurt by the project. These tests vastly increase the range of projects that can be evaluated, compared to the Pareto test. The compensation tests would become the basis of modern CBA.

The compensation tests, however, were received unenthusiastically by theoretical welfare economists.[12] When the storm of criticism subsided, some economists declared that not only compensation tests, but all of welfare economics, was dead, a declaration that has been repeated many times since.[13] Despite these views, CBA obtained a foothold among applied economists and government agencies. Applied economists and agency officials believed that, whatever its problems, CBA was superior to the alternatives. When the government proposed a project, taxpayers and critics demanded a justification, and the most obvious justification was that the project would produce gains that exceeded its costs.

Thus, CBA enjoyed a brief period of popularity in the 1960s, despite the absence of a consensus regarding its theoretical foundation. By the 1970s, however, even applied economists and government agencies had begun to doubt its utility. The emerging problems with CBA were not

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9. *See* DASGUPTA & PEARCE, *supra* note 5, at 12-13. In addition, private companies had independently developed techniques for evaluating their investment decisions, and these techniques could be transferred to the public sector. *See id.* at 14.

10. *See* I.M.D. LITTLE, A CRITIQUE OF WELFARE ECONOMICS 84 (2d ed. 1957). One could alternatively date modern welfare economics—or at least the Anglo-American version—to Lionel Robbins's attacks in the 1930s on the older "material welfare school," which focused on the material well-being of individuals (as opposed to their utility, in the modern sense), and held that the material well-being of individuals is comparable. *See* Robert Cooter & Peter Rappoport, *Were the Ordinalists Wrong About Welfare Economics?*, 22 J. ECON. LITERATURE 507, 520-21 (1984).

11. *See, e.g.,* J.R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696 (1939); Harold Hotelling, *The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates*, 6 ECONOMETRICA 242 (1938); Nicholas Kaldor, *Welfare Propositions of Economics and Interpersonal Comparisons of Utility*, 49 ECON. J. 549 (1939). A useful discussion of these tests can be found in LITTLE, *supra* note 10, at 88-96.

12. *See* J. DE V. GRAAFF, THEORETICAL WELFARE ECONOMICS 169-71 (1957).

13. *See, e.g.,* John S. Chipman & James C. Moore, *The New Welfare Economics 1939-1974*, 19 INT'L ECON. REV. 547, 548 (1978) (calling modern welfare economics a "failure"). This view is briefly discussed in DASGUPTA & PEARCE, *supra* note 5, at 15.

theoretical, but practical and ideological. As a practical matter, researchers had a great deal of trouble obtaining relevant data, especially for the purpose of valuing environmental resources, human life, and other hard-to-measure goods. The claim that the benefits of a project exceed its costs is not persuasive when the benefits and the costs appear to rely on arbitrary valuations. As an ideological matter, the technical and utilitarian flavor of CBA was unappealing to the political culture that prevailed during the 1970s.[14] It may be that progress in valuation techniques and changes in ideology, or perhaps a sense that regulation had gone too far, account for the reemergence of CBA in the 1980s and 1990s—it is too early to tell. Whatever the case, the modern rebirth of CBA has not been accompanied by a theoretical defense. The original theoretical objections to CBA still have not been rebutted.[15]

Understanding the problems and advantages of modern CBA, however, is difficult. There are two reasons for this difficulty. First, the academic literature on CBA is deeply fragmented; critics from different disciplines rarely pay attention to each other's arguments. Philosophers object to CBA because they think that it depends on implausible moral theories about the importance or nature of well-being.[16] Economists who object to CBA usually do so on the grounds that it does not allow a complete and consistent ordering of projects, or because it depends on contestable normative premises that cannot be the basis of neutral and scientific advice.[17] Neither group pays much attention to institutional issues, such as

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14. See D.W. PEARCE & C.A. NASH, THE SOCIAL APPRAISAL OF PROJECTS: A TEXT ON COST-BENEFIT ANALYSIS 3-4 (1981); R. Shep Melnick, *The Politics of Benefit-Cost Analysis, in* VALUING HEALTH RISKS, COSTS, AND BENEFITS FOR ENVIRONMENTAL DECISION MAKING 23 (P. Brett Hammond & Rob Coppock eds., 1990) (attributing hostility toward CBA to populist politics).

15. A large legal literature addresses the related question whether legal rules in general, and the common law in particular, do or should reflect efficiency concerns. See, e.g., *Symposium on Efficiency as a Legal Concern*, 8 HOFSTRA L. REV. 485 (1980). This literature is of limited usefulness for our purposes. It does not address CBA, for the most part, and much of it is concerned about the role of common-law judges. Otherwise it resembles earlier discussions in the economics literature. More recent treatments in the legal literature include MARK KELMAN, A GUIDE TO CRITICAL LEGAL STUDIES 114-50 (1987); David M. Driesen, *The Societal Cost of Environmental Regulation: Beyond Administrative Cost-Benefit Analysis*, 24 ECOLOGY L.Q. 545 (1997); Lewis A. Kornhauser, *Wealth Maximization, in* THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW (Peter Newman ed., 1998); and Richard S. Markovits, *Duncan's Do Nots: Cost-Benefit Analysis and the Determination of Legal Entitlements*, 36 STAN. L. REV. 1169 (1984). There is also a burgeoning legal literature on "incommensurability," which, among other things, is typically critical of CBA. See, e.g., Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 MICH. L. REV. 779 (1994); *infra* note 192 (responding to the incommensurability critique); *see also* Laurence H. Tribe, *Policy Science: Analysis or Ideology?*, 2 PHIL. & PUB. AFF. 66 (1972) (criticizing "policy science," including CBA).

16. See, e.g., David Copp, *The Justice and Rationale of Cost-Benefit Analysis*, 23 THEORY & DECISION 65 (1987).

17. See, e.g., Charles Blackorby & David Donaldson, *A Review Article: The Case Against the Use of the Sum of Compensating Variations in Cost-Benefit Analysis*, 23 CANADIAN J. ECON. 471 (1990).

the role of agencies in a representative government, yet law professors, who are well positioned to explore these issues, do not say much about them either.[18]

Second, understanding CBA as described by textbooks is not the same thing as understanding CBA as practiced by government agencies. The economic, philosophical, and legal criticisms are for the most part directed at the textbook version. But for all their enthusiasm for CBA, it is not clear that agencies use the textbook version. Agencies sometimes appear to use CBA to rationalize decisions made on other grounds.[19] At other times, agencies may be sincere, but depart from CBA without explaining their departure. For example, they may calculate costs or benefits by using national averages when the project would affect a nonrepresentative subset of the population. Or they calculate some of the costs and some of the benefits of the project, while ignoring others. Or they take into account distributional considerations that are external to ordinary CBA, but also inconsistent with the more ambitious textbook versions of CBA that incorporate distributional weightings. The literature ignores these complications, and instead debates CBA as an abstraction, not as a real practice.

What is the real practice of CBA? It is hard to generalize, but a few examples may put the problems in context.

Lead in Drinking Water. Federal law requires EPA to regulate lead contamination of drinking water.[20] In 1991, EPA decided to revise earlier regulations it had issued under the law, using a CBA of several proposed rules. On the cost side, using a three percent discount rate, EPA estimated the cost of treating contaminated water that enters the distribution system; the cost of maintaining water quality (pH level, temperature, etc.); the cost of replacing lead pipes; the cost of warning the public of high lead levels and informing it of precautions; and the cost of monitoring water quality.[21] For each rule, EPA calculated total costs by aggregating the cost of implementing the rule in each of the water distribution systems in the

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18. For the sake of completeness, we should note that there is a vein of critical scholarship about CBA within the political science and policy-analysis literature. *See, e.g.,* JAMES T. CAMPEN, BENEFIT, COST, AND BEYOND: THE POLITICAL ECONOMY OF BENEFIT-COST ANALYSIS (1986); Steven Kelman, *Cost-Benefit Analysis: An Ethical Critique,* REGULATION, Jan.-Feb. 1981, at 33; Lester Lave, *Benefit-Cost Analysis: Do the Benefits Exceed the Costs?, in* RISKS, COSTS, AND LIVES SAVED: GETTING BETTER RESULTS FROM REGULATION 104 (Robert W. Hahn ed., 1996) [hereinafter RISKS, COSTS, AND LIVES SAVED]. This literature largely overlaps in its critical thrust with the philosophical, economic, or legal scholarship already mentioned.

19. This seems to have been the suspicion of the court in *Corrosion Proof Fittings v. EPA,* 947 F.2d 1201, 1222-23 (5th Cir. 1991), which criticized EPA for using inconsistent valuations of life across regulations.

20. *See* 42 U.S.C. § 300g-1 (1994).

21. *See* Ronnie Levin, *Lead in Drinking Water, in* ECONOMIC ANALYSES AT EPA, *supra* note 4, at 205, 216-22.

United States, which, of course, varied in the severity of lead contamination. Only some of the benefits were monetized. EPA estimated that the cost of medical treatment for children with elevated lead levels would be between about $300 and $3200 per child; the cost of compensatory education for children with "cognitive damage" would be about $5800; and the cost of lost future earnings would be $4600 per lost IQ point. For adults, EPA estimated a willingness to pay of $1 million to avoid nonfatal heart attacks and strokes, $628 per case of hypertension for medical costs and lost productivity, and $2.5 million per death.[22] Total benefits (in terms of costs avoided) were estimated by multiplying these amounts by the estimated number of cases avoided, and summing the products. Although EPA estimated the benefits from reducing lead damage to plumbing components, it did not include this estimate in the CBA published with the final rule.[23]

EPA concluded that the total health benefits from corrosion control alone would be $63.8 billion over a twenty-year period, which vastly exceeded estimated costs of $4.2 billion. The author of a study of this regulation, Ronnie Levin (who also worked on the rule), argues that CBA played an important role in persuading EPA of the hazards posed by lead contamination in drinking water. He also argues that CBA was influential because data were plentiful and the analysis occurred early in the regulatory process.[24]

Agricultural Pesticides. Federal law authorizes EPA to regulate the labeling and use of pesticides.[25] In 1983 EPA decided to revise earlier regulations and to evaluate new rules using CBA. On the cost side, EPA determined the costs of requiring workers to wait before entering treated areas, purchasing personal protective equipment, adopting notification procedures, training workers in the use of pesticides, decontaminating workers affected by pesticides, providing emergency assistance and medical care, ensuring rule familiarization, and monitoring the health of selected workers.[26] Because the necessary actions would vary from site to site, different cost estimates were calculated for different kinds of sites, and results were summed. Although the analysis was highly detailed, the final estimate was rough, because EPA had little information about the sizes of the populations affected by the regulation.[27] EPA did not attempt to attach a

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22. *See id.* at 224-25.
23. *See id.* at 225. For the regulation, see Drinking Water Regulations. 56 Fed. Reg. 26,460 (1991) (codified at 40 C.F.R. pts. 141-142).
24. *See* Levin, *supra* note 21, at 228-30.
25. For the original law, see Act of June 25, 1947, ch. 125, 61 Stat. 163 (codified as amended at 7 U.S.C. §§ 136-136y (1994)).
26. *See* Louis P. True, Jr., *Agricultural Pesticides and Worker Protection, in* ECONOMIC ANALYSES AT EPA, *supra* note 4, at 303, 314-15.
27. *See id.* at 315-16.

monetary value to the benefits of the regulation, stating instead that the regulation it finally chose would reduce the health effects of pesticide use by eighty percent.[28] These health effects were divided into hospitalized poisonings (300-450 per year), physician-diagnosed but non-hospitalized poisonings (10,000-20,000 per year), undiagnosed poisonings ("a significant number ... very likely to be large" but unquantified), cancer cases (6 or more per year), serious developmental defects (20-52 per year), stillbirths (56-222 per year), persistent neurotoxicity cases (150-300 per year), and others (unquantified).[29] Despite the failure to monetize benefits, EPA concluded that the benefits of the regulation exceeded the costs.[30]

During the rulemaking the United States Department of Agriculture (USDA) argued that in order for the regulation to be cost-justified, it would have to reduce the number of hospitalizations by 239,000, assuming a cost of $580 each—presumably, an excessive estimate, given that hospitalized poisonings amounted to 300-450 per year.[31] EPA responded that it had considered other benefits as well, but did not quantify them because of deficiencies in the data. One justification for the rule offered by EPA appears to have been that the regulation was not so costly as to cause "significant economic disruptions" to agriculture, but EPA did not explain what this meant.[32] Finally, EPA appeared to take account of distributional considerations without saying so explicitly.[33] The rule would benefit mostly poor agricultural laborers, with its costs being paid by consumers.

These two examples of CBA provoke several observations. First, EPA, like other government agencies, generally uses a valuation of life or a range of valuations that is invariant across individuals of different wealth, even though textbook CBA will on average attach higher valuations to wealthier people because they can afford to pay more to reduce risk. It is doubtful in the pesticides case that if EPA had quantified benefits, it would have attached a lower valuation of life to migrant farm workers than the national average, even though migrant farm workers are poorer than the average person. Although EPA sometimes produces different valuations for different classes of people,[34] the agency does not appear to make individual valuations sensitive to wealth in a way that CBA—as traditionally conceived—requires.

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28. *See id.* at 321-22.

29. *Id.* at 322 tbl.2.

30. *See id.* at 323; Worker Protection Standard, 57 Fed. Reg. 38,102, 38,105 (1992) (codified at 40 C.F.R. pts. 156, 170).

31. *See* True, *supra* note 26, at 325.

32. *Id.* at 328.

33. *See id.* at 324.

34. *See* Eloise Trabka Castillo et al., *Great Lakes Water Quality Guidance, in* ECONOMIC ANALYSES AT EPA, *supra* note 4, at 419, 438-39.

Second, CBA is frequently hampered by a lack of data or by the difficulty of estimating valuations. A striking example is a CBA that attempted to monetize the aesthetic value that people attach to clear air over the Grand Canyon.[35] In other instances, the problem was not that collection of data was infeasible, but that it was precluded by EPA's budgetary and time constraints.

Third, CBA serves an important political purpose: By forcing EPA to state clearly the effects of a regulation, it alerts affected groups, which frequently criticize EPA's estimates. CBA creates regulatory transparency.[36]

Fourth, CBA helps EPA establish priorities. CBA of water contamination by lead revealed that the health costs were significantly higher than the costs produced by more politically salient environmental concerns, such as contamination by radionucleotides.[37] Even if one is skeptical about the particular estimates in a CBA, one might use CBA to rank projects by seriousness on the theory that errors wash out.

Fifth, one can understand the role of CBA in project evaluation only by understanding how agencies interact. Agencies' project evaluations are subject to the review of the Office of Management and Budget (OMB).[38] EPA had to persuade OMB that its analysis of agricultural pesticides was superior to the analysis supplied by USDA. When an agency refuses to provide quantitative evidence, other agencies may not trust its conclusions. Further, agency actions are subject to judicial review and, ultimately, to the political process. CBA is an important way for agencies to defend their projects against legal and political challenges from affected groups.[39]

Finally, when EPA did not use CBA, it was never clear what methodology it did use. Sometimes, guidance could be found in the relevant statute. But more often, it appears that EPA relied on a kind of implicit balancing of (nonmonetized) costs and benefits. On the one hand, a

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35. *See* Leland Deck, *Visibility at the Grand Canyon and the Navajo Generating Station, in* ECONOMIC ANALYSES AT EPA, *supra* note 4, at 267.

36. *See, e.g.*, Morgenstern & Landy, *supra* note 4, at 462.

37. *See* Albert L. Nichols, *Lead in Gasoline, in* ECONOMIC ANALYSES AT EPA, *supra* note 4, at 49, 78 ("[A] week of lead is like a millennium of radionucleotides . . . .").

38. *See* Exec. Order No. 12,866, 3 C.F.R. 638, 639 (1993), *reprinted in* 5 U.S.C. § 601 (1994); Exec. Order No. 12,291, 3 C.F.R. 127 (1981), *revoked by* Exec. Order No. 12,866. For a more detailed account, see THOMAS O. MCGARITY, REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY 271-79 (1991).

39. This was confirmed strikingly in the recent case *American Trucking Ass'ns v. United States EPA*, 175 F.3d 1027 (D.C. Cir. 1999), in which the court struck down rules governing the emission of particulate matter and ozone. The court held that EPA's construction of the Clean Air Act violated the nondelegation doctrine because it did not provide an "intelligible principle" for applying the statute. *Id.* at 1034. The opinion discussed a number of alternatives to EPA's unacceptable standard, and noted in passing that CBA is not available because of prior decisions construing the Clean Air Act to prohibit EPA from taking account of costs. The implication is that CBA could be the intelligible principle EPA was looking for, were it not for the fact that prior decisions had held that it was foreclosed by the statute.

regulation may appear justified as long as it does not cause too much "economic disruption" to the affected industry. This appears to mean that the regulation must cause neither enormous price increases for consumers nor numerous bankruptcies in the affected industry. On the other hand, a regulation may appear justified as long as one can point to fairly concrete health effects, like deaths or cancer cases avoided. However, EPA sometimes issues regulations that cause economic disruption, and often refuses to issue regulations even though they avoid more deaths or cancer cases than alternative regulations that are issued. It seems likely that even when EPA refrains from an explicit and monetized CBA, it engages in implicit tradeoffs that are not articulated or quantified, for it is hard to see what else EPA could be doing.

Robert Hahn analyzed ninety-two rules issued by five agencies between 1990 and 1995, and found that many of these rules would not pass a cost-benefit test.[40] This study is consistent with earlier studies.[41] There are a variety of reasons for these results, and one should recognize the difficulties of evaluating regulations as a result of problems with measuring benefits and determining appropriate discount rates.[42] But an important reason appears to be that agencies often do not monetize benefits and do not explicitly compare benefits with costs.[43]

In sum, although agencies like EPA self-consciously engage in CBA, it is not clear whether their analyses were performed correctly, according to the traditional understanding of CBA.[44] But criticism of EPA for deviating from textbook CBA requires a normative theory of CBA. Otherwise, one cannot exclude the possibility that EPA's deviations were normatively justified.

III. THE CONVENTIONAL VIEW OF COST-BENEFIT ANALYSIS

Discussions of CBA are hampered by lack of consistency in the use of terms. The term "cost-benefit analysis" itself is used to refer to the Kaldor-

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40. *See* Robert W. Hahn, *Regulatory Reform: What Do the Government's Numbers Tell Us?*, *in* RISKS, COSTS, AND LIVES SAVED, *supra* note 18, at 208.

41. *See, e.g.*, John F. Morall III, *A Review of the Record*, REGULATION, Nov.-Dec. 1986, at 25.

42. *See* Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L.J. 1981, 1984-85 (1998); *see also* Morrison, *supra* note 3, at 1336-37 (discussing inconsistency in discounting across agencies); Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941 (1999) (analyzing discounting in cost-benefit analyses of environmental regulations).

43. *See* GENERAL ACCOUNTING OFFICE, GAO/RCED-98-142, REGULATORY REFORM: AGENCIES COULD IMPROVE DEVELOPMENT, DOCUMENTING, AND CLARITY OF REGULATORY ECONOMIC ANALYSIS (1998).

44. Thomas McGarity comes to similar conclusions from his study of regulations issued by EPA, and also by the Department of Agriculture, the Department of Transportation, and the Occupational Safety and Health Administration. *See* MCGARITY, *supra* note 38, at 174-75.

Hicks standard, to the method of compensating or equivalent variations, and sometimes to any method that requires trading off costs and benefits rather than relying on absolute standards. The critiques and defenses of CBA reflect this confusion. Some people defend CBA because they believe that alternatives do not allow one to make tradeoffs among values, while others criticize CBA because it is inconsistent with the Kaldor-Hicks standard.

This Part untangles these problems. It starts with a description of CBA as it is currently understood.[45] We then describe the conventional defenses of it: that it produces Pareto-superior outcomes; that it produces Kaldor-Hicks-superior outcomes; or that it maximizes social welfare.

We should emphasize at the start that most defenders of CBA assume that agencies should maximize the satisfaction of unrestricted preferences. By "unrestricted preferences" we mean people's actual preferences, even if they are uninformed or distorted by circumstances. This assumption is, in our view, both implausible and unnecessary. These defenders of CBA, who are usually economists, invite criticism from philosophers who reject the goal of maximizing satisfaction of unrestricted preferences. This debate is unnecessary, because a commitment to CBA does not depend on the goal of maximizing unrestricted preferences. One reason, although not the only one, that traditional defenses of CBA have failed is that they are constructed on the premise of unrestricted preferences.

A. *What Is CBA?*

1. *Measuring Individual Utility Changes*

A *project* is any government action, including a law or regulation, that causes a change in the status quo. A project could be the construction of a new highway, repair of an old bridge, creation of a national health insurance system, investment in research and development, enactment of a law against age discrimination—any action that changes the productive capacities of an economy or the distribution of resources. To evaluate a project, we compare the future "project state of the world" (*P*) with the "status quo state of the world" (*S*). In order to avoid biasing the decision in favor of the status quo, one should imagine that *S* and *P* are both "projects" between which the agency must choose, where the first project involves not changing the status quo. Any benefits from maintaining the status quo, such as minimization of uncertainty, should be treated explicitly as benefits that project *S* enjoys and project *P* lacks.

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45. For examples of textbook treatments, see ROBIN BOADWAY & NEIL BRUCE, WELFARE ECONOMICS 26-27, 292-328 (1984); DASGUPTA & PEARCE, *supra* note 5; and E.J. MISHAN, COST-BENEFIT ANALYSIS (1976).

Some people think that a CBA of S and P is conceptually straightforward and that the only problem posed by CBA is the practical difficulty of collecting data. Suppose that P is the creation of a new dam. S, the status quo, means not constructing the dam. Clearly, a new dam would create benefits: People would enjoy cheaper electricity than under S. Just as clearly, a new dam would be costly in materials and labor that could be used for other projects, and in environmental degradation as well. One might believe that if one could accumulate data on these benefits and costs, the CBA itself would be a simple matter of determining whether the benefits exceeded the costs. Unfortunately, matters are not so straightforward.

To understand how CBA works, one must rely on a more precise model of the economy. Consider a two-good and two-person economy, with goods E and F, and individuals A and B. P's effect, relative to S, will be to change the amount of E or the amount of F or both. Usually, a project will not increase both E and F, but instead increase the amount of one good while reducing the amount of another. For example, a dam will increase the supply of electricity but reduce the supply of fish. Assuming that P does not substantially change the relative allocations of the goods between A and B, if P increases the amount of E relative to the amount of F, the price of E (in terms of F) will fall.[46] Depending on their preferences for E and F, this change in relative purchasing power will make one party better off and the other worse off, both better off, or both worse off.

In our example of the dam, P represents the construction of the dam and S represents the decision not to construct the dam. Let E represent electricity and F represent fish. It is useful to choose one good as the numeraire, by which we mean the baseline good that is used to measure the other good. If E is the numeraire, then we talk about measuring fish in terms of electricity. (F could also be the numeraire.) But, more generally, we think of the numeraire as representing all the goods in the economy except the other good under consideration. So if E is the numeraire, then F represents fish, and E represents everything else, which is denominated in dollars. Then we can measure F in terms of dollars. Although we can thus extend the two-good case to the real economy without causing analytic problems, we will stick to the two-good case, despite its lack of realism, because it is simpler.

P can have a variety of influences on A and B. Suppose that in S a person can trade one fish for one unit of electricity, and that in P a person can trade one fish for two units of electricity. If A has a relatively intense preference for electricity, and his share of total endowments does not substantially change, P will make A better off. He can exchange the fish for

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46. It is possible that if P radically changes endowments, this price effect will not occur.

electricity at a higher rate than under S. If A has a relatively intense preference for fish, and his share of total endowments does not substantially change, P will make A worse off. Whereas under S he can trade one unit of electricity for one fish, under P he must use up two units of electricity in order to obtain one more fish. The same comments apply to B. So P can have four effects on the utility of the two people in the economy: It can make both better off relative to S, both worse off, A better off and B worse off, or B better off and A worse off.

Figure 1 illustrates these effects. It shows the effect of the project on a person, say, person B. Under S, B's budget line is represented by m_s, which intersects B's highest indifference curve, U_s, at point s^*. A plausible effect of the dam is to make electricity cheaper and fish more expensive, so if P were implemented, B's budget line would shift to, say, m_P. The steeper slope reflects the fact that electricity is cheaper and fish are more expensive. If B does not buy any fish $(F = 0)$, then B can buy more electricity under P than under S (represented by the fact that m_P intersects the y-axis at a higher point than m_s does). If B does not buy any electricity $(E = 0)$, then B can buy fewer fish under P than under S. Assuming the indifference curves as drawn, P improves B's utility. The project budget line, m_P, intersects a higher indifference curve, U_P (at point p^*).

FIGURE 1: MEASURING THE EFFECT OF A PROJECT ON AN
INDIVIDUAL'S UTILITY
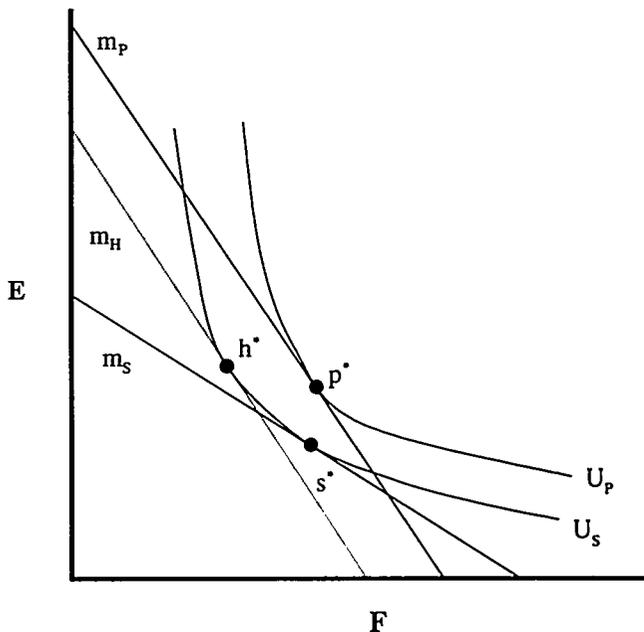
This is just a formal way of showing that the relative decrease in the cost of electricity benefits B more than the increase in the cost of fish. But this is not necessary. If B's preferences were different, U_P could be to the left of U_S, so that p^* lay behind U_S. For example, suppose that B's relative preference for fish is strong when she is poor, but declines as her endowments increase. When B is poor, she will exchange a lot of electricity for a few fish; when she becomes wealthier, she will value the two goods more equally. At S, she is relatively wealthy. P increases the cost of fish so much that she will have to exchange a tremendous amount of the (cheap) electricity in order to satisfy her increased desire for fish, so much that she is worse off than she was under S.

CBA requires that the project's effect on B's utility be converted into units on a metric that enables comparison of the project's effect on B with its effect on other people. One possible solution to this problem is to determine how much one could take from B in the project state of the world, such that B's utility would be reduced from U_P to U_S. To calculate this amount, one draws a new budget line parallel to m_P and tangent to U_S, which is labeled m_H. The distance between the points where m_P and m_H intersect the y-axis represents the amount of E that one could take from B in the project world in order to reduce her utility to the level in the status quo. In our example, E is electricity, so we have converted a utility change into an equivalent change in the amount of electricity that B would consume. At a higher level of abstraction, E, as the numeraire, represents all goods except F and is measured in dollars. So the distance between the points where m_P and m_H intersect the y-axis is the amount of dollars that would have to be taken from B in the project world in order to reduce her utility to its status quo level. This amount of money is called the *compensating variation* (CV). CBA assumes that B's CV is an adequate representation of the difference in B's utility as between the status quo and the project state of the world.[47]

In our example, B is made better off by P. If B were forced to pay her CV to someone else, then B would fall back to indifference curve U_S. However, B would be at a different point on U_S than under S; she would be at point h^*. B is consuming more electricity and fewer fish than under S, thanks to the change in prices caused by P, but B is no worse off. If P reduced B to a lower indifference curve, then the CV would be negative and would represent the amount of money necessary to raise B's utility to the level that would prevail under S.

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47. Because CV is defined in terms of preference satisfaction, it is the same as the amount that a person is willing to pay (WTP) for a project that benefits him, or willing to accept (WTA) in exchange for a project that hurts him.

Before turning to the question of how to aggregate the CVs of multiple parties, we should point out a difficulty with the analysis so far. In our two-good example we chose to measure the utility effect of the project by using prices in the project state of the world rather than prices in the status quo, but we could have taken the opposite approach. Under the method of *equivalent variation* (EV), one asks how much money one must give (or take from) the individual in the status quo, in order to raise (or lower) his utility level to that of the project state of the world. Graphically, one draws the hypothetical budget line, m_H, parallel to m_S and tangent to the indifference curve U_P, rather than parallel to m_P and tangent to U_S. The distance between the points at which m_S and m_H intersect the y-axis represents the EV. There is no theoretical reason to prefer CV over EV, and the choice between them creates some indeterminacy in CBA. However, defenders of CBA point out that the data used to calculate CVs and EVs are so crude that, as a practical matter, the two measures will produce similar results.[48]

The difference between CV and EV results from income effects. As a person obtains more goods, his relative preferences among goods may change. For example, a relatively poor person who has few fish and few units of electricity may initially be indifferent between obtaining one more unit of one good and one more unit of the other because he values an additional unit of each good equally; but as he obtains more and more units of both goods, he may begin to prefer electricity, which can be used to power his television set, to fish, for which he no longer has an appetite. As income increases, a person will not necessarily want to continue to consume two goods at the same rate. If, as seems likely, preferences follow this pattern, cost-benefit analyses that rely on CV may produce different results from analyses that rely on EV.[49]

2. Aggregation

The purpose of determining B's CV is to enable a comparison of the effects of P and S on B and A. Recall that in our example P placed B on a higher indifference curve. Now P might also place A on a higher indifference curve, in which case P is Pareto-superior to S. We will discuss Pareto superiority below. For now it is sufficient to note that Pareto superiority may be a sufficient condition for approving a project, but few, if any, actual projects are Pareto-superior to the status quo, and the reason for

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48. Indeed, agencies do not take the trouble to discuss such matters in their CBAs.

49. An additional source of indeterminacy is that people, for poorly understood psychological reasons, may be willing to pay less for a good than they are willing to accept to give up the same good, all else being equal. *See* Elizabeth Hoffman & Matthew L. Spitzer, *Willingness To Pay vs. Willingness To Accept: Legal and Economic Implications,* 71 WASH. U. L.Q. 59 (1993).

using CBA is that the Pareto standard cannot be used to justify the vast majority of government projects. For the purpose of the example, suppose that P injures someone. Since we assumed earlier that P benefits B, let us assume that it hurts A. Because A, a fisherman, likes fish more than electricity, P's effect of increasing the price of fish in terms of electricity reduces the extent to which A can satisfy his preferences. A's CV is calculated in the same way that B's CV is calculated, but this time CV is a negative number. A would have to be given money in the project state of the world in order to make him as well off as he was in the status quo, unlike B, from whom money would have to be taken. Then the project is approved if the sum of A's CV and B's CV exceeds zero; otherwise, the project is rejected.

Figure 2 depicts this analysis. The two curves are utility possibility curves (UPC). They measure the amounts of utility that A and B can jointly obtain under different technologies. Given a particular production technology, one can give all the goods either to A or B (represented by the intersections of the curve at the axes), or one can split the goods between them. UPC_s represents possible utility distributions in the status quo, and UPC_p represents utility distributions in the project state. Points s and p represent the distributions of utility in the status quo and under the project. If p were in the quadrant northeast of s (for example, where p' is), then P would be Pareto-superior to S. Both parties would have higher utility under P than under S. In our example, however, p must be below and to the right of s, in order to represent the fact that the project makes B better off and A worse off. The question is whether the project makes B *sufficiently* better off, relative to A. CBA tells us that P does make B better off by an amount greater than the amount by which it makes A worse off. This can be shown graphically. If the state implements the project and it can engage in costless lump-sum transfers, it can move the utility distribution from the status quo (s) to the project state of the world (p), and thence along UPC_p to a hypothetical world (p') that is Pareto-superior to the status quo.[50] This procedure shows that after the hypothetical transfer, both A and B are better off than in the status quo.

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50. Strictly speaking, the diagram shows the Kaldor-Hicks analysis, which is somewhat simpler than evaluation based on the sum of CVs. But the analysis is the same in all relevant respects.

FIGURE 2: MEASURING THE EFFECT OF A PROJECT ON AGGREGATE UTILITY
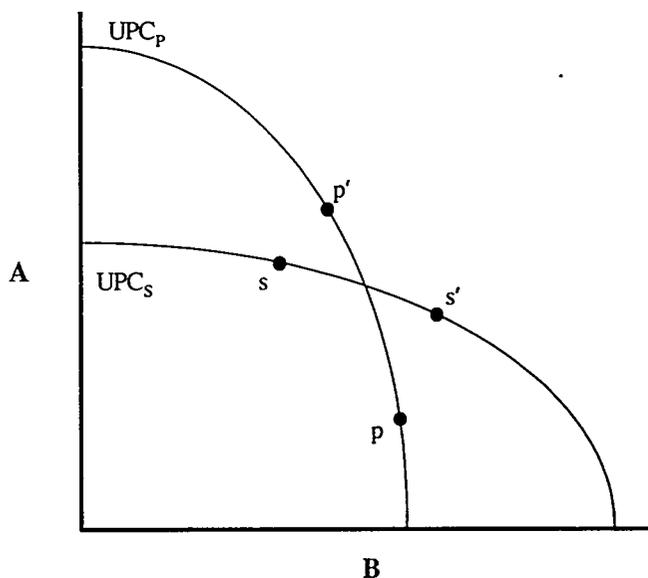
One should be clear about what is shown by aggregating CVs. One does not show in a straightforward way that *B*'s well-being is enhanced more than *A*'s well-being is reduced. Rather, one shows that *B* satisfies her preferences to a greater extent under *P* than under *S*; that *A* satisfies his preferences to a smaller extent under *P* than under *S*; and that *B*'s improvement is such that *B* could more than compensate *A* for his loss. One reason for this result may be that *B*'s preference for the electricity made cheaper by *P* is more *intense* than *A*'s preference for the fish made more expensive by *P*. *B* prefers electricity much more than fish; *A* is close to indifferent. Thus, if *B* gave *A* some extra units of electricity, *A* would be compensated for his loss of fish and *B* would still be better off. Holding everything else equal, this difference in intensity of preferences—so long as unrestricted preferences are entitled to respect—may justify a project that makes electricity cheaper and fish more expensive.

But another reason for the result may be that as *B* accumulates more fish and electricity, her relative preference for electricity increases—her stomach being full of fish, she wants to watch more television—whereas *A*, at a low endowment, is indifferent between fish and electricity but still eager for both. *A* needs fish for food and electricity for warmth, and wants them intensely, but also wants them equally, so he is not willing to give up a lot of one good in order to obtain a little of the other. One's CV reflects not just the intensities of one's preferences, but how these preferences

change as one's endowments increase. And yet this strikes a false chord. If *B* has plenty of fish but a modest appetite, she may be willing to trade lots of fish at the margin for a little electricity. So she is willing to pay a lot for *P*. Meanwhile, *A* does not have very many fish or much electricity and values fish slightly more than electricity, but still values both a great deal. *P* makes him worse off because he must reduce his consumption of fish, and the increased warmth does not offset that loss. But he is not willing to pay much (in terms of electricity units) to avoid *P*, because at his low endowment, electricity matters as much to him as fish do. At a more abstract level, wealthier people have higher CVs for a given welfare impact than poorer people do, because the marginal welfare productivity of dollars diminishes. Millionaires do not reap the same welfare benefit from $100 as poor people do.

Some scholars argue that this bias in favor of wealthy people is a decisive objection to CBA.[51] One response is that if CBA benefits wealthier people more than poor people, but at the same time makes wealthier people better off by more than it makes poor people worse off, the bias can be reversed through redistribution of wealth, in which case enough people will be better off as a result. This response correctly points out that an undesired consequence of CBA can be remedied, but it does not deal with the deeper philosophical difficulty that CBA may not measure anything that we care about. CBA reflects both preference intensity, which we do care about, and wealth, which we do not care about; but can these influences be disentangled?

Before answering this question, we should point out some practical consequences of this philosophical difficulty. Suppose that our two people, *A* and *B*, have the following endowments, in *S* and *P*, of the two goods *F* and *E*:

	A	B
S	2, 0	0, 1
P	1, 0	0, 2

If *F* refers to fish, and *E* refers to units of electricity, then the project of building a dam can be seen as reducing the number of fish from 2 to 1 and increasing the units of electricity from 1 to 2. *B* is a steel mill owner who benefits from cheap electricity if the dam is constructed and *A* is a fisherman who benefits if the dam is not constructed. We make the plausible assumptions that for a particular good, each party prefers more of that good to less of that good, and that each party prefers equal amounts of

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51. *See* C. Edwin Baker, *The Ideology of the Economic Analysis of Law,* 5 PHIL. & PUB. AFF. 3, 47-48 (1975) (arguing that proposals based on welfare economics promote capitalist ideology and the status quo distribution of wealth rather than welfare or freedom).

each good to unequal amounts of each good; that is, that each party obtains diminishing marginal utility from consumption of a good.

An agency must choose between S and P. If P is implemented, then B obtains an extra unit of electricity. If this unit were costlessly transferred to A, then A's utility would exceed his status quo utility, because A prefers $(1,1)$ to $(2,0)$. Meanwhile, B would be no worse off, with $(0,1)$, than in the status quo. Therefore, P is superior to S. However, if S is implemented, then A obtains an extra unit of fish. If this unit were costlessly transferred to B, then B's utility would exceed her project-world utility, because B prefers $(1,1)$ to $(0,2)$. Meanwhile, A would be no worse off, with $(1,0)$, than in the project world. Therefore, S is superior to P. Accordingly, the agency has no grounds for preferring S or P. This problem is called the "Scitovsky paradox."[52]

The Scitovsky paradox is illustrated in Figure 2. As we saw above, P defeats S, because the costless redistribution of p, p', is northeast of s. But S also defeats P, because the costless redistribution of s, s', is northeast of p. As long as the utility possibility curves cross, this indeterminacy is possible. Utility curves do not cross when preferences are identical and homothetic, which means that a person's relative demand for a good does not change with income. It is clear, however, that people's preferences are not identical and homothetic.[53]

To understand the challenge posed by the Scitovsky paradox, one must recall that the original purpose of CBA and related concepts of economic efficiency was to separate problems of distribution and problems of welfare improvement. Economists hoped to distinguish efficiency questions, which their expertise qualified them to address, from distributive questions, to which economic learning had nothing to contribute. The claim was not that distributional questions were unimportant and that redistribution of wealth was unjustified; it was rather that the economist had nothing useful to say about how wealth should be distributed.[54] The economist's role was to evaluate projects according to the extent to which they enhance the aggregate welfare of society, a goal that was taken to be neutral or at least relatively uncontroversial. Politicians could independently decide whether taxes and transfers should be used in order to create a more just distribution

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52. *See* Tibor de Scitovsky, *A Note on Welfare Propositions in Economics*, 9 REV. ECON. STUD. 77 (1941). Our example is taken from YEW-KWANG NG, WELFARE ECONOMICS: INTRODUCTION AND DEVELOPMENT OF BASIC CONCEPTS 59-66 (1980). *See also* BOADWAY & BRUCE, *supra* note 45, at 96-101.

53. Indeed, UPCs may cross multiple times under plausible assumptions about preferences. *See* LITTLE, *supra* note 10, at 106-08.

54. This is a common view. *See, e.g.*, MISHAN, *supra* note 45; A. Harberger, *Three Basic Postulates for Applied Welfare Economics: An Interpretive Essay*, 9 J. ECON. LITERATURE 785, 785-86 (1971); Kaldor, *supra* note 11, at 549-52; *supra* text accompanying notes 7-11.

of wealth. There was nothing inconsistent about welfare maximization, on the one hand, and wealth redistribution, on the other.

Thus, it has never been an objection to efficiency standards that they cannot evaluate purely redistributive projects. For example, suppose the government proposes a project that would change $\{(1,0), (3,3)\}$ for A and B, to $\{(2,2), (2,1)\}$. This project does not pass a cost-benefit test, because A cannot *over*compensate B from his gain; but this only means that the project cannot be justified on efficiency grounds but only (if at all) on distributive grounds. The economist does not condemn this project; he or she expresses no opinion about it. A line of thought does hold that when the government wants to redistribute wealth, the most cost-effective way of doing so is through taxes and transfers rather than by building dams in poor areas or toxic waste dumps in rich areas.[55] But the choice of how much wealth to redistribute is outside the economist's area of expertise.

We are less interested in the role of the economist than in the role of the government agency, but an analogous argument holds. When the Environmental Protection Agency or the Food and Drug Administration decides whether to approve a project, it might seem that it should do so on the basis of overall costs and benefits, and not as a way to redistribute wealth from one segment of the population to another. If wealth should be redistributed, independent efforts to do so by uncoordinated agencies seem less likely to succeed than adjustment of taxes and welfare benefits by Congress. The purpose of CBA, as typically understood, is to separate out the distributional issue and isolate the efficiency issue, so that the agency will evaluate projects solely on the basis of their efficiency.

But there remains the question whether such a separation is possible. The Scitovsky Paradox arises because the efficiency effect of a project is not independent of its distributional effect. When a project has an effect on a person's wealth, it will change how much that person values some goods relative to other goods, which means that in the project world he or she will have a new CV for going back to the status quo. This new CV will not be the same as the CV for going from the status quo to the project world. If the other party's CV changes in the right way, the reversal will occur. The reversal will not *necessarily* occur. It will not occur if, for example, a project's effect on people's endowments is small, or the people affected by the project have similar endowments and preferences.[56] But even if the reversal will not occur, its possibility haunts the entire project of CBA, because it shows that people's valuations depend on their relative wealth as

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55. *See* Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 667 (1994).

56. *See* Neil Bruce & Richard G. Harris, *Cost-Benefit Criteria and the Compensation Principle in Evaluating Small Projects*, 90 J. POL. ECON. 755 (1982).

well as on the intensity of their preferences.[57] If you care about overall welfare in the ordinary meaning of that term, you should care about satisfying intense preferences, but there is no reason to care about satisfying the preferences of wealthier people more than the preferences of poorer people.

When an agency makes a decision, its decision will have definite distributional effects even assuming that Congress could later make costless lump-sum transfers. If the economy is at point s, implementation of the project forces Congress to choose a distribution along UPC_p: for example, p', p (if Congress favors B), or anywhere else along this curve. However, Congress may believe that the optimal distribution is at s' or any nearby point. By implementing the project, the agency prevents Congress from reaching s', whereas if it did not implement the project, Congress would be able to reach s'.[58]

B. *The Conventional Defenses of CBA*

Economists have defended CBA in several ways. These defenses have in common an implicit commitment to the view that people's unrestricted preferences should be respected.[59] As noted above, we reject this view. However, because the view is important, and the conventional defenses contain influential ideas, we will spend this section describing and criticizing them. We classify these defenses as the Pareto defense, the Kaldor-Hicks defense, and the utilitarian defense.

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57. For a clear statement of this point, see Blackorby & Donaldson, *supra* note 17, at 490-91. Some economists simply argue that a project should not be approved when approval would lead to a Scitovsky paradox. *See, e.g.*, LITTLE, *supra* note 10, at 112 (requiring a distributive criterion); Scitovsky, *supra* note 52, at 86-87. This approach does not remove all difficulties: It can produce intransitivities or indeterminacies. *See* BOADWAY & BRUCE, *supra* note 45, at 99-100.

58. For the sake of brevity, we do not address several other objections to CBA that have been influential in the literature. These objections include criticisms of CBA's treatment of (1) risk, (2) the discounting of future benefits, and (3) valuation of life and other hard-to-measure goods. For discussions see, for example, W. KIP VISCUSI, FATAL TRADEOFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK (1992) (valuation of life); Richard Layard & Stephen Glaister, *Introduction* to COST-BENEFIT ANALYSIS 1 (Richard Layard & Stephen Glaister eds., 1994) (discounting); and Herman B. Leonard & Richard J. Zeckhauser, *Cost-Benefit Analysis Applied to Risks: Its Philosophy and Legitimacy, in* VALUES AT RISK 31 (Douglas MacLean ed., 1986) (risk).

59. Notable exceptions include Sen and Harsanyi. *See* AMARTYA SEN, CHOICE, WELFARE AND MEASUREMENT 84-106 (1982); John C. Harsanyi, *Game and Decision Theoretic Models in Ethics, in* 1 HANDBOOK OF GAME THEORY WITH ECONOMIC APPLICATIONS 669, 703-04 (Robert J. Aumann & Sergiu Hart eds., 1992). Although both scholars appear to support CBA, at least under certain conditions, neither of them has attempted to reconcile his views with the traditional approach to CBA.

1. *The Pareto Defense*

A standard defense of CBA is that it provides a sufficient approximation of Pareto-superior projects. This argument naturally assumes that the Pareto standard is ethically desirable. Let us begin with that claim.

At first glance, the Pareto standard appears normatively attractive. A project that harms no one, and makes at least one person better off, is apparently consistent with a wide variety of moral commitments, including classical liberalism and utilitarianism. It seems to be consistent with commonsense morality.

Standard objections to the Pareto principle include the obvious point that people may make incorrect choices, so their indifference curves will not describe distributions that are systematically related to their actual welfare. A drug addict may reach a higher indifference curve as a result of a project that reduces the price of drugs, but most people would condemn such a project as likely to make the addict worse off. Another objection is that a Pareto-superior allocation may be distributively unjust. A project that generates $1000 for a rich person and nothing for a poor person aggravates wealth inequality. A third objection is that the Pareto standard assumes a commitment to ethical individualism, with the satisfaction of preferences taking priority over the enhancement of community values. But, it is claimed, ethical individualism does not accord with our moral intuitions. The standard responses to these claims are that agencies should sometimes ignore distorted preferences or that preferences are not usually distorted; that the government can redistribute wealth in order to achieve distributive justice; and that ethical individualism *does* accord with our moral intuitions. We address this debate at greater length in Part IV.

More significant for our purposes is the problem that the Pareto standard cannot supply a sufficiently complete ordering of projects. It is likely that the Pareto standard would reject desirable projects that would be approved under an uncontroversial social welfare function. For example, a vaccine that improved the health of millions of people but required a tax of one dollar on someone unaffected (who is not altruistic) would violate the Pareto standard but surely is morally required or at least permissible. All utility-enhancing government projects probably violate the Pareto standard. Although one might argue that Pareto superiority could be a sufficient condition for a project, we doubt that this claim is of any importance.

This is where CBA comes in. Defenders of CBA argue that CBA provides a useful approximation of the Pareto standard, while also allowing a *more* complete ordering (though, as we saw, not a fully complete ordering).

The first argument is that although CBA does not require that Losers be compensated, the government can (and should) compensate the Losers by

taxing the Winners after the project is implemented.[60] The problem with this argument is that if the government could and did tax the Winners and compensate the Losers, the project would be Pareto-superior to the status quo and CBA would not be necessary. But very few projects are truly Pareto-superior, because the administrative costs of identifying everyone injured by a project and of transferring money to those people from the Winners would overwhelm the project's benefits.

The second argument is that people will expect in the aggregate, over time, to be benefited by projects as often as they are injured by projects.[61] Suppose we must decide today whether from now on the government should use CBA. If CBA increases the wealth of everyone in the aggregate, then every person expects ex ante to be better off with CBA than without it. In this ex ante sense, CBA is Pareto-superior to the status quo. The problem with this argument is that CBA will tend to favor people who have a low opportunity cost for money. There is no reason to believe that the people who are injured by projects are usually the same as the people who are benefited by projects. And although the government might redistribute wealth through the welfare system,[62] there is no reason to believe that the beneficiaries of welfare are the same as the people injured by projects implemented by the government. Thus, the Pareto standard will not be satisfied.[63]

Another line of thought accepts the force of these criticisms and argues that CVs should be calculated using distributional weights. One possibility is to weight a person's CV by his marginal utility of money. Because poor people have higher marginal utilities of money than do rich people, the weighting system will inflate their CVs relative to those of rich people, with the result that approval of projects would not be biased in favor of rich people. The problem here is that of determining people's marginal utilities of money. Most economists appear to believe that the difficulties involved

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60. This view is implicit in Kaldor, *supra* note 11, which argues that economists should not concern themselves with the distributive consequences of projects, since distribution is essentially a political issue. The implication is that if an "efficient" policy produces Losers, the government can compensate them if the outcome is distributively objectionable.

61. *See* A. Mitchell Polinsky, *Probabilistic Compensation Criteria*, 86 Q.J. ECON. 407 (1972) (formalizing this idea, which goes back to Hicks, *supra* note 11).

62. *See* MISHAN, *supra* note 45, at 393.

63. One path around this objection might be to conceptualize individuals as choosing ex ante between CBA and other procedures under a veil of ignorance—without knowing what their wealth, preferences, and welfare-affecting characteristics will turn out to be. But it is hardly clear that the rational choice, ex ante, under broad uncertainty, is to choose the world where government uses CBA. Harsanyi has argued famously that the rational choice, under such circumstances, is to choose the world where overall well-being is higher. *See* Harsanyi, *supra* note 59, at 694-96. Insofar as CBA and overall well-being diverge—as we argue they do—the introduction of uncertainty into an ex ante perspective does not secure the Pareto defense of CBA.

would be insurmountable, and so this scheme and related schemes have not had much influence.[64]

2. *The Kaldor-Hicks Defense*

Some scholars defend CBA on the grounds that it approximates the Kaldor-Hicks standard.[65] The Kaldor-Hicks standard states that a project is desirable if it makes the Winners better off by an amount sufficient to overcompensate the Losers, if the Losers could be compensated through a costless lump-sum transfer. More precisely, state *P* Kaldor-Hicks dominates state *S* if it is possible to (costlessly) redistribute goods in state *P* so as to produce a distribution that is Pareto-superior to the distribution in state *S*. In Figure 2, Kaldor-Hicks ranks Project *p* over Pareto-noncomparable Project *s*. To see why, observe that a costless redistribution of the bundle of goods represented by *p* would allow a move to *p'*, which is Pareto-superior to *s*.[66] This defense assumes that the Kaldor-Hicks standard is normatively defensible. The difference between CBA and Kaldor-Hicks is that CBA uses money as the numeraire, whereas Kaldor-Hicks, a more general criterion, does not use a numeraire.

Most economists appear to concede that the Kaldor-Hicks standard is not, by itself, normatively desirable.[67] The problem with the Kaldor-Hicks standard is that hypothetical compensation is not real compensation. The Loser when a project is approved is not consoled by his compensation in a hypothetical world: The Kaldor-Hicks standard lacks precisely that which makes the Pareto standard attractive.

So the Kaldor-Hicks standard is usually defended by reference to the Pareto standard. Indeed, it is often called the "potential Pareto" standard. The argument is that although an individual might lose as a result of one project, he or she is also likely to win as the result of another project, so over time the gains and losses will even out, and everyone (or almost everyone) will be better off if the Kaldor-Hicks standard is used than if some alternative is used. In addition, distributive problems can be solved with the tax and welfare system. But this argument is no different from the claim that CBA approximates the Pareto standard, an argument we rejected

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64. *See* LITTLE, *supra* note 10, at 120-28.

65. *See, e.g.,* MISHAN, *supra* note 45, at 382-402; Harberger, *supra* note 54, at 785. A textbook discussion can be found in DASGUPTA & PEARCE, *supra* note 5, at 57.

66. We avoid two complications. First, the Kaldor-Hicks standard actually refers loosely to two separate standards, the Kaldor standard and the Hicks standard. The choice between Kaldor and Hicks parallels the choice between CV and EV, and introduces further indeterminacy. Second, we ignore the debate about whether the hypothetical transfer should be considered costless or should be understood to require the costly redistributive instruments at the government's disposal—a debate that, in our view, is idle.

67. *See, e.g.,* Blackorby & Donaldson, *supra* note 17, at 472.

in the prior section. As noted above, the only difference between using CVs and using the Kaldor-Hicks criterion is that the former uses money as a numeraire, whereas the latter does not use a numeraire; but this difference does not affect the conclusion that the standards are biased in favor of people who are wealthier. Moreover, justifying CBA on the basis of Kaldor-Hicks faces the additional difficulty that a positive sum of CVs is a necessary but not sufficient condition for satisfying the Kaldor-Hicks standard.[68] But this argument and the literature it has spawned are not of any practical interest. Because Kaldor-Hicks is, taken as a moral principle, unsound, CBA cannot be justified by reference to Kaldor-Hicks. To defend CBA, one must appeal to some other moral principle.[69]

3. The (Unrestricted) Utilitarian Defense

A final defense of CBA is that CBA is justified, assuming a commitment to utilitarianism with unrestricted preferences. We do not know of any sustained defenses of this position, but it seems to be implicit in the work of some authors.[70] We also do not think that this version of utilitarianism is plausible. But assuming it were, how could CBA be defended on the ground of unrestricted utilitarianism?

Initially, we must define what we mean by utilitarianism. Classical utilitarians like Bentham and Mill used the concept of utility to refer to a distinct mental state, something like a feeling of happiness or well-being.[71] Maximizing aggregate utility, then, meant increasing the happiness of as many people as possible. In principle, the amount of happiness that a person has could be quantified.[72] For reasons that we discuss in Part IV, most modern economists reject this view. Modern economists hold that utility refers to the extent to which a person satisfies his or her (unrestricted) preferences. A utility function ranks states of the world according to the extent to which a person satisfies these preferences. Further, modern utility

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68. *See* Robin W. Boadway, *The Welfare Foundations of Cost-Benefit Analysis*, 84 ECON. J. 926 (1974).

69. We are not persuaded by the argument that Kaldor-Hicks is justified on the basis of hypothetical consent. *See* Richard A. Posner, *The Ethical and Political Basis of the Efficiency Norm in Common Law Adjudication*, 8 HOFSTRA L. REV. 487 (1980). *But see, e.g.*, Jules L. Coleman, *Efficiency, Utility, and Wealth Maximization*, 8 HOFSTRA L. REV. 509 (1980) (criticizing Posner). Nor are we persuaded that it is consistent with people's moral intuitions. *See* Richard A. Posner, *Utilitarianism, Economics, and Legal Theory*, 8 J. LEGAL STUD. 103 (1979). *But see, e.g.*, Ronald M. Dworkin, *Is Wealth a Value?*, 9 J. LEGAL STUD. 191 (1980) (criticizing Posner). Other contributions to this debate can be found in *Symposium on Efficiency as a Legal Concern, supra* note 15.

70. *See, e.g.*, PEARCE & NASH, *supra* note 14, at 26-27. Pearce and Nash do not themselves accept this approach. *See id.*

71. *See* L.W. SUMNER, WELFARE, HAPPINESS, AND ETHICS 84-85 (1996).

72. *See* Cooter & Rappoport, *supra* note 10, at 510-12.

is *ordinal* rather than *cardinal*.[73] This means that if by changing the price of fish, a project increases a person's utility function or (what is the same thing) raises that person to a higher indifference curve, one cannot say how much better off that person is, but only that he or she is better off. Indeed, to be more precise, one can say only that the person can satisfy his or her (unrestricted) preferences to a greater degree. But even if we assume that we, as utilitarians, want to do this for as many people as possible, we run into a problem. The problem is that there is no non-arbitrary method for ranking social states on the basis of their effect on the ordinal utility functions of all people.[74] For any given project that is not Pareto-superior, some people will prefer it to other projects and other people will prefer the other projects to the first project. An agency that obtained sincere answers to questions about people's ranking of the projects would not be able to use that information to rank the projects in a non-arbitrary way.

This result is best understood to be a problem about information.[75] Welfare economists assume ordinal utilities, rather than cardinal utilities, because the former place fewer demands on the capacity of the decisionmaker to obtain information. To compare cardinal utilities, the decisionmaker must have some idea about how much "happiness" or "welfare" a person would experience under alternative states of the world, or some idea about whether a project increases one person's satisfaction of his preferences by "more" than it reduces some other person's satisfaction of preferences. Some economists have argued, controversially, that such interpersonal comparisons of welfare are impossible.[76] More plausibly, these comparisons are just information intensive and highly contestable.[77] An agency that assessed projects by directly comparing the cardinal welfare gains of those who benefit from the project with the cardinal welfare losses of those who are harmed would incur tremendous informational costs and would have a very hard time securing general agreement to its assessments.[78]

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73. *See* DASGUPTA & PEARCE, *supra* note 5, at 25.

74. *See* KENNETH J. ARROW, SOCIAL CHOICE AND INDIVIDUAL VALUES (1951).

75. Arrow's impossibility result can be avoided by assuming the possibility of interpersonal comparability. *See* ANANDARUP RAY, COST-BENEFIT ANALYSIS: ISSUES AND METHODOLOGIES 33 (1984).

76. *See* Lionel Robbins, *Interpersonal Comparisons of Utility: A Comment*, 43 ECON. J. 635 (1938). For a discussion and criticism of Robbins's position, see LITTLE, *supra* note 10, at 55-66. A recent article states that "most economists think interpersonal welfare comparisons are nonsense." Robert A. Pollak, *Welfare Comparisons and Situation Comparisons*, 50 J. ECONOMETRICS 31, 31 (1991). However, Pollak, who is himself agnostic on the matter, *see id.* at 39, does not supply citations, and we have not found recently published work that makes such a strong claim.

77. See Pollak, *supra* note 76, at 37-43, for a discussion of the difficulties.

78. *See infra* Subsection V.A.1 (criticizing direct implementation of the criterion of overall well-being).

Still, one can make sense of the idea that agencies should use CBA in order to maximize utility. Suppose that every person in society had identical endowments. Then it could plausibly be assumed that each valued an extra dollar by the same amount. People's CVs would reflect their utilities exactly, and a project that passed a CBA would also increase aggregate utility. Now suppose that people's endowments were not identical. In order to aggregate utility, one could not use CVs, because they are distorted by the differences in endowments. A rich person might be willing to pay more for a project than a poor person is, yet it is likely that his marginal utility of money is less than the poor person's, so approval of the project would result in a reduction in aggregate utility. In principle, one could weight CVs in order to eliminate this distortion, but in order to determine the proper weighting system, an agency would have to determine everyone's marginal utility of money. As we have already mentioned, most economists appear to believe that such a determination would be too difficult.[79] So economists are faced with a dilemma, and this dilemma is reflected in the literature. One branch of the literature proposes that economists should evaluate projects on the basis of social welfare functions that include proper distributional weightings. Utility is assumed to be cardinal under this approach: Different people's utilities can be weighted and summed. This approach is, in a sense, intellectually rigorous, but it is not useful because it is too demanding on the decisionmaker, and agencies do not use such ambitious social welfare functions in the real world (nor does anyone else, as far as we know). The other branch of the literature holds that economists should evaluate projects on the basis of unweighted CVs. This approach, which presupposes only ordinal utilities, is perhaps less intellectually respectable, but has had more influence. The pure approach is impractical; the practical approach is impure. It is relatively straightforward to aggregate and compare CVs, but the outcome does not necessarily reveal whether a project enhances welfare.[80]

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79. *See* PEARCE & NASH, *supra* note 14, at 27. A powerful critique can be found in LITTLE, *supra* note 10, at 120-27.

80. Most textbooks on CBA recommend distributive weighting and discuss various methods. *See, e.g.,* BOADWAY & BRUCE, *supra* note 45, at 271-91; PEARCE & NASH, *supra* note 14, at 31-37; RICHARD O. ZERBE, JR. & DWIGHT D. DIVELY, BENEFIT-COST ANALYSIS IN THEORY AND PRACTICE 236-53 (1994). However, they do not show that the weighting systems are practical, and indeed many textbooks express doubts about their practicality. *See, e.g.,* MISHAN, *supra* note 45; RAY, *supra* note 75, at 22-31; ROBERT SUGDEN & ALAN WILLIAMS, THE PRINCIPLES OF PRACTICAL COST-BENEFIT ANALYSIS 206-07 (1978). So the literature leaves one in doubt about what a proper CBA entails. As mentioned in the text, agencies do not appear to use explicit distributional weightings of the sort recommended by textbooks, although they may engage in such weightings surreptitiously or informally. *See supra* text accompanying note 33 (discussing pesticide regulation). Some scholars argue that the economist should not use distributive weights, but should disaggregate the costs and benefits of a project for particular groups, and allow the policy maker to decide whether its distributional consequences are acceptable. *See, e.g.,* A.R. Prest & R. Turvey, *Cost-Benefit Analysis: A Survey,* 75 ECON. J. 683, 701-02 (1965).

Finally, it is worth mentioning an argument that we believe has currency among economists although it is rarely defended in print. This argument is that CBA is desirable because there are no superior alternatives that provide determinate, or relatively determinate, prescriptions.[81] This argument assumes that if agencies engaged in some sort of direct utilitarian regulation, they would be unlikely to evaluate projects in a consistent way. If CBA provides only a feeble approximation of utilitarianism, that is better than no guidance at all.

This argument might seem odd. Why would a poor guide be better than no guide at all? If someone proposed a method that required the approval of all projects whose titles have at least twenty letters and the disapproval of all projects whose titles have fewer than twenty letters, the method would produce determinate results, but not desirable ones.

One way to understand this argument is to imagine that a person is lost in the woods. Having no theory about how to get out of the woods, he walks around randomly. A method that does not tell the person how to get out of the woods may still be helpful. It is apparently the case that when people are lost, they tend to walk in circles. Whatever the true path out of the woods, walking in circles is inferior to walking in a straight line. So a method that enabled a person to avoid walking in circles (for example, walking toward some landmark) is superior to no method at all. Similarly, CBA may enable agencies to avoid certain errors—like the tendency to exaggerate certain benefits and to ignore certain costs—without actually telling the agency whether a project is desirable. The critics of CBA, however, reply that while this is possible, it is not likely. For them, CBA is no better than walking in circles. The argument that CBA is better than an alternative cannot be made independently of a theoretical defense of it and a comparison to its rivals. That is the burden of Parts IV and V.

IV. RECONCEPTUALIZING COST-BENEFIT ANALYSIS

In this Part, we argue that CBA is properly conceptualized as a *welfarist decision procedure*. We defend the following claims: (1) The effect of a governmental project on overall well-being is a morally relevant, if not morally decisive, feature of the project; and (2) in a significant fraction of agency choice situations, CBA is the decision procedure best

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81. *See* Alan Williams, *Cost-Benefit Analysis: Bastard Science? and/or Insidious Poison in the Body Politick?*, 1 J. PUB. ECON. 199 (1972). Some scholars have proposed alternatives. *See, e.g.*, G. Munda et al., *Information Precision and Multicriteria Evaluation Methods, in* EFFICIENCY IN THE PUBLIC SECTOR: THE THEORY AND PRACTICE OF COST-BENEFIT ANALYSIS 43 (Alan Williams & Emilio Giardina eds., 1993); V. Kerry Smith, *A Conceptual Overview of the Foundations of Benefit-Cost Analysis, in* BENEFITS ASSESSMENT: THE STATE OF THE ART 13, 27-31 (Judith D. Bentkover et al. eds., 1986). We discuss these and other alternatives in Part V.

justified in light of overall well-being. We do not claim that CBA is *always* best justified in light of overall well-being. On the other hand, CBA has certain distinct advantages relative to other decision procedures and these advantages suggest that it will be routinely, if not universally, appropriate.

Our conception of CBA has a number of salient features. First, we conceive of CBA as a *decision procedure*, not as a criterion of moral rightness or goodness. The fact that a project has a positive sum of compensating variations says nothing at all, even prima facie, about the moral worth of the project. The criterion of overall well-being, and other true moral criteria, are conceptually distinct from the sum-of-CVs test. For example, as we discussed above, the project Winners might be rich and the project Losers might be poor, such that the Winners would be willing to pay large sums in dollars for trivial welfare benefits, and the Losers would be willing to accept smaller sums in return for welfare harms, which on a welfare metric are larger than the Winners' trivial benefits.[82] Yet it is a mistake to leap from the premise that CBA lacks bedrock moral status to the conclusion that agencies should not employ CBA as a decision procedure. CBA might be *sufficiently* accurate in tracking the welfare effect of projects that, notwithstanding the conceptual slippage between CBA and overall well-being, it is the best procedure for agencies to use, given its relative cheapness and transparency.

Second, our conception severs any link between CBA and the two purported moral criteria most familiar to modern economists, namely, Kaldor-Hicks and Pareto superiority. Again, the considerations motivating this stance were discussed in Part III. Kaldor-Hicks is not, in truth, a moral criterion; the fact that the Winners from the project could compensate the Losers does not, without more, mean that the project is a good one, even prima facie. As for the criterion of Pareto superiority, although it *does* mark out something morally significant, it is a criterion of limited scope. It leaves unranked projects that have both welfare Winners and Losers, as agency projects typically do.[83]

Rather, our conception ties CBA to a criterion much older than Kaldor-Hicks or Pareto superiority, a criterion with an impressive philosophical pedigree: *overall well-being*. It is worth emphasizing that "overall well-being" is distinct both from Kaldor-Hicks and from Pareto superiority. A project is Pareto-superior to the status quo if and only if everyone is no worse off in the project world, and at least one person is better off. A project is Kaldor-Hicks-superior to the project world if and only if there exists some redistribution of goods in the project world, from those who are better off with the project to those who are worse off, such that if this

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82. *See supra* text accompanying note 50.
83. *See supra* Subsections III.B.1, III.B.2.

redistribution were performed costlessly, the project would be Pareto-superior to the status quo.[84] By contrast, a project increases *overall well-being*, relative to the status quo, if aggregate welfare in the project world is larger than aggregate welfare in the status quo; or, equivalently, if the welfare gains to those whose are better off in the project world are larger than the welfare losses to those who are worse off.

Modern economists are sometimes uncomfortable with the criterion of overall well-being, because of the standard claim that interpersonal welfare comparisons are impossible. That claim is wrong, as we shall argue at length below. All of us regularly compare welfare gains and losses, across persons, and indeed a conception of welfare that precluded such comparisons would be unreasonable.

We should emphasize that by asserting the possibility of interpersonal welfare comparisons and the moral relevance of overall well-being, we are *not* committing ourselves to the truth of utilitarianism. Utilitarianism is the view that overall well-being is morally decisive: The only important feature of a project is its effect on aggregate welfare. Our view, a considerably weaker one, is that overall well-being is morally *relevant*. Government should choose a welfare-improving project, but all things considered, nonwelfarist considerations (for example, distributive or deontological considerations) may properly lead to the ultimate rejection of that project. CBA is a decision procedure by which agencies implement one of the several normative criteria that, together, determine the all-things-considered normative status of the project.

Finally, as should become clearer below, our conception of CBA is distinctive because we detach CBA from *preferences*. The concept of preference is foundational to modern economics, both positive economics (in which actors are assumed to maximize satisfaction of their preferences) and normative or welfare economics (in which satisfying preferences is assumed to make persons better off). This may or may not be appropriate in the first case—we take no position on that, because our project here is normative, not positive—but we do claim that the view that welfare depends upon the satisfaction of unrestricted preferences is misguided. But this is not a difficulty for CBA, because CBA is agnostic as to the correct conception of well-being. The idea of measuring a project's effect on overall well-being by monetizing the effect on each individual and then aggregating does not presuppose an unrestricted-preference-based view of well-being, or indeed any preference-based view at all. To put the point another way: The "compensating variations" summed to determine the overall costs and benefits of a project should be defined not as a person's willingness to pay or accept (which presupposes a preference-based view of

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84. *See supra* note 66 and accompanying text.

welfare), but as her *welfare equivalent* (leaving open what the right theory of welfare is).[85]

We proceed as follows. Section A of this Part describes different theories of well-being and criticizes the unrestricted-preference-based view. Sections B and C address, respectively, two different objections to the purported moral criterion of overall well-being. The first is the conceptual objection that interpersonal welfare comparisons are impossible. The second is the normative objection that, conceding the possibility of such comparisons, overall well-being is nonetheless morally irrelevant. In Section D, we flesh out the distinction between decision procedures and moral criteria, and discuss how CBA (understood as a welfarist decision procedure) should be defined. Then, in Part V, we compare CBA with alternative decision procedures—with direct implementation of the welfare criterion; with nonaggregative procedures; with unidimensional procedures; and with other multidimensional procedures—and highlight CBA's advantages, in accuracy, cost, and transparency, relative to these other procedures, in light of overall well-being. Finally, in Part VI, we briefly discuss the problem of bringing nonwelfarist criteria, such as deontological or distributive criteria, to bear on agency choices.

Before we proceed, a terminological point is in order. The term "welfarist" is used, throughout this Part, as a synonym for "relative to overall well-being." "Welfarism," in our terminology, is the view that overall well-being is morally relevant. Hence our description of CBA as a welfarist decision procedure. The terms are sometimes, though not always, used this way in the philosophical literature; in any event, this is the way they will be used here.

A. Well-Being: Desire, Pleasure, and Objective Value

Philosophers typically divide theories of well-being into three types: desire-based theories, objective-list theories, and hedonic theories.[86]

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85. Actually, this is just a first cut at our position. More precisely, CVs should be defined either as welfare equivalents or as WTP/WTA to the extent the latter measure tracks welfare equivalents with sufficient accuracy and is cheaper, more transparent, more reliably implemented, and so forth. *See infra* text accompanying note 154.

86. For overviews of the philosophical literature on well-being, see JAMES GRIFFIN, WELL-BEING 7-72 (1986); DEREK PARFIT, REASONS AND PERSONS 493-502 (1984); and SUMNER, *supra* note 71, at 45-137. Sometimes the trichotomy of welfare theories is drawn a bit differently from the way we have just drawn it: as a trichotomy of desire-based theories, objective-list theories, and *mental state* theories, with the last category in turn given two subcategories, (1) hedonic theories and (2) mental state theories (such as Sidgwick's) that define welfare in terms of desirable mental states rather than positive feeling tones. *See* SUMNER, *supra* note 71, at 91 (discussing Sidgwick's view). Since we are trying to draw a sharp distinction between welfare theories that rest upon desires and theories that do not, we include the Sidgwickian variant within our category of desire-based theories.

Theories of well-being can be used for various purposes. We are interested, in this Article, in their use in illuminating the problem of *comparative* well-being.[87] CBA is a technique by which agencies compare options ("projects"). What must be true of the project world, for a given person *A*, such that *A* is better off there than in the status quo? Desire-based theories, objective-list theories, and hedonic theories give different answers to this question. A desire-based theory says that it is a *necessary* condition, for *A* to be better off with the project, that *A* desire the project over the status quo. By contrast, both objective-list and hedonic theories deny that *A*'s desiring the project world is a necessary condition for her comparative benefit. Instead, for the objective-list theorist, *A*'s welfare in the project world, as compared to the status quo world, depends upon the balance of objective goods that *A* realizes in the two worlds.[88] And for the hedonic theorist, *A*'s comparative welfare depends upon the balance of pleasurable mental states that *A* realizes in the two worlds.

By "desire," we mean what philosophers call a "pro-attitude"; that is, some kind of *propositional attitude* with a *favorable* valence.[89] Desires, thus defined, are a *generic* category that includes such specific pro-attitudes as wants, hopes, wishes, favorable judgments, preferences, lusts, likes, and so forth. What these all have in common is that they take states of affairs as their objects. In this important way, desires are different from nonpropositional mental states such as physical pleasures and pains. I feel thirsty, or hot, or itchy. I desire *that* I learn this musical composition, or that the parade take place, or that we go on a ski trip. Additionally, desires are favorable rather than unfavorable. I like learning musical compositions; I detest reading novels. Both liking and detesting are propositional attitudes, but only liking is a desire because only liking is favorable.

We should emphasize that our use of the term "desire" here is stipulative. The term "desire," in ordinary English, has certain connotations (for example, affective connotations) that we do not intend. Our definition of "desire" tracks the broader usage common in the philosophical

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87. On the importance of comparisons for justified choice, see generally Ruth Chang, *Comparison and the Justification of Choice*, 146 U. PA. L. REV. 1569 (1998).

88. What these goods are is a matter for further debate, within the family of objective-list theories, but typically they are taken to include such goods as knowledge, personal relationships, play, the experience of beauty, the accomplishment of worthy goals, and physical fitness. For some specific lists of objective values, see JOHN FINNIS, NATURAL LAW AND NATURAL RIGHTS 85-90 (1980); GRIFFIN, *supra* note 86, at 67-68; and GEORGE SHER, BEYOND NEUTRALITY: PERFECTIONISM AND POLITICS 199-201 (1997).

89. On propositional attitudes, see JAEGWON KIM, PHILOSOPHY OF MIND 13-14 (1996); on the "valencing" of propositional attitudes, see RICHARD B. BRANDT, A THEORY OF THE GOOD AND THE RIGHT 24-45 (1998). By contrast with Brandt, however, we think that valence need not be defined in terms of choice. For example, I might retrospectively endorse some state of affairs involving myself, even though I did not choose it, and even though I endorse it just because it happened to me serendipitously rather than through my choice. *Cf.* SUMNER, *supra* note 71, at 122-37 (discussing retrospective endorsement).

literature. Any pro-attitude is, for our purposes, a desire. And any theory of well-being that makes the satisfaction of some pro-attitude a necessary condition for A's welfare is, by our definition. a "desire-based" theory.

The predominant theory of well-being within welfare economics is a specific variant of a desire-based theory. This specific variant makes well-being depend upon *preferences*, which are one type of pro-attitude.[90] How are preferences different from judgments, endorsements, wishes, and other pro-attitudes? Although economists differ over this issue, in the standard textbook treatment a person has a preference for some good if he chooses that good rather than alternatives. Thus, preferences, unlike certain other pro-attitudes, are conceptually connected to choice.[91] Moreover, preferences, unlike certain other pro-attitudes, have no necessary emotional or affective component: I can prefer P over S without having a strong feeling about either option. Further, preferences, unlike certain other pro-attitudes, have no necessary cognitive component: I can prefer P over S without reason. Finally, and most significantly, the standard economic theory makes well-being depend upon *unrestricted* preferences. The theory says that, assuming constant preferences, A is better off with the project if, all things considered, A prefers the project world (or would do so given sufficient information).[92]

The standard economic theory is wrong. It is wrong because A might prefer the project to the status quo for all manner of reasons, including but

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90. On the nature of preference, see, for example. S.L. HURLEY. NATURAL REASONS: PERSONALITY AND POLITY 55-83 (1989); Richard J. Arneson, *Liberalism, Distributive Subjectivism, and Equal Opportunity for Welfare*, 19 PHIL. & PUB. AFF. 158, 161-64 (1990); and Arthur Ripstein, *Preference, in* VALUE, WELFARE AND MORALITY 93-111 (R.G. Frey & Christopher W. Morris eds., 1993). A recent anthology of technically sophisticated papers is PREFERENCES (Christoph Fehige & Ulla Wessels eds.. 1998). For a full analysis of the related concept of a "want," see ROBERT AUDI. ACTION. INTENTION, AND REASON 35-55 (1993).

91. See DASGUPTA & PEARCE, *supra* note 5, at 22-25, for a discussion. Perhaps a more plausible formulation is one that defines preference as a disposition to choose (A prefers P over S if and only if A chooses X rather than Y when A believes that X leads to P and Y leads to S, and no other preferences are in play) rather than as an actual choice (A prefers P over S if and only if A chooses P over S). See, e.g., DANIEL M. HAUSMAN & MICHAEL S. MCPHERSON, ECONOMIC ANALYSIS AND MORAL PHILOSOPHY 28 (1996) ("We regard Q's preference ranking as a subjective state of Q that, along with Q's beliefs, explains her choices."). This is not the same as saying that Q's preferences are "revealed" in her choices, since, for example, Q's beliefs may be mistaken. *See id.* (criticizing the revealed preference view). For our purposes, we need not decide whether the conceptual connection between preference and choice is properly captured by a "revealed preference" view or in some other way.

92. For a general presentation of the standard. economic view of well-being, see MISHAN. *supra* note 45. Critical discussions of the link within welfare economics between preference and well-being are provided by HAUSMAN & MCPHERSON *supra* note 91, at 71-83; SUMNER, *supra* note 71, at 113-22; and Tyler Cowen, *The Scope and Limits of Preference Sovereignty*, 9 ECON. & PHIL. 253 (1993). We do not necessarily endorse all of the criticisms voiced by these authors, but instead focus specifically on the point that well-being is not equivalent to the satisfaction of *unrestricted* preferences. *See infra* text accompanying notes 93-94, 98.

not limited to her welfare.[93] For example, *A* might prefer the project to the status quo because she believes that the project is morally required, even though *A* also believes she would be personally better off with the status quo. Imagine a project that redistributes resources from the rich, including *A*, to the poor. To insist that the project improves *A*'s own welfare is mistaken for several reasons. First, considerations of morality and welfare notoriously can conflict, and yet the unrestricted preference-based theory says that considerations of morality and welfare necessarily do not conflict where *A*'s preferences track what morality requires.[94] Second, what underlies preference-based and more broadly desire-based theories is the accurate intuition that *A* is, in some way, sovereign with respect to her own well-being, yet here the welfare economist insists that *A* is better off with the project even though *A*'s own judgment is that, for herself, the status quo is better.

But there *is* an important insight underlying the standard economic theory, and that is, as we have just noted, that *A* is in some way sovereign with respect to her own well-being. Objective-list and hedonic theories ignore this crucial point. Both say, in different ways, that *A* can be better off in the project world even if her various pro-attitudes all point in favor of the status quo world.

A hedonic theory identifies one or more kinds of "pleasures"—technically, one or more types of nonpropositional mental states characterized by positive feeling tones—such that if *A* realizes the better mix of pleasures in the project world, she is better off there. As L.W. Sumner explains in describing hedonism:

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93. We are hardly the first to articulate the point that the satisfaction of unrestricted preferences should not be conflated with welfare. Others who have made the same point include SUMNER, *supra* note 71, at 134-35; John Broome, *Choice and Value in Economics*, 30 OXFORD ECON. PAPERS 313 (1978); Allan Gibbard, *Interpersonal Comparisons: Preference, Good, and the Intrinsic Reward of a Life*, in FOUNDATIONS OF SOCIAL CHOICE THEORY 165, 173-75 (Jon Elster & Aanund Hylland eds., 1986); Mark Carl Overvold, *Self-Interest and the Concept of Self-Sacrifice*, 10 CANADIAN J. PHIL. 105 (1980); Amartya K. Sen, *Rational Fools: A Critique of the Behavioral Foundations of Economic Theory*, 6 PHIL. & PUB. AFF. 317 (1977); and David Sobel, *On the Subjectivity of Welfare*, 107 ETHICS 501 (1997). *See also* David Sobel, *Well-Being as the Object of Moral Consideration*, 14 ECON. & PHIL. 249, 250 (1998) [hereinafter Sobel, *Well-Being*] ("The second [preference-based] model [of well-being], now dominant in philosophy . . . typically allows that some of one's informed preferences, for example, moral preferences, have no special connection to one's well-being." (citations omitted)).

94. As Overvold puts it:

[S]uppose we accept the prevailing account of self-interest or personal welfare. Then we will have to say that any act that is voluntary and informed is thereby in the agent's self-interest. But self-sacrifice requires that the act be voluntary, informed, and contrary to the agent's self-interest. Thus accepting the prevailing account of self-interest makes the concept of self-sacrifice incoherent by making it logically impossible that there are ever genuine instances of self-sacrifice.

Mark Carl Overvold, *Morality, Self-Interest, and Reasons for Being Moral*, 44 PHIL. & PHENOMENOLOGICAL RES. 493, 499 (1984).

> There is a core of physical pleasures which are the counterparts in every respect of physical pains: they have a purely organic basis, they are often localized in one part of the body, they can have a quite specific duration, they vary in intensity, and we employ a similar vocabulary for describing the way they feel. The paradigm instances are the pleasures caused by stimuli such as scratching an itch, being massaged, taking a hot bath, quenching a thirst, using a recreational drug, urinating, defecating, and sexual arousal and orgasm. What these sensations have in common, in virtue of which we distinguish them from physical pain, is just the fact that they feel good. When asked to characterize the peculiar feeling tone of sensory pleasure (or pain) we find, like Bentham, that we have little to say.[95]

But it is a mistake to think that "pleasure" without desire—that is, without a favorable attitude on the part of the person who experiences the positive feeling tone—suffices to make that person better off. Persons can and do judge that pleasure beyond a certain point is excessive, purely from the point of view of self-interest. I can decide that the third glass of wine or the fourth sweet is just too much for me; I favor having only two glasses or three sweets, and if so I am at least no worse off with that choice.[96]

A similar objection can be leveled against objective-list theories. To see the point clearly, we must distinguish between objective goods that entail pro-attitudes and objective goods that do not. "Recreation" or "play" is an objective value that, presumably, entails a pro-attitude. I am not truly playing a game if I would prefer not to be. A theory of well-being predicated solely on these kinds of desire-entailing goods is a desire-based theory, in our scheme. Rather, our objection is to the kind of theory that is not thus predicated. Take goods such as "knowledge" or "musical accomplishment." One can know a lot without wanting, wishing, hoping, or preferring to know a lot; one can be an accomplished musician (say, a prodigy forced into music by an overbearing parent) but prefer, want, wish,

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95. SUMNER, *supra* note 71, at 106; *see also* KIM, *supra* note 89, at 13 (distinguishing between "sensations" and "propositional attitudes").

96. The sophisticated hedonist might try to solve these counterexamples by specifying mixes of pleasures so as to take account of considerations of balance, excessiveness, and so forth: Three parts gustatory pleasure and three parts sexual arousal are better than ten parts gustatory pleasure and two parts sexual arousal. Yet this more refined hedonic theory is still open to the objection that it fails to respect A's point of view. Imagine that A better realizes the specified mix of pleasures in the project world, but he nonetheless prefers, judges, endorses, and otherwise desires the status quo. (This is a conceptual possibility because, again, "pleasures" are nonpropositional. For the pleasures that go into a hedonic theory, it is no entailment of A's experiencing such pleasures that he also desire them.) In this sort of case, we propose, A is not better off with the project. Perhaps he would be better off if the project also brought with it an adaptive desire, a desire for the project-induced mix of pleasures; but if it does not, then the project does not improve A's welfare. At most he is comparatively neither better nor worse off, as between the project and status quo.

endorse, and like a life without music. An objective-list theorist, by our categorization, says that it is possible for A to be benefited by the project, even though all her desires point in favor of the status quo, if, further, she realizes the right mix of (non-desire-entailing) objective goods in the project world. This kind of theory, like hedonism, fails to respect A's own point of view about what makes her better off. The prodigy who realizes great musical feats but truly would prefer watching sitcoms is not comparatively better off for her musical accomplishments. The world may be, but she is not. At best she is neither better off nor worse off, as between the accomplishment world and the sitcom world.

In short, the right theory of well-being is (some variant) of a *restricted-desire-based theory*. It is a necessary condition for A to be benefited by a project that she actually desire the project at some point in time.[97] A further, necessary condition is that the desire concern A's own life—this is what we mean by "restricted." The mere fact that some desire of A's has been satisfied by the project is insufficient to ensure that her welfare is improved, even prima facie, since A might desire the project on moral or other disinterested grounds. To be sure, how to provide a more precise and persuasive account of this "restriction" remains a large and unsolved problem within the philosophical literature on well-being.[98] (Clearly, it would be circular to say that A's desires are properly "restricted" if they concern A's own welfare, and that it is both necessary and sufficient to improve A's welfare that her thus-restricted desires be satisfied.) We need not and will not attempt to solve that problem here. Suffice it to say that we find persuasive the propositions that (1) A cannot be benefited by a project if she never desires it or comes to desire it; and (2) simply satisfying any desire of A's cannot be enough to benefit her. A "restricted-desire-based" theory of well-being is simply a theory that takes both propositions to be true.

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97. By "project," here, we mean technically a complete world history rather than merely a discrete state of affairs that is one part of a complete world history. If project is taken in the first sense, then it is plausible that A's actually desiring the project over the status quo, at some point in time, is a necessary condition for the project to benefit her. Alternatively, if "project" is understood as a discrete state of affairs that is one component of a larger world history, then our claim concerns intrinsic rather than instrumental benefit: It is a necessary condition for A to be intrinsically benefited by a project (thus understood) that she actually desire the project at some point in time. (By contrast, discrete projects can be of instrumental benefit even without a matching desire by A. For example the discrete project of depriving A of a poison pill, which she desires because she mistakenly believes it to be a vitamin tablet that will bring her health, can benefit A by leading to the satisfaction of her desire for health even if she never comes to realize that the pill was poisonous.)

98. Mark Overvold has made a sustained attempt to provide a noncircular account of the restriction. *See* Overvold, *supra* note 94, at 499-501; Mark Carl Overvold, *Self-Interest and Getting What You Want, in* THE LIMITS OF UTILITARIANISM 186 (Harlan Miller & William Williams eds., 1982); Overvold, *supra* note 93, at 117-18 n.10. It is far from clear whether he succeeds. *See* Sobel, *Well-Being, supra* note 93, at 266-69 (criticizing Overvold's account).

It also bears emphasizing how large the category of such theories is. The concept of "desire," as we mean it here, is generic. A desire is simply a propositional attitude with a favorable valence. Restricted-desire-based theorists can disagree with each other about what kinds of pro-attitudes (preferences versus judgments versus ex post endorsements) are relevant. They can disagree about how to handle the notorious problem of changing desires: Can *A* be benefited by the project if she desires it before it occurs, but not afterwards? If she desires it at some moments in her life, or only if she desires it at a majority of moments? Finally, a restricted-desire-based theory says that satisfying a restricted desire is a *necessary* condition for a project to improve someone's well-being. It need not be sufficient. A desire-based theorist can insist that, for a project to comparatively benefit *A* relative to the status quo, *A* must desire the project (at the right time) *and* one or more the following must hold true:

The Experience Requirement. Gardening is my sole avocation. I work long and hard to till an exotic garden designed to foster exotic and sensitive plants that will take many years to bloom, if they ever do. I strongly desire that the plants eventually bloom and endure. Indeed they do, but by that point I have moved far away and never learn of the garden's success. My desire has been satisfied (without my experiencing its fruition). Has my well-being improved? Maybe not.[99]

Informed Desires. Looking back over my professional life, I contemplate an intense and exciting year I spent in a government-funded research lab. I say to myself: "That year was fabulous. We solved tough problems; we worked together as a team; I felt great." Unbeknownst to me, the results of our research were funneled to, and instrumental in the success of, a secret weapons program. Has my well-being been improved by the research year, notwithstanding my uninformed approval? Maybe not.[100]

The Affect Requirement. I work long and hard to complete a project. Upon the project's completion, I feel nothing—nothing at all. It's not that, in general, I lack the capacity to feel. My affective capacity is of the ordinary type. Rather, for whatever reason, this particular project leaves me empty. Has its completion improved my well-being? Maybe not.[101]

Objective Value. I'm obsessed with romance films. I make sure to see every new release within this category and spend most of my free time watching videos of famous and not-so-famous romance

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99. *See* SUMNER, *supra* note 71, at 128 (discussing the importance of experience).

100. *See* David Sobel, *Full Information Accounts of Well-Being,* 104 ETHICS 784, 792 n.15 (1994) (noting that "[a] truly impressive and diverse list of contemporary ethicists have found [a] full information [desire-based] account of well-being congenial," and citing Brandt, Hare, Griffin, Rawls, Gauthier, Darwall, and Harsanyi).

101. *See* SUMNER, *supra* note 71, at 138-56 (discussing the importance of affect).

films from the past. After great effort, I have succeeded in memorizing the names of the actors, characters, and plot lines of every romance film ever made. And I enjoy all this very much. Would I be even better off if I had spent all of this avocational energy on high art, or philosophy, with equal enjoyment? Perhaps so.[102]

Here, too, we intend to remain agnostic about specifics. Whatever the specific desire-based theory, it will remain true that overall well-being is both non-empty and morally important, and that CBA is a plausible decision procedure by which to implement the criterion of overall well-being. To anticipate our discussion in Section D: CBA is simply the sum of compensating variations, and although compensating variations are typically defined as willingness to pay or accept—which *does* assume a particular view of well-being, namely the unrestricted-preference-based view—we will propose a broader conception of the "compensating variation" that severs the link between CBA and this particular welfare view. CVs can be generically defined as welfare equivalents; they need not be specifically defined as willingness to pay or accept.[103]

B. *The Possibility of Interpersonal Welfare Comparisons*

A common objection to desire-based theories is that they make interpersonal comparisons of welfare impossible. Indeed, as we discussed in Part III, economists developed the compensation tests because they (1) rejected Bentham's hedonic utilitarianism in favor of preference-based utilitarianism, but (2) did not believe that interpersonal comparisons of welfare were possible or at least manageable under a theory of preference-based utilitarianism.[104] Because we reject the Kaldor-Hicks justification of CBA while endorsing a desire-based theory of welfare, we must explain why we do not think that the problem of interpersonal welfare comparisons is an insurmountable one.

Part of what animates the traditional economic skepticism about interpersonal comparisons is a general skepticism about the truth content of moral and evaluative statements. Such skepticism is now a distinctly minority position within analytic philosophy[105] and, more to the point,

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102. *Cf. id.* at 163-64 (discussing, but not endorsing, a hybrid view that includes objective values).

103. *See supra* note 47 and accompanying text (providing traditional definitions of CV and WTP/WTA).

104. *See supra* text accompanying notes 71-78.

105. *See* STEPHEN DARWALL ET AL., *Toward Fin de Siècle Ethics: Some Trends, in* MORAL DISCOURSE AND PRACTICE: SOME PHILOSOPHICAL APPROACHES 3 (1997) (providing an overview of contemporary metaethics).

incompatible with the claim that satisfying preferences or desires truly improves welfare. A second and more philosophically robust basis for the economist's traditional concern about interpersonal comparisons—a concern quite distinct from general skepticism about moral or evaluative truth—is the worry that preferences or desires as such are simply *ordinal rankings*.[106] Where *A* ranks the project over the status quo and *B* ranks the status quo over the project, and we know nothing more, we have no basis for saying that the project improves or degrades overall well-being.[107]

However, desire-based theories of well-being are capable of incorporating quite a bit more than information about ordinal rankings. In the interpersonal context, desire-based theories *must* incorporate more welfare-relevant information about *A* and *B* than the bare fact of their ordinal rankings. In day-to-day life, we routinely make judgments of overall well-being, comparing losses to some of our friends, colleagues, or family members with benefits to others. Similarly, governmental institutions (specifically, administrative agencies) are routinely faced with choices that will increase the welfare of some while causing welfare setbacks to others. An environmental regulation will improve air quality but lead to reduced production and job losses in affected firms. A procompetitive intervention will benefit consumers but lower corporate profits. A refusal to license a drug that is dangerous to most of the population, but beneficial to a minority, will make welfare Winners of the majority and welfare Losers of the few, while the licensing of the drug will reverse the pattern but still produce Winners and Losers. Raising the speed limit hurts those who die as a result, but helps those who survive by lowering their travel time. Although these welfare tradeoffs are sometimes seen by the agency and involved citizens as inscrutable or indeterminate, it is surely not the case that they always are. The losses or gains to one side are, sometimes, deemed to outweigh the gains or losses to the other; and a view of well-being that licenses no such judgments is, on those very grounds, an unattractive one.

In short, we take it to be a condition of the validity of a welfare theory that it warrants some interpersonal comparisons of welfare. As Daniel Hausman puts it: "[I]f a conception of well-being does not permit one to make interpersonal comparisons in an acceptable way, then that conception of well-being is itself unacceptable."[108] The fact that a theory of well-being

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106. *See, e.g.*, Daniel Hausman, *The Impossibility of Interpersonal Utility Comparisons*, 104 MIND 473, 475-77 (1995).

107. *See supra* text accompanying notes 73-74.

108. Hausman, *supra* note 106, at 474. For "interpersonal comparisons are an ineliminable part of human life." *Id.* at 489; *see also* John C. Harsanyi, *Morality and the Theory of Rational Behaviour*, in UTILITARIANISM AND BEYOND 39, 49 (Amartya Sen & Bernard Williams eds., 1982) ("In everyday life we make, or at least attempt to make, interpersonal utility comparisons all the time."); Ruth Weintraub, *Do Utility Comparisons Pose a Problem?*, 92 PHIL. STUD. 307.

that (1) makes well-being consist in the satisfaction of bare desires or preferences and (2) incorporates no mechanism for translating the ordinal rankings constituted by desire or preference into some interpersonally comparable form, leads to (3) the impossibility of interpersonal comparisons, does *not* imply that such comparisons are indeed impossible. Rather, it implies that the theory is wrong.

So how should comparisons of well-being be made, on a beefed-up desire-based theory? We are asking here not how real-world agencies should in fact pick out welfare-improving projects, but rather how the concept of an interpersonal comparison should be constructed, that is, how an epistemically perfect agency with no procedural costs would pick out welfare-improving projects. Initially, a project will produce Winners and Losers. Winners are those who are better off with the project as compared to the status quo. Losers are those who are worse off with the project as compared to the status quo. A Winner must, at a minimum, desire the project at some point in his life; a Loser must, at a minimum, desire the status quo. That is just what a desire-based theory means. How, more specifically, to classify persons as Winners and Losers depends on the specifics of the theory and such problems as desires that change over time.[109]

In any event, the agency must compare welfare gains to the Winners with welfare losses to the Losers. The conceptually thorny problem, of course, is how precisely to do that.[110] Broadly speaking, there seem to be two views within the literature. The first view is that the interpersonal comparison can and should hinge on the degree to which the Winners' and Losers' welfare-constitutive desires are satisfied or frustrated, *independent of the extent to which Winners and Losers improve or decline with respect to criteria of objective value or hedonic tone.*[111] The idea, in economists' terms, is to *cardinalize A's* and *B's* preferences so that *A's* gain from the project can be compared with *B's* loss. But how to cardinalize? Perhaps the most famous answer is that given by John Harsanyi with his construct of

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307 (1998) ("[C]an we find ourselves being persuaded of the ethical need to compare utilities of different individuals, yet unable to do so because the comparisons cannot be warranted? I shall argue that the problem cannot arise: no plausible moral principle will invoke magnitudes which are inscrutable.").

109. More precisely, the agency would need to sort all persons into Winners, Losers, and Neutrals, where Neutrals are those who are neither better off nor worse off. This in turn means either that they are precisely as well off in both world-states or that they are incomparably well off as between the states. Neutrals would then be ignored at the second stage of the interpersonal comparison. The possibility of Neutrals is a technical issue that need not be further discussed here because that possibility does not bear on the key problem of interpersonal comparisons, namely, how to compare Winners' gains to Losers' losses.

110. *See generally* Peter J. Hammond, *Interpersonal Comparisons of Utility: Why and How They Are and Should Be Made, in* INTERPERSONAL COMPARISONS OF WELL-BEING 200 (Jon Elster & John E. Roemer eds., 1991); Hausman, *supra* note 106.

111. For an overview of such constructs, see Hausman, *supra* note 106.

extended preferences. Harsanyi essentially proposes this: (1) For every outcome O_k and every person in the population A_i, permute the persons and outcomes (this can be visualized as a matrix, with outcomes as rows, persons as columns, and person-states as cells of the matrix); (2) imagine yourself to be an impartial spectator, comparing person-state O_k-A_i with person-state O_l-A_j (that is, "being in state O_k with A_i's preferences" as against "being in state O_l with A_j's preferences"); (3) from this impartial point of view, create a preference ranking, the so-called extended-preference ranking, for all person-states, which (Harsanyi proposes) should be the same for everyone, and which should respect A_i's ordinary preferences in comparing two person-states that both involve her; (4) determine the extended preference ranking for the O_k lottery (that is, for a $1/n$ chance of O_k permuted with each of the n persons in the population) as against the O_l lottery; (5) use this extended lottery preference as the social welfare function for comparing O_k to O_l.[112]

The Harsanyi construct remains quite controversial. It is unclear that the construct solves the problem of rendering individual rankings of outcomes comparable across persons independent of an appeal to the objective value or hedonic tone of the outcomes. Harsanyi argues that different persons will not develop different extended rankings of person-states; instead, he claims, these will all converge on a single extended ranking. But why believe that the rankings will converge—why *will* we all rank O_k-A_i over O_l-A_j—absent some independent standard by reference to which person-states can be ranked? To quote one critic of Harsanyi: "[T]he relevant [extended] preference must be purged of the judge's own personal tastes, attitudes, feelings, moral views and so on. The problem is, then, how, after that sort of purging [and absent further reference to objective criteria], I can form any sort of . . . preference at all."[113]

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112. *See* Harsanyi, *supra* note 108; *see also* John A. Weymark, *A Reconsideration of the Harsanyi-Sen Debate on Utilitarianism, in* INTERPERSONAL COMPARISONS OF WELL-BEING, *supra* note 110, at 255, 289-97 (analyzing Harsanyi's construct). A less elaborate construct than Harsanyi's is the so-called "zero-one" rule, suggested by J.R. Isbell. For each person, construct the familiar *intrapersonal* cardinal index of welfare known as the von Neumann-Morgenstern index (that is, the index that assigns numbers to outcomes such that a person's preferences over these outcomes are tracked by the index numbers, *and* a person's preferences over lotteries of the outcomes are tracked by the expected value of the index numbers for the outcomes). Make sure, additionally, that for each person the index number 1 is assigned to her highest outcome, and 0 is assigned to the lowest. Then, Isbell proposes, the interpersonal comparison of two outcomes, O_k and O_l, is quite simple: Determine the numerical difference between the two outcomes on each person's zero-one index, and aggregate. Isbell's proposal is discussed in Hammond, *supra* note 110, at 215-16; Hausman, *supra* note 106, at 479-82; and Weintraub, *supra* note 108, at 317-18. *See also* 1 KEN BINMORE, GAME THEORY AND THE SOCIAL CONTRACT: PLAYING FAIR 282-96 (1994) (providing an overview of interpersonal comparisons of utility).

113. James Griffin, *Against the Taste Model, in* INTERPERSONAL COMPARISONS OF WELL-BEING, *supra* note 110, at 45, 53-54. For a similar criticism, see Hausman, *supra* note 106, at 477-78. Similarly, Isbell's zero-one rule can be criticized because it relies upon information about how persons intrapersonally rank outcomes under risk—each person's index number for O_k, or for O_l,

It is beyond the scope of this Article to address the controversy over the Harsanyi construct and over other attempts to compare the degree to which outcomes satisfy different persons' desires, independent of criteria of objective value or hedonic tone. We need take no position on the controversy here. For even if it turned out to be true that a purely desire-based construct for interpersonal comparisons were impossible, that would not entail the impossibility of interpersonal comparisons as such. It would simply entail that interpersonal comparisons do depend, in part, on criteria of objective value or hedonic tone.

James Griffin is perhaps the leading exponent of this second view, within the family of desire-based theorists. As Griffin explains:

> [Consider] Mill's interpersonal comparison of Socrates and the Fool. The Fool attaches no value to Socrates' life. Socrates attaches none to the Fool's life. How would each decide how relatively well off they are? . . . What Socrates [or the Fool] needs to make is a judgment of a very different sort from what we ordinarily understand by a personal preference. . . . Socrates [or the Fool] should need to know, primarily, what made life valuable. He should have to appeal to his understanding of what humans, or sometimes humans of a certain type, are capable of, and of the various peaks that human life can reach. Then he should have to decide how close he and the Fool came to some peak. *What he should not particularly need to consult is the phenomenological "feel" of their experience, nor their personal tastes and attitudes, nor his own preferences about landing in the one sort of life or the other.*[114]

We emphasize that Griffin *is* a desire-based theorist, indeed one of the leading ones.[115] But a desire-based position is consistent with Griffin's further claim that it is objective values, and not strength of desire, that furnishes the basis for interpersonal comparison.

To return to our schema of project Winners and Losers: It is a necessary condition for a person to be a project Winner that, at some time, she desire the project over the status quo. The basic sorting of persons into these categories depends, in part, on their desires. *This* is where the desire-based theorist and other theorists of well-being disagree. If you never desire the project, you cannot be a Winner; you are a Loser (or a Neutral), and if a

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depends upon her comparative ranking of that outcome, relative to various lotteries of other outcomes—while what we want to know interpersonally is how the occurrence of O_k *with certainty* compares to the occurrence of O_l *with certainty*.

114. GRIFFIN, *supra* note 86, at 116-17 (emphasis added). For a similar construct, albeit within the context of a more objectivist view of well-being, see Thomas M. Scanlon, *The Moral Basis of Interpersonal Comparisons, in* INTERPERSONAL COMPARISONS OF WELL-BEING, *supra* note 110, at 17, 39-44.

115. *See* GRIFFIN, *supra* note 86, at 7-72; SUMNER, *supra* note 71, at 122-37 (identifying Griffin as a prominent informed-desire theorist and discussing Griffin's views).

Neutral you are ignored entirely in aggregating welfare losses and gains.[116] But desiring the project is simply a *necessary* condition, within a desire-based theory, for a person to be a Winner. It need not be a sufficient condition, as we have already discussed in the intrapersonal context. And, relatedly, in the interpersonal context, the desire-based theorist can say that the comparative welfare of the Winners and Losers depends upon the objective values or hedonic tones that they, comparatively, realize.

We are not endorsing Griffin's view here. Rather, we cite Griffin's work to help make evident the point that the following two propositions are consistent: (1) Any reasonable theory of well-being must make A's desiring the project a necessary condition for A's benefit; and (2) any reasonable theory of well-being must warrant interpersonal comparisons, that is, statements to the effect that welfare gains to the Winners outweigh or are outweighed by welfare losses to the Losers. Desire-based theories are reasonable in both senses. They definitionally satisfy the first proposition. And they can warrant interpersonal comparisons—perhaps in the manner that Harsanyi proposes, but at a minimum in the manner that Griffin does.

C. *The Moral Relevance of Overall Well-Being*

Our defense of CBA will rest upon the premise that agencies should, within certain constraints, promote the overall well-being of citizens. Not everyone, however, agrees that overall well-being is an appropriate moral criterion, so in this Section we provide a brief argument in defense of that view. Clearly, a full philosophical defense of the moral relevance of overall well-being lies beyond the scope of this Article. There are a variety of moral theories that figure within contemporary moral philosophy and that deny moral relevance (let alone conclusiveness) to overall well-being. We cannot hope to provide a full rebuttal of such views here, but we can at least sketch out what they are and why we think they are wrong.

How can one deny the moral relevance of overall well-being? First, one can do so by holding the kind of moral view that Shelly Kagan aptly calls "minimalist." [117] The minimalist believes that persons have no moral reason whatsoever to make the world better, at least no reason of the kind that can ground a moral requirement[118] and thereby warrant the *government* in taxing and coercing persons merely for the sake of world-improvements. Libertarianism is the most famous modern variant of minimalism.[119] Libertarianism says that persons *are* morally obliged to comply with certain "deontological" constraints (the constraints against killing, stealing,

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116. On Neutrals, see *supra* note 109.
117. SHELLY KAGAN, THE LIMITS OF MORALITY 5 (1989).
118. *See id.* at 64-70 (distinguishing between moral reasons and moral requirements).
119. *See* ROBERT NOZICK, ANARCHY, STATE, AND UTOPIA (1974).

assaulting, defrauding, and so on, as exemplified by the prohibitions of the
criminal law), but insists that (1) these constraints cannot be reinterpreted in
the form of "consequentialist," that is, world-improving, requirements; and
that (2) persons are under no moral requirement beyond the requirement of
compliance with deontological constraints.[120]

Minimalism, of the libertarian variant or any other, is arguably at odds
with commonsense moral views.[121] Even more clearly, minimalism is
inconsistent with the scope of modern government.[122] Consider, for
example, an environmental agency. The libertarian holds, in effect, that the
agency can proscribe only those acts endangering the environment that
(assuming mens rea on the part of the polluter) would justify criminal
punishment quite apart from the agency's regulation. But there are large
parts of the clean air, clean water, and endangered species laws that
proscribe actions not independently punishable under the criminal law—
actions that do not, apart from the agency's regulation, fall within some
traditionally criminal actus reus.[123] Or consider a food and drug agency. It
violates neither the deontological constraint on fraud, nor any other
deontological constraint, to sell to consumers a fully and accurately labeled
pharmaceutical product, complete with warnings, that (as it happens)
consumers are likely to misuse. And yet the licensing of drugs for
prescription use only is a central function of the FDA. Finally, consider the
antitrust laws. An agreement among firms to set the price of a product at a
particular level is, for the minimalist, just another free contract. And yet it is
a core tenet of modern antitrust law that price-fixing is illegal.[124]

It bears emphasizing that the considerations we have provided here
constitute only the briefest sketch of the case against minimalism. Brevity is
justified because minimalism has not figured significantly within the

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120. The constraint against killing, as proposed by the libertarian, is not a consequentialist
requirement, because it violates the constraint even if that violation serves to prevent more
killings. For an accessible overview of the consequentialism/deontology distinction, see SHELLY
KAGAN, NORMATIVE ETHICS 59-77 (1998). For a more technical discussion, see, for example,
David McNaughton & Piers Rawling, *Agent-Relativity and the Doing-Happening Distinction*, 63
PHIL. STUD. 167 (1991).
121. *See* KAGAN, *supra* note 117, at 16.
122. Why does it matter that minimalism is inconsistent with the scope of modern
government? Arguably, this bolsters the intuitive case against minimalism: It is counterintuitive
that the scope of modern government would need to change radically, as minimalism requires.
Further, the inconsistency between minimalism and the scope of modern government means that
anyone who launches a critique of CBA without advocating a radical change in the scope of
modern government cannot persuasively rely upon minimalism as the basis for his critique.
123. *Cf.* Heidi M. Hurd, *The Deontology of Negligence*, 76 B.U. L. REV. 249, 262-66 (1996)
(arguing that risk imposition is not deontologically wrongful).
124. *Cf.* NOZICK, *supra* note 119, at 119 (arguing that in the case of a "dominant protective
association"—a contractual association for protective services in the state of nature, with a
monopoly element—"[t]he dominant protective association . . . is morally required to compensate
for the disadvantages it imposes upon those it prohibits from self-help activities against its
clients").

scholarly debate about CBA. The critics of CBA have agreed, at least implicitly, that consequentialist criteria of some kind bear upon agency choices. Nonetheless, we do need to make clear that our defense of CBA is nonminimalist; if minimalism turns out to be true, that defense fails.

What about a nonminimalist critique of CBA? The nonminimalist critic agrees that consequentialist criteria—criteria that mark out ways in which the world can be better or worse—*do* bear upon an agency's choice of projects, but argues that "making the world better" ("having good consequences") and "promoting overall well-being" are wholly distinct.[125] Within the modern philosophical literature, there are two main ways that philosophers have drawn this distinction—two ways in which consequentialism has been severed from the criterion of overall well-being. The first way is to argue for some consequentialist standard of distribution other than aggregation—for example, for equalizing well-being, or for maximizing the well-being of the person with the lowest welfare. This is a line of argument that goes back to John Rawls, who asserts in *A Theory of Justice* that social contractors behind the veil of ignorance would choose a maximin standard for distributing primary goods.[126] More recently, this line of argument has been developed by egalitarian theorists such as Ronald Dworkin,[127] G.A. Cohen,[128] Larry Temkin,[129] and Philippe Van Parijs.[130] We will call this, a bit roughly, the *egalitarian* criticism of overall well-being (and CBA). The second way to sever consequentialism and overall well-being is to bracket the distributive issue but argue that well-being as such is morally unimportant and that some more basic element or prerequisite for

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125. The distinction between consequentialism and utilitarianism has been drawn very clearly in the recent philosophical literature. *See, e.g.,* SAMUEL SCHEFFLER, THE REJECTION OF CONSEQUENTIALISM 1-40 (rev. ed. 1994). The position that overall well-being lacks even moral relevance, let alone moral decisiveness, is the limiting point of nonutilitarian consequentialism.

126. *See* JOHN RAWLS, A THEORY OF JUSTICE 75-83 (1971).

127. *See* Ronald Dworkin, *What is Equality? Part 2: Equality of Resources,* 10 PHIL. & PUB. AFF. 283 (1981).

128. *See* G.A. Cohen, *Where the Action Is: On the Site of Distributive Justice,* 26 PHIL. & PUB. AFF. 3 (1997).

129. *See* LARRY S. TEMKIN, INEQUALITY (1993). Strictly speaking, Temkin is not an egalitarian theorist, but rather someone who has developed a very rich account of what equality involves. *See id.* at 5 (denying an intention to defend or attack the ideal of equality).

130. *See* PHILIPPE VAN PARIJS, REAL FREEDOM FOR ALL: WHAT (IF ANYTHING) CAN JUSTIFY CAPITALISM? (1995). These modern philosophical egalitarians might not describe themselves as consequentialists, but our use of the term "consequentialist" is a fairly thin one. An egalitarian counts as proposing a "consequentialist" standard of equality, in our usage, if that standard has agent-neutral force within the egalitarian's theory—if all agents have (to the same extent) a moral reason to promote the standard. This is in contrast to deontological or agent-relative maxims, which have differential force for the particular referenced agent as opposed to others. (The deontologist thinks you have greater reason that you not directly and intentionally kill than I have that you not directly and intentionally kill.) *See* KAGAN, *supra* note 120, at 48-59 (discussing equality as one factor that arguably goes to the moral goodness of outcomes); *supra* note 120 (citing sources discussing the consequentialism/deontology distinction). A parallel point holds for our description below of the resourcist as proposing a kind of consequentialist standard.

life prospects—for example, the satisfaction of needs—is what really counts morally. This second line of argument goes back, again, to Rawls— with his claim that the principles of justice govern the distribution of *primary goods*, that is, resources for welfare, and not welfare itself—and more recently has been developed in different ways by Dworkin,[131] Thomas Scanlon,[132] Thomas Nagel,[133] G.A. Cohen,[134] and Amartya Sen,[135] among others. We will call this second line, a bit roughly, the *resourcist* criticism of overall well-being (and CBA).[136] For example, Nagel argues:

> If you and a stranger have both been injured, you have one dose of painkiller, and his pain is much more severe than yours, you should give him the painkiller—not for any complicated reasons, but simply because of the relative severity of the two pains, which provides a neutral reason to prefer the relief of the more severe. The same may be said of other basic elements of human good and ill.
>
> But many values are not like this. Though some human interests (and not only pleasure and pain) give rise to impersonal values, I now want to argue that not all of them do. If I have a bad headache, anyone has a reason to want it to stop. But if I badly want to climb to the top of Mount Kilimanjaro, not everyone has a reason to want me to succeed. I have a reason to try to get to the top, and it may be much stronger than my reason for wanting a headache to go away, but other people have very little reason, if any, to care whether I climb the mountain or not.[137]

The climber's ascent of Kilimanjaro would, in turn, improve the climber's well-being—he desires the ascent with sufficient information, it is objectively good, as a kind of accomplishment, and so on—and Nagel would seemingly concede as much. Thus what Nagel is claiming here is that only certain prerequisites or elements of well-being, such as physical pleasures and pains, constitute a good feature of world states that persons in general (and the government) have a reason to promote.[138]

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131. *See* Dworkin, *supra* note 127.

132. *See* Scanlon, *supra* note 114.

133. *See* Thomas Nagel, *Autonomy and Deontology, in* CONSEQUENTIALISM AND ITS CRITICS 142, 145-50 (Samuel Scheffler ed., 1988).

134. *See* G.A. Cohen, *Equality of What? On Welfare, Goods and Capabilities, in* THE QUALITY OF LIFE 9, 18-28 (Martha Nussbaum & Amartya Sen eds., 1993).

135. *See, e.g.,* AMARTYA SEN, INEQUALITY REEXAMINED 39-55 (1992); Amartya Sen, *Capability and Well-Being, in* THE QUALITY OF LIFE, *supra* note 134, at 30, 30-42.

136. To be sure, some of the just-cited resourcists are also egalitarians, but it is conceptually possible, and for our purposes useful, to distinguish between the resourcist and egalitarian elements in philosophical critiques of welfarism and utilitarianism.

137. Nagel, *supra* note 133, at 145-46.

138. To put the point another way: On the resourcist view, the fact that a project increases overall well-being without increasing (or otherwise properly distributing) the specified

How should the welfarist defender of CBA respond to the egalitarian and the resourcist? Let us start with the egalitarian. The egalitarian (as we use that description here) identifies some set of nonaggregative consequentialist criteria, such that these criteria, along with deontological criteria, *exhaust* the moral considerations bearing upon governmental choices. By "nonaggregative," we mean that the criteria do not take the following form: They do not mark out an increase in well-being, or its prerequisites or elements, as a moral improvement independent of further conditions—in particular, independent of the level of welfare or wealth of the persons who gain and lose. Consider, for example, the following types of egalitarian goals regularly discussed in the literature: equalizing welfare, maximizing the welfare of the least well-off (maximin), and bringing persons up to a minimum level of welfare. If a project increases A's welfare more than it reduces B's, and does nothing else, then the equalizer counts the project as morally bad if B is poorer than A, and as morally good if (roughly) A is poorer than B.[139] The maximin theorist will count the project a matter of moral indifference, unless A or B is a member of the least well-off group.[140] Finally, the minimum-welfare theorist will count the project a matter of moral indifference unless it brings A above the minimum level or forces B below that level.

Egalitarianism, in the robust sense delineated here, is inconsistent with the structure and processes of government as we know it.[141] The welfarist will happily concede that some agencies, such as welfare agencies, should be solely concerned with implementing criteria of fair distribution, and that other agencies, such as environmental, antitrust, or food-and-drug agencies, might take account of nonaggregative criteria along with considerations of overall well-being. By contrast, the egalitarian needs to argue that *every* agency should pursue the equalization of welfare, the maximization of the welfare of the least well-off, or some other such nonaggregative goal, as its *sole* intrinsic aim. In the case of an environmental agency, for example, this would mean that the decision to prohibit an environmental pollutant imposing health risks upon a particular segment of the population should

prerequisites or elements of well-being, gives government no reason whatsoever to approve the project.

139. We say "roughly" because the project might cause such a large improvement to A's welfare and such a large setback to B's that A is better off than B in the project world, and by an amount sufficient to make the distribution of welfare in the project world less equal than the distribution in the status quo.

140. One standard variant on maximin is so-called "leximin," which compares P and S by comparing, first, the welfare level of the worst-off group in each world, then the welfare level of the next worst-off group, and so on. *See, e.g.*, JOHN E. ROEMER, THEORIES OF DISTRIBUTIVE JUSTICE 136-37 (1996). For the leximin theorist, as for the maximin theorist, the goodness or badness of a project that increases overall well-being by benefiting A more than it harms B will depend upon the welfare levels of A and B.

141. This inconsistency is relevant, here, for the same reasons that the inconsistency between minimalism and the scope of modern government is relevant. *See supra* note 122.

depend crucially and solely on the level of welfare (or wealth) of that segment of the population, as compared to the level of welfare (or wealth) of the consumers, workers, and shareholders who would bear the costs of controlling the pollutant. In the case of an antitrust agency, egalitarianism would mean that the decision to bar price-fixing in a particular industry (thereby redistributing welfare from the firm's shareholders to its consumers) should depend crucially and solely on the level of welfare (or wealth) of the shareholders versus that of the consumers. Clearly, the decision procedures that EPA, the FDA, the FTC, and other ordinary agencies employ look nothing like this. Such agencies routinely pursue goals that have an aggregative structure—whether these goals be minimizing pollution simpliciter, minimizing pollution in a cost-justified way, reducing safety risks to a de minimis level, minimizing the total number of deaths, or maximizing economic surplus (the area between supply and demand curves) in an industry.[142]

The egalitarian might respond by saying that ordinary agencies pursue aggregative goals only in the service of deeper, nonaggregative ones. Maximizing collective welfare works to the advantage of the least well-off, or of persons below a minimum level of welfare, and conversely is morally justifiable only insofar as it does so. This strikes us as an implausibly limited account of the moral justification behind ordinary agencies. Imagine that the shareholders of a firm that emits pollution or sells risky products are middle class. The pollution or products cause pain and injury to breathers or to consumers who happen to be even richer than the firm's shareholders. The pollution or the product defect can be eliminated at a very small cost to the firm and, ultimately, the shareholder. Should it be eliminated? The egalitarian is committed to saying no, unless the pain or injury to the rich breathers or consumers is sufficiently serious to bring their level of lifetime welfare below that of the shareholders. Or to build upon Nagel's example: If you have one dose of a painkiller, which can reduce some slight discomfort of yours, and the person next to you is suffering intense, traumatic pain, you should give him the painkiller even if your future income is $30,000 per year and his is $200,000.

In short, aggregative considerations are surely *relevant* to judgments of good consequences. Saying this is consistent with the claim that nonaggregative, specifically egalitarian goals are also relevant,[143] indeed that some nonaggregative goals take lexical priority over welfarist or resourcist goals. But even if it is true that certain nonaggregative goals are morally relevant or even take lexical priority over the welfarist criterion,

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142. *See, e.g.,* LESTER LAVE, THE STRATEGY OF SOCIAL REGULATION 8-28 (1981) (describing frameworks for social regulation).

143. *See, e.g.,* KAGAN, *supra* note 120, at 25-69.

CBA is plausibly *one part* of the total decision procedure that government properly employs. For example, as between two projects, neither of which affects the extent of poverty or violates deontological constraints, "overall well-being" plausibly provides the decisive moral consideration between them, and if CBA tracks overall well-being, then the agency ought to employ that decision procedure in choosing between the two projects.

Now for the debate between resourcist and welfarist. The resourcist (as we use that description here) concedes that certain aggregative goals have intrinsic importance for government. "Agencies *do* maximize," the resourcist will allow. "But what they properly maximize is some *element or prerequisite* of well-being, rather than well-being itself." Agencies maximize the satisfaction of needs, or (on a Nagelian view) the relief from physical pain and the like; as between two world-states that equally satisfy egalitarian criteria and deontological criteria, the resourcist will choose that state where the aggregate amount of the relevant element or prerequisite is higher. The difficulty with this view is explaining why, among the elements or prerequisites of A's well-being that make a moral claim on B and that justify a governmental project harming B and helping A, only certain elements or prerequisites of welfare do so. For presumably those elements and prerequisites derive their moral force on B from the fact that they are elements and prerequisites of A's *welfare*. So why not simply say that A's welfare makes a moral claim on B? James Griffin puts the point nicely:

> A group of scholars may, with full understanding, prefer an extension of their library to exercise equipment for their health. And part of what makes us think that basic needs, such as health, are more closely linked to obligation than are desires is that basic needs seem the "bread" of life and desires mere "jam." But an extension to the scholars' library may not seem like "jam" to them. On the contrary, if the scholars' preference is sufficiently informed then the library is of greater value to them. But then to maintain that needs create obligations where mere desires do not, or that they create stronger obligations, is to say that we have an obligation, or a stronger one, to the scholars to give them what they themselves value less, which would be odd.[144]

A similar welfarist critique could be made of Nagel's distinction between pains and pleasures and "mere" desire-satisfaction. If producing pain causes you a welfare setback of X, and painlessly frustrating your desires causes you a welfare setback of $X + K$, then why should the first setback make a claim on me, but the second none at all?

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144. GRIFFIN, *supra* note 86, at 45.

One possible resourcist response is to hark back to welfare levels—for example, to define a "need" as any setback to a person that puts her beneath a certain minimum level of welfare, rather than (as in Griffin's example) a health or safety setback to a person, the scholar, who remains well enough off. "Maximizing the satisfaction of needs" then means minimizing the extent to which people are below that basic level. But this strategy turns resourcism into a type of egalitarianism: It smuggles a nonaggregative structure into the resourcist goal, through the definition of a "need." We have already argued that egalitarianism does not exhaust the set of goals that governmental agencies properly pursue; some of their proper intrinsic goals are aggregative, and the question here is whether resourcism can provide a persuasive picture of *those* goals. We suggest not. If "maximizing the satisfaction of needs" or "maximizing the relief from pain" is intrinsically important—important beyond the egalitarian benefits that happen to flow from agency pursuit of these goals—then the importance thereof derives from the fact that unsatisfied needs and unrelieved pains inhibit welfare. But so, too, do (some) unfulfilled desires.[145]

D. *Decision Procedures and Moral Criteria*

Having established that the promotion of a desire-based conception of overall well-being is an appropriate goal of agencies, our next task is to link this goal with cost-benefit analysis. Our claim is that CBA is an appropriate means, or decision procedure, for achieving the morally desirable goal of promoting overall well-being. In this Section, we clarify the distinction between a *criterion of moral rightness or goodness* (such as the criterion of "overall well-being") and a *decision procedure justified in light of that criterion* (such as CBA); and we discuss how the traditional definition of CBA (as the sum of WTP/WTA) might be refined, once CBA is understood as a decision procedure rather than a moral criterion.

A criterion of moral rightness or goodness marks out the properties of some action, some state of affairs, or some other thing that constitutes, or

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145. Libertarianism, egalitarianism, and resourcism strike us as the most salient ways to contest the moral relevance of overall well-being, given the state of the modern philosophical literature, but they are not the only ways. Two other possible lines of attack that should be mentioned here are (1) the view that the overall satisfaction of persons' *interests* or goals (taken to be distinct from persons' well-being) is what bears the moral weight typically given to overall well-being, *see, e.g.,* Sobel, *Well-Being, supra* note 93, and (2) the view that overall well-being must be refined to incorporate considerations of *desert*—for example, that a welfare loss to a person has no moral bearing if he deserves or is responsible for it, *see* FRED FELDMAN, UTILITARIANISM, HEDONISM AND DESERT 151-92 (1997). For criticism of the focus on interests or goals as opposed to welfare, see Andrew Moore & Roger Crisp, *Welfarism in Moral Theory,* 74 AUSTRALASIAN J. PHIL. 598 (1996). For criticism of the idea of desert-adjusted welfare, see Ingmar Persson, *Feldman's Justicized Act Utilitarianism,* 9 RATIO 39 (1996).

partly constitutes, the moral status of that thing. For example, a consequentialist criterion identifies some feature such that a state of affairs possessing that feature, or possessing it to a greater extent, is better or worse (at least holding other things equal) than a state of affairs lacking that feature, or possessing it to a lesser extent. "Overall well-being," we have argued, is such a criterion. A state of affairs with a higher level of aggregate well-being is, all else being equal, better than a state of affairs with a lower level of aggregate well-being. Derivatively, an action (specifically, a governmental project) leading to a state of affairs with a higher level of aggregate well-being is, *ceteris paribus*, better than an action leading to a state of affairs with a lower level of aggregate well-being.

By contrast, a decision procedure justified for an agent in light of some (consequentialist) moral criterion is the following: the procedure for choosing between actions such that the agent's use of that procedure leads to the best consequences, as measured by that criterion. Specifically, the decision procedure justified for a governmental agency, in light of the criterion of overall well-being, is the procedure for choosing between projects such that the agency's use of that procedure maximizes overall well-being. Clearly, this concept of the welfare-justified decision procedure is distinct from the concept of overall well-being. Whether a project improves or degrades well-being, relative to the status quo, is one thing; what steps the agency should take, in deciding between the project and the status quo, is quite another. There is no contradiction in saying that (1) the best project for an agency to choose is the project that maximizes well-being; and (2) the best way for an agency to *decide* which project to choose is *not* to attempt to identify the project that maximizes overall well-being.[146]

What drives this conceptual wedge between a criterion of moral rightness or goodness, specifically the criterion of overall well-being, and a decision procedure justified in light of that criterion? There are a number of factors that do so. First is the possibility of *epistemic imperfection* on the part of the agency. The agency might make mistakes in deciding what the criterion requires; and it might further be the case that some other (morally irrelevant) standard is both reasonably well correlated to the criterion and less subject to mistaken application by the agency, such that the best decision procedure for the agency is *not* direct implementation of the moral criterion, but rather the implementation of the correlated standard.

Another factor that helps drive the wedge between moral criteria and decision procedures is the factor of *cost*. Assume that the agency is epistemically perfect. Given sufficient time and effort, it will always pick out the project that meets the applicable criterion. Even so, the process of

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146. The distinction between decision procedures and moral criteria is discussed in DAVID O. BRINK, MORAL REALISM AND THE FOUNDATIONS OF ETHICS 216-17 (1989).

doing this might consume lots of time and effort—resources that, employed in other ways, might improve the satisfaction of the criterion even more than their use by the agency for making its choices.

Yet another factor concerns the *faithfulness* of the agency and, relatedly, the opacity of the procedure—the ease with which third parties can verify that the agency has faithfully attempted to follow, or succeeded in following, the procedure. Assume that the agency is epistemically perfect and, further, that direct implementation of the applicable moral criterion is cheap. Nonetheless, the agency might be unfaithful. If instructed that it is under a legal and sanction-backed obligation to implement directly the criterion at stake, the agency might aim at other goals (for example, self-regarding goals) and yet credibly claim (given the opacity of direct implementation) that it has complied with the instruction. Even if an alternative decision procedure is more expensive than direct implementation and the agency is less epistemically reliable in following the alternative procedure, it still might be the case that—given the transparency of the alternative procedure—instructing the agency to follow the alternative procedure has better results overall, in terms of the underlying criterion, than instructing the agency to engage in direct implementation.

The distinction we are drawing here is familiar to legal scholars. The distinction is parallel to the distinction, in the legal literature, between standards and rules.[147] "Standards" are the moral criteria bearing on some actor's choice. But the best way to implement a given standard might be to instruct the actor to apply a rule that tracks the standard well enough, given the cheapness with which the actor can apply the rule, the ease with which his compliance can be monitored, and so on. A "rule" is simply another term for what we are calling a decision procedure: some specification of actions, states, and contexts that the actor should actually follow in making his choice.

The distinction between criteria of moral rightness and goodness on the one hand, and morally justified decision procedures on the other, has important implications for the legitimacy of CBA. It implies that the legitimacy of CBA is a moral problem *and* an institutional one, not a moral problem alone. Critics of CBA have often assumed that by undermining the moral status of CBA—by showing why a positive sum of CVs marks out nothing of bedrock moral importance about a project, even prima facie— they have succeeded in making their case against the procedure. Hence the dominant focus, in the critical literature, on the features of CBA that no respectable moral criterion would (allegedly) possess: on Scitovsky

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147. *See generally* Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557 (1992) (analyzing whether legal commands should be promulgated as rules or standards).

reversals; on the sensitivity of CVs to the Winner's or Loser's endowment; on the moral irrelevance of wealth-maximization per se.[148] But it is a mistake to leap from the existence of these features to the conclusion that it is wrong for CBA to be institutionalized as the method by which agencies choose between projects. Notwithstanding the intermittent occurrence of reversals, or of cases where (by virtue of CBA's sensitivity to endowments) a welfare-degrading project has a positive sum of CVs, CBA might be *sufficiently* accurate in tracking overall well-being and *sufficiently* cheap and transparent that it turns out to be the decision procedure best justified in light of overall well-being.[149] Or, to put the point reciprocally, given the moral criterion of overall well-being, it is a further and institutional question whether the welfare-maximizing decision procedure for agencies is: (1) the procedure of *direct implementation* (where agencies do indeed attempt to identify welfare-maximizing projects); (2) CBA, or some refinement thereof; (3) some nonaggregative procedure, for example, looking to technical feasibility or social norms; (4) some unidimensional, aggregative procedure, for example, so-called "risk-risk" balancing; or (5) some multi-dimensional, aggregative procedure other than CBA, for example, QUALY-based assessment.

In Part V below, we undertake a comparison of these different types of procedures and argue that CBA (or some refinement thereof) possesses certain advantages, such that it is plausibly the welfare-maximizing procedure for agencies to employ in a significant portion of their choice situations. Before we undertake this comparison, however, it is important to broaden the definition of CBA. Once it is understood that CBA is properly conceptualized as a decision procedure, not a basic moral criterion, there is no reason to insist that CBA is strictly equivalent to the traditional sum-of-CVs test. Rather, we suggest, CBA should be understood as a *family* of money-based decision procedures, including but not limited to the strict sum-of-CVs test. We think it implausible that CBA, strictly defined, is in fact a welfare-justified decision procedure. Among other things, the cost of individualizing CVs would be overwhelming. In practice, as we noted in Part II, agencies do not actually determine each affected person's CV for each project; rather, agencies use an average value for the affected population or rely on statistical techniques to estimate the range of variation of CVs across the population.[150] Our claim is that one or another *refinement* of the sum-of-CVs test is welfare-justified for a significant fraction of

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148. *See, e.g.*, BOADWAY & BRUCE, *supra* note 45, at 262-72; JULES L. COLEMAN, MARKETS, MORALS AND THE LAW 95-132 (1988); HAUSMAN & MCPHERSON, *supra* note 91, at 93-99; Blackorby & Donaldson, *supra* note 17; Copp, *supra* note 16; Dworkin, *supra* note 69.

149. That CBA is best understood as a decision procedure is emphasized in Donald C. Hubin, *The Moral Justification of Benefit/Cost Analysis*, 10 ECON. & PHIL. 169 (1994).

150. *See supra* text accompanying note 34.

agency choice situations. And this claim fits actual practice, given the reliance of agencies upon refinements, not the strict test. In the remainder of this Section, we discuss the different ways in which traditional CBA might be refined to suit its possible role as a welfarist decision procedure.

One important kind of refinement concerns the definition of a CV. Compensating variations (CVs) are traditionally equated with willingness to pay (WTP) or willingness to accept (WTA). Person A's CV for a project, it is traditionally stipulated, is the amount that he would be willing to pay (if a Winner) or willing to accept (if a Loser) such that, if paying or paid that amount in the project world, A would neither prefer the project to the status quo nor vice versa.[151] But this definition of CV ties CBA to an incorrect theory of well-being: an unrestricted-preference-based theory. Imagine that A slightly prefers the project for himself, but also judges it to be morally wrong and further judges the project world to be morally worse than the status quo, regardless of how much money *he* is paid there. Perhaps the project eliminates an endangered species or a wilderness area in order to build a road that will make A's daily routine slightly more convenient but that he finds morally objectionable because of its environmental impact. Then A's genuine CV for the project would seem to be a positive number, but his CV, as traditionally defined in terms of WTP/WTA, is negative infinity![152] Or imagine a case in which A strongly prefers the status quo for himself, but the project is a paternalist project (for example, banning narcotics) that is welfare-justified precisely because persons like A mistake their own well-being.[153] Then A's CV, as traditionally defined in terms of WTP/WTA, will be a large negative number—some narcotics users might demand large payments in the project world before they count it as equivalent to the status quo—but A's genuine CV would seem to be either zero or a positive number. The narcotics-eliminating project improves A's welfare (if he eventually comes to prefer not using narcotics) or at least does not change it (if his desires never change); it does not harm A, notwithstanding his mistaken belief that the status quo is better.

The appropriate redefinition of CBA is straightforward. The "compensating variation" seeks to capture, in dollar terms, the effect of the project on each person's well-being. It seeks to measure, on a dollar scale,

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151. *See supra* note 47 and accompanying text.

152. Indeed, this phenomenon—the deviation between a person's traditionally defined CV and her true welfare equivalent for a project that has a small welfare effect on her, but to which she has a strong moral objection—seems to arise frequently in agency practice. Respondents often react to contingent valuation surveys in ways that seem to reflect their moral views, for example, by providing a very large or small number, or by simply refusing to answer. *See* ROBERT CAMERON MITCHELL & RICHARD T. CARSON, USING SURVEYS TO VALUE PUBLIC GOODS: THE CONTINGENT VALUATION METHOD 30-38 (1989).

153. *Cf.* Joel Feinberg, *Legal Paternalism, in* PATERNALISM 3 (Rolf Sartorius ed., 1983) (conceding that paternalist interventions can improve welfare, but arguing against paternalism on grounds of autonomy).

the change in A's welfare produced by the project. It should thus be defined, not as A's willingness to pay or accept, but as her *welfare equivalent*. A's welfare equivalent is the amount of money that, paid to or by A in the project world, makes her precisely as well off there as in the project world. While the concept of "willingness to pay" and "accept" is committed to a particular, and incorrect, theory of well-being, the concept of welfare equivalent is agnostic across theories of well-being and would seem to be the right foundation for CBA whatever the correct theory of well-being turns out to be. We have argued, specifically, that some variant of a restricted-desire-based theory is the correct theory. So, for example, a project that satisfies A's unrestricted desires, but either (1) does not satisfy or frustrate her restricted desires or (2) does so, but does not fulfill further appropriate conditions (for example, an experience requirement or a value requirement) necessary for a welfare effect upon A, has a welfare equivalent of zero. More generally (leaving aside, for the moment, certain technical problems such as the problem of incompensable losses), A's welfare equivalent will be positive if the project has a positive welfare effect on A, negative if the welfare effect is negative, and zero if the welfare effect is nil. This will be true whichever specific variant of a restricted-desire-based theory turns out to be correct.[154]

Now, the defender of willingness to pay and accept has a sophisticated response to the proposal that CBA should be defined in terms of welfare equivalents. The response runs as follows:

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154. As we briefly mentioned in the text above and in the introduction to this Part, the concept of welfare equivalent is an appropriate foundation for CBA even if the correct theory of well-being turns out to be a hedonic or objective-list theory. CBA is no less coherent on these theories than on a desire-based theory, although of course the specific amount of A's welfare equivalent will be different. On a hedonic theory, this amount is the amount that, paid to or by A in the project world, makes her level of hedonic tone there just the same as in the status quo; on an objective-list theory, it is the amount that, paid to or by A in the project world, makes her overall realization of objective welfarist values just the same as in the status quo world. Because we argue in this Article for a desire-based view of well-being, however, we do not further pursue this point.

The point that A's WTP/WTA is distinct from her welfare equivalent has been made by Peter Railton, *Benefit-Cost Analysis as a Source of Information About Welfare, in* VALUING HEALTH RISKS, COSTS, AND BENEFITS FOR ENVIRONMENTAL DECISION MAKING, *supra* note 14, at 55, 71-72. *Cf.* Pildes & Sunstein, *supra* note 2, at 82 ("[C]ontingent valuation methods still suffer from the private/public valuation distinction. What people would be willing to pay to eliminate certain conditions for themselves, and how they think public resources should be allocated, remain distinct questions. . . . [W]hat matters are lay valuations about public choices, not those about self-regarding, private choices."). We disagree: In the context of determining overall welfare, what matters are just the "self-regarding," that is, welfare-relevant, impacts of the project on each person.

For a recent contribution on all-things-considered versus self-regarding ("citizen" versus "consumer") preferences, with citations to the literature, see Daphna Lewinsohn-Zamir, *Consumer Preferences, Citizen Preferences, and the Provision of Public Goods,* 108 YALE L.J. 377 (1998).

The right theory of well-being is complicated and controversial. Although A's welfare equivalent and her WTP/WTA might indeed diverge, we should not instruct agencies to determine welfare equivalents. Faithful agencies are likely to make frequent mistakes in determining what A's welfare equivalent is, insofar as it diverges from her WTP/WTA, and the instruction to aggregate welfare equivalents rather than WTP/WTA will give unfaithful agencies an increased opportunity for shirking, given the relative opacity of the concept of "welfare equivalent." Thus, notwithstanding the failure of an unrestricted-preference-based theory of well-being, the welfare-maximizing decision procedure for agencies to follow (even on the correct, restricted theory) turns out to be the procedure of aggregating WTP/WTA, or some other procedure grounded on WTP/WTA, not a procedure grounded on welfare equivalents. For WTP/WTA is *sufficiently* accurate in tracking welfare equivalents, and is also cheaper to apply, more transparent, and so forth.

This sophisticated response may be correct. Once we reconceptualize CBA as a welfarist decision procedure, it is incorrect to assume that the definition of CVs will directly incorporate the right theory of well-being. CVs might be defined in a different way (for example, as WTP/WTA) that tracks the correct theory sufficiently well. So both WTP/WTA and welfare equivalents are possible variants of the concept of CV; which variant is best, in light of overall well-being, is an institutional and empirical question that cannot be determined in advance. On the other hand—and this is our ultimate point here—the traditional equation of CV with WTP/WTA is too narrow. CBA might, depending on the facts, need to be (globally or locally) redefined as the sum of welfare equivalents rather than the sum of WTP/WTA. This is one possible, and significant, dimension of refinement of traditional CBA.

A second dimension of possible refinement to CBA concerns the problem of *undefined CVs*. This is an important issue, one :hat the traditional literature on CBA has wholly overlooked and that we do not have the space to consider here in detail, but that surely bears mention.[155] Economists traditionally assume that compensating variations are precise and unique. There will be a unique amount of money that, paid to or by A in the project world, precisely counterbalances the project's welfare effect on her; further, larger amounts will make her strictly better or worse off, and smaller amounts strictly worse or better off. Or so it is assumed. But behind the assumption of precision lies the contestable premise that all world states can be ranked as better, worse, or precisely equal with respect to A's well-being. This premise is contestable insofar as some (indeed, an increasing

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155. The issue is treated at greater length in Matthew Adler, *Incommensurability and Cost-Benefit Analysis*, 146 U. PA. L. REV. 1371, 1391-98 (1998).

number of) philosophers, economists, and legal scholars believe that world states can be *incomparable* with respect to well-being and other moral criteria; that is, neither better, nor worse, nor precisely equal.[156] (If incomparability can obtain, then there may well be projects such that, for no dollar payment to or by A along with the project is A precisely as well off in both worlds, but for some dollar payment A is incomparably well off. In such a case, there will exist no precise welfare equivalent for A, for the project, but only a rough welfare substitute or a range of rough substitutes.)[157] And even if full welfare-comparability of world states holds true, it does not follow that A's welfare equivalent will be unique. The highly contestable premise behind uniqueness—behind the assumption that one, and only one, dollar amount counterbalances the project's welfare effect on A—is that the correlation between dollars and well-being is continuous, monotonically increasing, and unbounded. Counterexamples to this premise include: (1) incompensable losses (that is, welfare differences between the project and status quo that are too large for any dollar payment in the project world to repair); and (2) lumpy compensation (for example, for the loss of nonmarket goods, where a range of dollar payments in the project world would leave A precisely as well off there as in the status quo world).

The refinements to CBA responsive to the problems just mentioned change in one way or another the concept of CV, so that A's CV will remain well-defined notwithstanding incomparability, discontinuity, non-monotonicity, etc. Rather than being defined as the unique amount of money that precisely counterbalances A's welfare loss or gain, the CV might be redefined, for example, as follows: (1) in the case where A is a Loser, the smallest amount of money sufficient either to compensate A precisely, or to overcompensate A, or to leave her incomparably well off, or failing that the lower limit of the amounts that compensate A precisely, overcompensate A, or leave A incomparably well off; and (2) in the case where A is a Winner, the largest amount of money that may be taken from A while still leaving A better off, or precisely as well off, or incomparably well off, or failing that the upper limit of the dollar amounts that do so. As between several refinements to CBA, all of which succeed in preserving well-defined CVs notwithstanding incomparability and the like, the best refinement is of course the one that, used by agencies, will maximize welfare.

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156. *See id.* at 1401-08 (discussing incomparability).

157. By "rough substitute," we mean this: SY is a rough substitute, for A, for the move from S to P if, paid or paying SY in P, A is incomparably well off there, as compared to S. "Rough substitute" is the analogue to "welfare equivalent," with incomparability substituted for precise equality: Again, SX is a welfare equivalent, for A, for the move from S to P if, paid or paying SX in P, A is precisely equally well off there, as compared to S.

A third dimension of refinement to CBA, already mentioned, concerns *the degree of individualization of CVs*. However CVs are defined—whether as simple WTP/WTAs, or simple welfare equivalents, or with some amendment to the basic idea of WTP/WTA or welfare equivalent designed to deal with the problem of undefined CVs—it is implausible that agencies should literally determine for each person what her CV is, and then aggregate. Some method for approximating the sum of CVs (for example, determining average CV and then estimating the variation of CV across the population) will surely be warranted, if CBA is warranted at all.

Finally, CBA might perhaps be refined to correct its *endowment dependence*: to compensate for the declining marginal welfare productivity of dollars or, equivalently, for the fact that richer persons tend to have larger CVs for a given change in interpersonal welfare than poorer persons. The standard suggestion, here, is to weight CVs by a factor inversely proportional to the wealth of the person affected, and then sum weighted CVs.[158] Welfare economists have not yet, in fact, been successful in producing a practicable weighting factor, but it would be premature to insist that CBA will never be successfully refined along this dimension. If no refinement along this dimension eventuates, the upshot is *not* that CBA must be abandoned, but rather that it must be confined to choice situations where endowment dependence does not cause too great a degree of inaccuracy—specifically, situations in which the wealth distribution within the group of Winners does not differ too much from the distribution within the group of Losers. When endowment dependence does cause too great a degree of inaccuracy, one might require the agency to use a procedure, such as multidimensional assessment,[159] that does not involve this kind of inaccuracy or to refer the project to the political branches, which may arrange a deal that compensates the Losers.[160]

In sum, CBA, traditionally defined as the sum of CVs (WTP/WTA), might be refined in at least four ways: by redefining CVs as welfare equivalents; by redefining them to correct for the possible absence of unique and precise welfare equivalents or WTP/WTA; by reducing individualization; and by correcting for endowment dependence. To be sure, the possibility of such refinements does not yet show that refined

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158. *See, e.g.*, Copp, *supra* note 16, at 77-79; *supra* notes 79-80 and accompanying text.

159. *See infra* text accompanying notes 181-182 (describing multidimensional assessment).

160. Congress can reduce the endowment dependence of projects by arranging for compensation of the Losers. An example is the Trade Expansion Act of 1962, Pub. L. No. 87-794, tit. II, § 232, 76 Stat. 877 (codified as amended at 19 U.S.C. § 1862 (1994)), which lowered tariffs but also provided benefits to workers who lost their jobs as a result of trade liberalization. *See* ROBERT J. BRENT, APPLIED COST-BENEFIT ANALYSIS 40 (1996). Note that the Act did not produce a Pareto-superior outcome because the workers were paid from general tax revenues, not from the gains to the exporters. By spreading the losses over a larger population, the Act reduced the extent to which WTPs understated welfare losses.

CBA is indeed a welfare-maximizing decision procedure. To do that, we need to compare CBA and its refinements with alternative decision procedures, including both direct implementation and others. That is the task to which we now turn.

V. COST-BENEFIT ANALYSIS AND OTHER DECISION PROCEDURES: A COMPARATIVE, WELFARIST ASSESSMENT

In this Part, we compare direct implementation of the welfare criterion with various decision procedures actually employed by, or proposed for, regulatory agencies: procedures such as CBA,[161] risk-risk balancing, feasibility-based assessment, norm-based assessment, and others.[162] We shall distinguish between *nonaggregative* and *aggregative* procedures; in the latter category, between *unidimensional* aggregative and *multidimensional* aggregative procedures; and, in the last category, between the three leading candidates, namely CBA, *QUALY-based assessment*, and the kind of procedure proposed by, among others, Thomas Scanlon, Cass Sunstein, and Richard Pildes, which we shall call *direct multidimensional assessment*.[163] Our claims are as follows. First, direct implementation of the welfare criterion is not a viable decision procedure; that procedure is hugely expensive, highly opaque, and unreliable, particularly given the amount of individualized welfare information required by any reasonable construct for making interpersonal comparisons. Second, multidimensional aggregative procedures, including CBA, will generally be more accurate than nonaggregative procedures and unidimensional procedures, although they will also be more expensive to implement and, to some extent, more susceptible to agency error and more opaque. If agencies can be suitably monitored, (some kind of) multidimensional aggregative procedure will typically be appropriate for evaluating projects that appear to have large welfare impacts. Finally, CBA offers distinct advantages, relative to QUALY-based assessment and direct multidimensional assessment, with respect to accuracy, transparency, or error rate, depending on the choice

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161. For the remainder of this Article, we use "CBA" broadly, to include both traditional CBA and the various refinements to traditional CBA discussed in Section IV.D. *See supra* text accompanying note 150 (offering a broad definition of CBA).

162. One procedure that we do not discuss in this Part is the procedure proposed by Stephen Coate. Coate argues that a project should be approved only if there is no Pareto-superior project that would produce the same distribution as the project under consideration. *See* Stephen Coate, Welfare Economics and the Evaluation of Policy Changes 2-3 (Dec. 1997) (unpublished manuscript, on file with *The Yale Law Journal*). This approach avoids the endowment dependence of CBA but would provide an agency with no guidance for choosing a project in the first place.

163. More precisely, these are the procedures typically employed or proposed as background procedures for use by agencies when statutory and other legal requirements become indeterminate.

situation. We conclude Part V with a tentative recommendation about the justified scope of CBA.

A. *CBA and Its Procedural Competitors: Costs and Benefits*

1. *Direct Implementation*

By *direct implementation*, we mean the procedure whereby an agency expends resources up to the point of zero marginal epistemic gain (up to the limits of human knowledge) in order to determine how the project and the status quo compare with respect to the best construct for making interpersonal welfare comparisons. That is, the agency is instructed to make all efforts that will increase its degree of justified belief in the comparative worth of the project and status quo, with respect to overall well-being. No proxy standard is assigned the agency, in lieu of the best construct for interpersonal welfare comparisons; instead, the agency is simply told to employ that construct in evaluating projects. And no constraints are placed on the agency's gathering of information other than the epistemic constraint that the information must have some relevance to the construct.[164] Clearly, direct implementation would be hugely expensive, highly unreliable, and opaque (at least for agency projects that affect more than a few individuals), and for these reasons is not a viable welfarist decision procedure. This is true whether the best interpersonal construct is a purely desire-based construct (such as Harsanyi's construct) or a construct based on objective values or hedonic tones (such as that suggested by Griffin).[165]

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164. This stipulation is crucial. We are trying to draw a clean line between direct implementation and procedures that sacrifice accuracy (more precisely, the accuracy that would be achieved by a perfectly reliable and faithful agent) for the sake of reduction in decisional cost, transparency, reliability, and so on. The cleanest way to do this is to define "direct implementation" as the procedure whereby the agent tolerates *no* sacrifice in epistemic gain for the sake of reduction in decisional cost or other values. The agent takes whatever steps are warranted, by her lights, to produce the most accurate measurement of overall well-being.

What about the variant of direct implementation (call it "direct implementation*") in which agencies do not gather information up to the point of zero epistemic gain, but rather are enjoined (1) to take additional epistemic steps, such as information-gathering, only if the agency believes that more likely than not those steps are welfare-improving; and (2) if not, to choose the outcome, project or status quo, that the agency believes, more likely than not, will lead to higher overall well-being? Direct implementation* is more likely to be a welfare-justified decision procedure than direct implementation, and perhaps should be grouped with CBA, direct multidimensional assessment, and QUALY-based assessment as a possible multidimensional procedure for agencies to employ. *See infra* Subsection V.A.3 (comparing multidimensional procedures). We doubt, however, that direct implementation* will turn out to be attractive—given the difficulty of monitoring agency choices both at the threshold, information-gathering stage and at the stage of project choice—and, unlike CBA, neither direct multidimensional assessment nor QUALY-based assessment has been seriously proposed for agencies. We therefore ignore it in this Article.

165. *See supra* text accompanying notes 110-116 (discussing these constructs).

Consider Harsanyi's proposal, which is the leading candidate for a purely desire-based interpersonal construct. (By "purely desire-based" we mean a construct that makes the comparison of welfare across persons depend upon the extent to which Winners and Losers satisfy their welfare-constitutive desires, independent of their improvement or deterioration with respect to criteria of objective value or hedonic tone.) In the case of a comparison of a single project O^* and the status quo O, recall that Harsanyi's proposal amounts to this: (1) For each outcome, O^* and O, and every person in the population A_i, permute the persons and outcomes; (2) imagine yourself to be an impartial spectator, comparing person-state O_k-A_i with person-state O_j-A_j (that is, "being in state O_k with A_i's preferences" as against "being in state O_l with A_j's preferences"); (3) from this impartial point of view, create a preference ranking, the so-called extended-preference ranking, for all person-states, which should be the same for everyone and which should respect A_i's ordinary preferences in comparing O-A_i and O^*-A_i; (4) determine the extended preference ranking for the O^* lottery (that is, for a $1/n$ chance of O^* permuted with each of the n persons in the population) as against the O lottery; (5) use this extended lottery preference as the basis for comparing O to O^*. Directly implementing the Harsanyi construct would involve amassing a huge amount of individualized information. For each person A_i, the agency would need to know how she ranks the project relative to the status quo. Further, the agency would need to know everything else about the project's effect on the person that would bear upon an impartial ranking of each person-state involving her as against each person-state involving another person. In addition, there is often no clear answer as to how impartial spectators would rank person-states (assuming, as Harsanyi does, that there is at least a right answer to that question). Not surprisingly, the Harsanyi construct has been discussed in the economic and philosophical literature only as a plausible analysis of the concept of "overall well-being."[166] We know of no one who suggests that regulatory agencies should actually apply it.

Similar difficulties of implementation beset constructs for interpersonal comparison that depend, as does Griffin's, on objective or hedonic criteria and ignore "desire satisfaction" apart from that. First, any such construct will need to be (at bottom) multidimensional. There are multiple objective goods that go to human welfare, and multiple kinds of pains and pleasures.[167] Call each dimension of objective value or hedonic tone D_i.

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166. Discussions in the philosophical literature include HURLEY, *supra* note 90, at 103-10; Griffin, *supra* note 113, at 52-56; Hausman, *supra* note 106, at 477-78; and Scanlon, *supra* note 114, at 22-38. Discussions in the economic literature include BINMORE, *supra* note 112.

167. *See supra* note 88 (citing sources that provide and defend lists of objective values); *cf.* THOMAS HURKA, PERFECTIONISM 84-98 (1993) (recognizing the multidimensional cast of the assessment of overall human "perfection"); SEN, *supra* note 135, at 23-26 (recognizing the multidimensional cast of the assessment of equality).

Second, any such construct will need to allow that the effect of a project on a person, with respect to a particular dimension of value, is individualized. A beautification project, for example, does not make every person's life more beautiful to the same degree; the impact on each person depends upon her natural appreciation for beauty, her training, her temporal and spatial proximity to the project, and so on. Further, the *tradeoff* between the different dimensions of objective value or hedonic tone will itself be personalized. Imagine a project that increases beauty in the world for *A* by one unit, but consumes resources that would otherwise fund two units of scientific accomplishment by *A*. If *A* is an artist, the project might still be welfare-improving; if *A* is a scientist, it probably will not be.[168] Finally, the proper assessment of how each person fares, both with respect to each D_i and all-things-considered, would be highly contestable.

The last problem with direct implementation is its opacity. As we have noted, agencies are supposed to apply the policies of the President and Congress. The President has delegated oversight to the OMB. Congress exercises oversight through its committees. Both political branches rely on the courts to review agency action, and both branches also depend on evaluations of agency action by citizens, interest groups, and competing agencies. It seems clear that projects based on direct implementation would be difficult to review. Judgments about hedonic tone, objective value, or "extended preference" are controversial. People naturally disagree about whether a project enhances beauty by a lot or a little, and whether this enhancement justifies the cost in resources that would otherwise fund scientific accomplishment and so on. It seems likely that courts would defer to agencies, because the courts have no good reason for doubting a particular agency's judgment about beauty or some other value. And if that is the case, then agencies would be more difficult to control, and it would become more difficult to discover when their judgments are based on erroneous assumptions.

In short, direct implementation is not a live option for agencies. That alone is an important result. The standard criticism of CBA for its characteristic inaccuracy—for permitting small welfare gains to the rich to outweigh large welfare gains to the poor—implicitly compares CBA to the perfectly accurate procedure, namely direct implementation. But the accuracy of that procedure (more precisely, its accuracy if perfectly performed) is swamped by the disadvantages just elaborated. So the proper comparison, at the level of decision procedures, is between CBA and other

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168. *See* GRIFFIN, *supra* note 86, at 58 ("Nor is there a *single* right balance [of objective goods]. The right balance is very likely to vary from person to person."); HURKA, *supra* note 167, at 97-98 (making a similar argument with respect to an account of human perfection rather than of welfare).

procedures that are *also* inaccurate in various ways but, like CBA, can economize on decision costs, error rates, and transparency.

2. *Multidimensional Versus Unidimensional and Nonaggregative Procedures*

We suggest that CBA and other multidimensional procedures (QUALY-based assessment and direct multidimensional assessment) will generally be more accurate in tracking overall well-being than nonaggregative procedures and unidimensional procedures. This comparative accuracy is a significant, if not always decisive advantage, with respect to welfare maximization.

The term "nonaggregative" is a residual, catch-all category. By this we mean any procedure that does not seek to determine (or to approximate) the aggregate effect of the project with respect to one or more (objective or hedonic) constituents of well-being, or prerequisites for well-being, or proxies for these. Good examples of nonaggregative procedures actually used by, or proposed for, agencies include the following: using a de minimis risk threshold for certain types of health, safety, or environmental risk (that is, banning any product that poses more than a de minimis risk of the given type, for example a cancer risk);[169] subjecting proposed regulatory requirements to the constraint that they be "technologically feasible";[170] and permitting or proscribing harmful activity depending upon whether the activity is "customary."

Unidimensional, aggregative procedures pick out *one* (objective or hedonic) constituent of well-being, or prerequisite of well-being, or proxy for these, and enjoin agencies to maximize along this *one* dimension. The classic example, here, is so-called "risk-risk" analysis.[171] In effect, risk-risk analysis tells the agency to compare the total number of premature deaths in the project world with the total number of premature deaths in the status quo, and pick the world with the smaller number. The relevant dimension of well-being tracked by risk-risk analysis is longevity. One could imagine analogous procedures for any constituent of well-being, or any prerequisite—for example, maximizing the preservation of the wilderness,

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169. *See, e.g.*, Jay Michaelson, Note, *Rethinking Regulatory Reform: Toxics, Politics, and Ethics*, 105 YALE L.J. 1891, 1896-1901 (1996) (distinguishing between zero risk and de minimis risk, and discussing EPA's use of a de minimis standard).

170. More precisely, this constraint is not a full decision procedure itself but will lend a nonaggregative element to whatever procedure is employed. On the feasibility constraint, see LAVE, *supra* note 142, at 14-15.

171. *See, e.g., id.* at 15-17; Cass R. Sunstein, *Health-Health Tradeoffs*, 63 U. CHI. L. REV. 1533 (1996); W. Kip Viscusi, *Economic Foundations of the Current Regulatory Reform Efforts*, 10 J. ECON. PERSP. 119, 129-31 (1996).

the cleanliness of water, the health of the population or its educational opportunities, or the size of the housing stock.

Finally, multidimensional procedures seek to track the aggregate effect of the project with respect to *more than one* dimension of well-being. These are best described by example, since in practice (as far as we are aware) agencies employ only three: CBA, direct multidimensional assessment, and QUALY-based assessment. The idea behind CBA and its refinements is to reduce the project's overall effect on each person to a single dollar amount (the CV, defined as welfare equivalent or as WTP/WTA) and then to aggregate. By contrast, direct multidimensional assessment instructs the analyst to calculate the aggregate effect of the project along each of several dimensions, and then to use either predefined quantitative tradeoff rates or qualitative judgments to compare aggregate project gains along the dimensions where its overall effect is positive with aggregate project losses along the dimensions where its overall effect is negative.[172] Finally, QUALY-based assessment, a tool widely used by health economists, and to a lesser extent by agencies, to evaluate health and risk-related projects, looks not merely to longevity—in contrast to risk-risk analysis—but to the *quality* of the life-years saved (or lost) by regulatory intervention. Information garnered from questionnaires is used to discount life-years, relative to a baseline of perfect health; for example, the project of funding a medical program that will enable 100 beneficiaries to live, on average, ten more years of life, but in a state of considerable pain, might be assessed as producing not 1000 life-years but $1000 \times .8 = 800$ *quality-adjusted* life-years, with .8 as the discount factor for that kind of pain.[173]

Why should CBA, QUALY-based assessment, and direct multidimensional assessment be more accurate than unidimensional procedures or nonaggregative procedures? Overall welfare itself is multidimensional: This is directly true of an interpersonal construct like Griffin's (which incorporates multiple criteria of objective value or hedonic tone) and, indirectly, of a purely desire-based construct like Harsanyi's (since persons typically develop preferences regarding world states, whether ordinary preferences or "extended preferences," by virtue, in part, of the multiple objective values or hedonic tones that they realize or believe they realize in those states).[174] Further, agency projects typically have multidimensional impacts, not just an impact upon the one dimension measured by the unidimensional procedure. Consider, as a paradigm, the

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172. *See infra* text accompanying notes 181-182 (describing different kinds of direct multidimensional assessment).

173. *See* Robert Fabian, *The Qualy Approach, in* VALUING HEALTH FOR POLICY: AN ECONOMIC APPROACH 118 (George Tolley et al. eds., 1994); Arti Kaur Rai, *Rationing Through Choice: A New Approach to Cost-Effectiveness Analysis in Health Care,* 72 IND. L.J. 1015, 1048-52 (1997).

174. *See, e.g.,* GRIFFIN, *supra* note 86, at 26-31.

dimension of longevity measured by straight risk-risk analysis. Agency projects that increase or decrease the total number of premature deaths, relative to the status quo, will typically accomplish more than just that with respect to welfare: They will also increase the stock or quality of goods, or the convenience of travel, or air quality, or electricity prices, or whatever. Such effects are completely missed by risk-risk analysis.[175] By contrast, a multidimensional procedure such as CBA will capture both the effect of the project on longevity and its effect on other welfare-relevant dimensions. For example, a regulation that makes a product marginally safer, but significantly less enjoyable, useful, or convenient, will have a negative sum of CVs under CBA. This leads us to guess that risk-risk analysis will generally be less accurate, across the totality of agency choice situations, than CBA and other multidimensional procedures. At a minimum, and less ambitiously, we can say this: (1) In choice situations where the project has a relatively small effect on the dimension of longevity, such that this effect is swamped by countervailing effects on other dimensions, risk-risk analysis will misclassify the project; (2) such choice situations constitute a significant fraction of the totality of agency choice situations, since longevity is neither the sole component of welfare nor one that takes lexical priority over others. In this sense, risk-risk analysis embodies a significant procedural disadvantage with respect to its accuracy in tracking overall welfare; and the same is true, *mutatis mutandis*, for other unidimensional procedures.[176]

As for nonaggregative procedures: These typically capture some (purportedly) relevant aspect of agency choices other than the effect on overall well-being. For example, the de minimis risk threshold employed by some agencies for certain cancer risks seeks to prevent producers from wrongly or unfairly imposing such risks on unwitting consumers or workers; as a matter of overall well-being, however, a few more premature deaths from cancer might easily be justified by countervailing benefits, either the forestalling of premature deaths from other sources, or benefits unrelated to longevity. Similarly, the requirement that otherwise-justified agency choices be "technologically feasible" at best reflects a concern for

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175. Project gains along even a relatively unimportant dimension of human well-being, if large enough, can outweigh the welfare cost of premature death. *See* Alastair Norcross, *Comparing Harms: Headaches and Human Lives*, 26 PHIL. & PUB. AFF. 135 (1997). And, of course, sometimes longevity is simply not at issue. The project and status quo could involve the same number of premature deaths—and be counted by risk-risk as equally good—but differ along various other dimensions.

176. A more sophisticated approach would be to assign different unidimensional procedures to different agencies or statutory schemes. But multiple dimensions, other than the dimension tracked by the assigned procedure, might still be implicated by each agency's choices. *Cf.* Richard J. Pierce, Jr., *The Role of Constitutional and Political Theory in Administrative Law*, 64 TEX. L. REV. 469, 473-81 (1985) (describing how statutes typically authorize or require agencies to consider multiple values).

the job security of workers in regulated industries, such that a technologically infeasible requirement (which would close down the industry) will not be imposed even if the benefits to consumers and citizens from doing so would outweigh the benefits from the industry's continued existence. As far as we can see, the only standard nonaggregative procedure plausibly defended on welfarist grounds is the procedure of looking to social norms—given the possible efficiency of certain norms. Even here, however, a welfarist defense would need to be highly qualified and limited in scope. Robert Ellickson, the leading defender of the view that norms are efficient, claims that "members of a close-knit group develop and maintain norms whose content serves to maximize the aggregate welfare that members obtain in their workaday affairs with one another." [177] Even if Ellickson's claim is true,[178] a norm-based decision procedure for agencies will have a haphazard connection to overall welfare where the norm-generating group is *not* close-knit, where "workaday" matters are not at stake, or where group outsiders are significantly affected by the agency's choice.

To be sure, at least some unidimensional and nonaggregative procedures will typically be cheaper, more transparent, and easier to implement correctly than CBA and other multidimensional procedures.[179] Risk-risk analysis, for example, is straightforward to implement and easily reviewed by courts, congressional committees, interest groups, and other concerned actors. Review is a simple matter of checking the data on which the agency relies and confirming the agency's summing up and comparison of risks. But transparency in this case simply ensures that the agency implements a bad procedure without making mistakes. It would be better if the agency implemented a good procedure, like CBA, while making few mistakes. And the error costs and shirking costs associated with multidimensional procedures can be held down with institutional mechanisms—for example, the oversight of specialized cost-benefit bureaus such as OMB or the Congressional Budget Office.[180] Assume, at the limit, that the additional decisional costs of the multidimensional procedure, relative to a unidimensional or nonaggregative procedure, is purely a matter of direct costs (the costs of information-gathering and

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177. ROBERT ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES 167 (1991) (emphasis omitted).

178. *But see* Eric A. Posner, *Law, Economics, and Inefficient Norms*, 144 U. PA. L. REV. 1697 (1996).

179. This need not be generally true of nonaggregative procedures. For example, we doubt that the elastic criteria of "customary practice" and "technological feasibility" are cheaper, more transparent, and easier to implement correctly than CBA.

180. On the President's ability to monitor agencies, including through the use of oversight bureaus, see, for example, Terry M. Moe & Scott Wilson, *Presidents and the Politics of Structure*, LAW & CONTEMP. PROBS., Spring 1994, at 1. For a somewhat more skeptical view of OMB, see MCGARITY, *supra* note 38, at 271-91.

-processing by nonshirking, epistemically reliable agents). Then, for choice situations where the welfare effect of the project becomes sufficiently large, the multidimensional procedure will always be welfare-justified (assuming it is more accurate than the alternative procedures), notwithstanding its additional decisional costs.

3. Comparing Multidimensional Procedures: CBA, Direct Multidimensional Assessment, and QUALYs

We turn now to a comparison of CBA with other multidimensional procedures. Consider, first, the procedure we have termed "direct multidimensional assessment." This term actually names a family of related procedures. One variant of direct multidimensional assessment is fairly quantitative. On this variant, agencies are instructed to calculate or approximate the aggregate effect of the project along each of several predefined dimensions, $D_1, D_2, \ldots, D_n$, and then to use predefined tradeoff rates (one for each D_i-D_j combination, with $i \neq j$) to compare aggregate project gains along one dimension with aggregate project losses along another. This is the kind of procedure suggested by Thomas Scanlon:

> [T]here remains the further question of how institutional responses to [individual welfare] interests are to be measured and how individual distributive shares are to be compared. . . . I will refer to such an answer . . . as an index. An index need not, like Rawls's, consist simply of exchangeable goods and institutional prerogatives. It might refer as well to levels of development of personal capacities, as Sen has suggested, or even to states of consciousness. The avoidance of chronic physical pain, for example, might be one component in an index of well-being.
> . . . .
> . . . [A]n index of well-being is something that will be used by individuals, including legislators and other officials, in assessing institutional contributions to individual welfare.[181]

A more qualitative version of direct multidimensional assessment would define the dimensions along which aggregate project impacts were to be assessed, but not the tradeoff rates. A yet more qualitative version would define neither: Agencies would simply be instructed to assess (and report upon) aggregate impacts along "relevant" dimensions and to use their judgment in making tradeoffs. Cass Sunstein and Richard Pildes suggest that agencies might engage in a variant of direct multidimensional assessment closer to the qualitative end of the spectrum:

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181. Scanlon, *supra* note 114, at 41 (footnote omitted).

> We do not do well if we see such diverse goods as greater employment, protection of endangered species, lower prices, distributional effects, and cleaner air along a single [cost-benefit] metric, one that erases the qualitative differences among these goods. At least in principle, it would be better to have a disaggregated system for assessing the qualitatively different effects of regulatory impositions. . . .
>
> Through considerations of this sort, we might be able to make some progress toward reform of existing cost-benefit analyses. Through regulatory-impact analyses, people should be allowed to see the diverse effects of regulation for themselves, and to make judgments based on an understanding of the qualitative differences.[182]

Indeed, as we described in Part II, direct multidimensional assessment of the more qualitative kind is a procedure that agencies regularly seem to employ in lieu of CBA.

Direct multidimensional assessment, of whatever variant, avoids the endowment-dependence characteristic of CBA. To see the point most clearly: Imagine that a project decreases the smog density over one city by one density unit, and increases the concentration of putrid airborne particles over another city with an equal population by one smell unit, and that further the interpersonal welfare tradeoff between a smoggy and a smelly atmosphere is one to one. Then direct multidimensional assessment will accurately characterize the project as neither better nor worse than the status quo. If the population of each city is one million, direct multidimensional assessment will count the project as a decrease of one million along the smog dimension and an increase of one million along the smell dimension, which counterbalance each other, given the one-to-one tradeoff between the dimensions. By contrast, if the population of the first city is richer than the population of the second, CBA will, inaccurately, characterize the project as a welfare improvement.[183]

On the other hand, direct multidimensional assessment has its own disadvantages. First, assume that the correct interpersonal construct (as per Griffin) does indeed look solely to the effect of projects upon objective dimensions of value or hedonic tone. Even so, the number of such

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182. Pildes & Sunstein, *supra* note 2, at 65 (footnote omitted); *see also* LAVE, *supra* note 142, at 18 ("[R]egulators would be enjoined to balance the general benefits of a proposed regulation against its general risks. This framework is intended to be somewhat vague, with all effects being enumerated, but with full quantification and valuation being left to the general wisdom of the regulators.").

183. *See* Copp, *supra* note 16, at 75 ("If Rachel and Paula are equally afflicted with asthma, then the clean air project might be of equal medical benefit to them, and this fact could be expressed in terms of the equal breathing efficiency they can expect if the project is implemented. Yet if Rachel is rich while Paula is poor, she may be willing to pay more than Paula for this benefit . . . .").

dimensions (if the construct is reasonable) will need to be large, which in turn tends to make the procedure of direct multidimensional assessment either less accurate, or less reliable, transparent, and cheap. To see this point, imagine a regulatory project that bans the sale of a certain kind of recreational boat, which poses a low but nonminimal and unavoidable death risk to users. The quantitative variant of multidimensional assessment might have a predefined dimension, "Recreational Value," such that one user-hour of that value is worth some fractional year less of longevity. But surely *that* objective assessment is much too crude. It implies, implausibly, that one user-hour with the boat has the very same welfare impact as one user-hour playing chess or one user-hour strolling in a public park. So the predefined dimensions might be made more fine-grained. We might have a dimension for "Boating Recreation"—although even that would involve inaccuracies—or, finally, "Boating Recreation/Fishing" and "Boating Recreation/Sailing." But as the number of predefined dimensions (and tradeoff rates between them) increases, the decisional demands on the oversight bureau in maintaining this schema in accurate shape become large. This problem is avoided by the version of multidimensional assessment that does not predefine dimensions or tradeoffs; on the other hand, the absence of predefined dimensions or tradeoffs makes it much more difficult for the bureau, the legislature, or the public to monitor agencies.[184]

The problem with direct multidimensional assessment becomes deeper if the right construct for interpersonal comparisons is *not* just what Griffin proposes—if it *does* incorporate some information about the strength of persons' desires, independent of the satisfaction of objective-value or hedonic criteria. Imagine that there are two kinds of boats that are the same in objective and hedonic goodness, yet consumers just like the second kind more. There is nothing about the second boat that justifies the consumers' stronger preference for it; the preference is simply stronger and remains so under full information. (Is this impossible? Think of preferences for flavors of ice cream.) So the demand curve for the second kind of boat will have a larger area under it than the demand curve for the first kind. CBA will properly reflect that difference, while no variant of direct multidimensional assessment can.

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184. CBA avoids the problem sketched here because its basic building block is the individual CV, not units of overall value or hedonic tone. Decisionmakers can draw a demand curve for the recreational boat market without specifying, or fully specifying, what it is about the boat that makes it good. If CVs are defined in terms of WTP/WTA, then the relevant demand curve is simply the observed market demand curve. If CVs are defined in terms of welfare equivalents, then decisionmakers will need to supplement market data—for example, they may need to provide boat buyers with more information, and determine how much money makes self-regarding buyers indifferent between having and not having the fully described boat—but a complete specification of welfare dimensions may still be unnecessary.

A final problem with direct multidimensional assessment concerns the individualization of tradeoff rates. Aggregate recreational value, for the boating market, is being compared with the aggregate increase in longevity that would result from banning the boat. But, as we remarked earlier, even on the Griffin-type construct for making interpersonal comparisons, the true tradeoff rate will vary from person to person. For *A*, one hour of Recreational Value/Fishing is worth two hours less of longevity. For *B*, one hour of Recreational Value/Fishing is worth three hours less. The demand curve or estimated demand curve, in dollars, for the boat will reflect the mix of recreation/longevity tradeoff rates among the population of consumers. By contrast (at least where predefined nationwide tradeoff rates are specified, which would presumably be the case with the quantitative variant of direct multidimensional assessment), this welfare-relevant information about the boating market would be lost.

What about QUALY-based assessment? Sunstein and Pildes identify this procedure as another possible alternative to conventional CBA.[185] But note that QUALY-based assessment is typically used, and conceptualized, as a *cost-effectiveness* tool for evaluating health and risk regulation and expenditure.[186] That is, given a fixed dollar budget (which could be a budget for direct governmental expenditures or a "regulatory budget" for compliance costs), the agency chooses the policy that maximizes QUALYs. Another way to put the point is that QUALY-based assessment as typically practiced has limited scope: The project, the status quo, and all other options being compared must be identical except on the dimension of health and risk. Imagine that the status quo involves a baseline governmental expenditure of $100 million for a saving of 200 quality-adjusted life-years, and the project involves a governmental expenditure of a different amount, say $500 million, for a saving of 1100 quality-adjusted life-years. Standard QUALY analysis has nothing to say about this comparison.

In theory, the standard QUALY procedure could be reconceptualized as a general multidimensional tool: One would simply calculate the total number of quality-adjusted life-years in both the project world and the status quo year, with quality adjustments not just for health effects but for *any* kind of effect on welfare.[187] The problem, here, is translating non-health effects into quality discounts or premiums. By what factor does the eating

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185. *See* Pildes & Sunstein, *supra* note 2, at 83-85.

186. *See* Fabian, *supra* note 173; Rai, *supra* note 173, at 1048-52. *See generally* LAVE, *supra* note 142, at 19-23 (discussing cost-effectiveness analysis).

187. For example, if the $400 million difference in the above hypothetical were spent on a one-year arts program in the status quo, such that each of 100,000 viewers would experience a .005 increase in the quality of her year, the $400 million difference could be translated into an increment of 500 quality-adjusted life-years for the status quo, relative to the project. Alternately, as some suggest, *see* Fabian, *supra* note 173, at 125-27, 133-35, a standard quality year could be monetized, along with other non-health benefits; but this is then just a kind of CBA.

of an ice cream cone, once, change the quality of the year in which it is consumed? By what factor does the experience of walking in an old-growth forest? A faster daily commute home? Better visibility over your home? To be sure, CBA also involves quantifying these welfare effects, but we see a number of obvious reasons why the translation of ice cream cones, wilderness walks, faster commutes, and so on into dollar CVs will be performed more accurately, cheaply, and transparently, by agencies, than their translation into discounts or premiums for life-years. First, many goods, or their welfare analogues, are traded on markets, and the market price of a good is at least some evidence, perhaps strong evidence, of its CV for a given person, depending on how the concept of CV is defined. Second, the very fact that a person routinely trades on markets will make it easier for her to conceptualize welfare impacts in dollar terms; however difficult the respondent to a CV survey[188] might find it to value ice cream cones, wilderness walks, and so on, in dollar terms, we would expect that the respondent to a QUALY-survey would find the valuation still more difficult, and the answers to QUALY-surveys (for these non-health effects) still less reliable.

On a different note, it should be observed that QUALY-based assessment is not a perfect welfarist procedure, quite apart from these issues of transparency, reliability, and decisional cost. The addition of one standard-quality year to the life of a long-lived person arguably has less impact on overall well-being than the addition of a standard-quality year to the life of someone with fewer total years to her life. Longevity (quality-adjusted or not) has declining marginal utility, just like wealth, and thus QUALY-based assessment has its own analogue to the problem of endowment-dependence characteristic of CBA.

Finally, we should say something about the relative advantages of CBA, direct multidimensional assessment, and the QUALY procedure on grounds of regulatory transparency. Courts, congressional committees, and other interested parties can more easily review the CBA procedure than direct multidimensional assessment. Reviewing CBA means confirming the data on which the agency relies and checking the agency's calculations. In the agricultural pesticides case study, USDA pointed out that EPA's results assumed 239,000 hospitalizations per year, when in the past they had amounted to only 300-450 per year. The challenge put EPA in the position of either producing better data or scuttling the project. This kind of give-and-take contributes to the quality of regulatory action by forcing agencies to reveal their assumptions and to evaluate options carefully. By contrast, it

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188. On the use of so-called "contingent valuation" surveys to determine CVs, see CONTINGENT VALUATION: A CRITICAL ASSESSMENT (Jerry A. Hausman ed., 1993); MITCHELL & CARSON, *supra* note 152; and Symposium, *Contingent Valuation*, J. ECON. PERSP., Fall 1994, at 3, 3-64.

is hard to see how USDA could have challenged the project if EPA had relied on a direct multidimensional assessment. In the latter case, EPA would have had to assert various dimensions—say, of pain or confinement or demoralization—against which the project would be measured. Either USDA would accept these judgments, in which case it would not be able to criticize the project, or it could challenge the judgments, in which case the agencies would get bogged down in a difficult debate about the proper dimensions of evaluation.[189]

The QUALY procedure, like risk-risk, may be more easily reviewed than CBA. But as we mentioned in connection with risk-risk, the increased transparency is purchased at the cost of neglecting important aspects of well-being. CBA is unique among the alternatives discussed because it captures all dimensions of well-being through the technique of calculating WTP/WTA or welfare equivalents, while reducing these dimensions of well-being to empirically derived quantities that can be reviewed, debated, and refined through the regulatory and political process. The great defect of traditional CBA is its endowment dependence, but this problem can be minimized by departing from or modifying traditional CBA (that is, CBA defined as the sum of WTP/WTA) when inequality of endowments is a serious problem.

B. When Should Agencies Use CBA? A Tentative Recommendation

The considerations spelled out above lead us, tentatively, to make the following recommendation: *Agencies should use CBA*[190] *to evaluate the welfare effect of large projects, except where wealth differences between those who gain from the project and those who lose are substantial enough.* By "large," here, we mean projects that are likely to produce significant welfare gains or losses, relative to the status quo. We are agnostic about how agencies should make this threshold judgment of significance. The threshold judgment might itself involve monetization in some way; or it might involve a nonquantitative assessment, or a quantitative but nonmonetized assessment; or some combination. For example, the current cost-benefit order, Executive Order 12,866, directs agencies to produce a written cost-benefit assessment, to be forwarded to OMB, for all "[s]ignificant regulatory action[s]," defined in part as actions that "[h]ave

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189. A partial solution to this transparency problem is for Congress, the President, or OMB to pre-specify the dimensions that agencies should employ—but, as already noted, there are other serious difficulties with pre-specification. *See supra* text accompanying note 184.

190. Again, throughout this Section "CBA" is used in a broad sense to include refinements. *See supra* note 161.

an annual effect on the economy of $100 million or more." [191] Nor can we be specific about the size of the wealth difference between project Winners and Losers that is "substantial" enough to trigger the use by agencies of some (multidimensional) procedure other than CBA. However, we *are* prepared to say that CBA should be the generic procedure by which agencies assess the welfare impact of projects, subject only to override by (1) a threshold judgment that the impact is too small to merit the direct costs of CBA, or (2) a judgment that CBA is substantially inaccurate, as measured *solely* by the wealth of project Winners and Losers.[192]

This recommendation is tentative because it rests upon a number of factual premises that we believe to be true, but have not tried to prove here, and that surely merit scrutiny in the ongoing debate about the proper scope of CBA. One premise is that error costs (the mistaken implementation of CBA by faithful agencies) and shirking costs (the pursuit of self-interested goals by unfaithful agencies, under the guise of CBA) are unlikely to outweigh the accuracy benefit of CBA, vis-à-vis unidimensional procedures such as risk-risk and nonaggregative procedures such as "technological feasibility," given the ability of oversight bodies (particularly OMB) to police error and shirking, plus the inherent transparency of CBA itself. The history of regulatory oversight over the last two decades suggests that it is institutionally and politically feasible for an oversight body to be quite aggressive in enforcing cost-benefit directives such as Executive Order 12,291 or Executive Order 12,866.[193] If we are correct that the error and shirking costs associated with CBA can be dampened, the only significant costs that should prompt agencies to eschew CBA in favor of unidimensional or nonaggregative procedures are direct costs—namely, the

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191. Exec. Order No. 12,866, § (3)(f)(1), 3 C.F.R. 638, 639 (1993), *reprinted in* 5 U.S.C. § 601 (1994).

192. What about the objection that CBA runs afoul of the "incommensurability" of disparate goods? This objection, if good, would weigh in favor of qualitative multidimensional assessment and other procedures that (unlike CBA, QUALY-based assessment, and quantitative multidimensional assessment) do not numerically commensurate different dimensions of welfare. For reasons that one of us has articulated elsewhere, however, we think the incommensurability objection unpersuasive—more precisely, insofar as that objection purports to argue against agency use of CBA *even though* it is the otherwise best-justified procedure in light of the welfarist considerations mooted in this Part, that is, accuracy, error costs, shirking costs, direct costs, and other procedural costs. *See* Adler, *supra* note 155, at 1409-17. Although it remains possible that CBA is truly welfare-incomparable with other decision procedures, for certain choice situations, *see id.* at 1401-08, 1411-12, we think it implausible that CBA is globally welfare-incomparable with (or precisely equally good as) the other decision procedures discussed here. The directive "use CBA to assess projects" is not welfare-incomparable with the directive "use qualitative multidimensional assessment" (or any other procedure), but better or worse for overall well-being.

193. Somewhat less clear is whether OMB has genuinely tried to maximize net project benefits, as opposed to pursuing some other presidential agenda (for example, satisfying large campaign contributors or pushing through deregulation at all costs). *See* MCGARITY, *supra* note 38, at 285-88 (describing the view of regulatory beneficiaries and others that OMB uses regulatory review to advance substantive policy goals).

costs of gathering and processing the information required for a monetized cost-benefit assessment.[194] The $100 million threshold in Executive Order 12,866 is, we take it, justified precisely as a means for sorting between projects that are large enough to warrant the direct costs of CBA and projects that are too small.

A second premise grounding our tentative recommendation is that the inaccuracy associated with monetization can be localized in a way that the inaccuracy associated with multidimensional procedures other than CBA cannot. CBA tends to be inaccurate in evaluating the welfare effects of projects, insofar as money has differential welfare productivity across persons—insofar as the Winners of certain projects would pay more in dollars for gains that, in interpersonal welfare terms, are smaller than the losses that project Losers incur (or vice versa). In theory, differential welfare productivity can arise not just from wealth differences between persons, but from other differences as well. For example, consider the case of an ascetic and a hedonist who possess equal wealth endowments, but for whom dollars are differentially productive of welfare because the ascetic has relatively little use for the goods that dollars can buy, while the hedonist can profit greatly from the pleasures that those goods produce. Nonetheless, we expect that, in practice, wealth effects will be the main source of inaccuracy resulting from the monetized nature of CBA. We doubt that Americans differ significantly, on some dimension other than wealth, with respect to the marginal utility of money—at least significantly enough to make CBA routinely inaccurate in agency practice.

If this is true, then the category of large projects that agencies ought not use CBA to evaluate can be described through a wealth test, as we recommend. By contrast, our discussion in Section V.A identified pervasive inaccuracies (or other costs) associated with other multidimensional procedures. Qualitative multidimensional assessment makes oversight difficult, and gives agencies too little guidance. QUALY-based assessment is not practicable except as a cost-effectiveness tool, that is, except when the project and the status quo differ only in dimensions (such as health effects or the loss of life) of a kind that can practicably be translated into quality discounts or premiums for life-years. Finally, as for quantitative multidimensional assessment, that procedure will be inaccurate whenever the project produces benefits or costs with respect to some constituent of human welfare not included within the pre-specified dimensions that

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194. An additional category of procedural cost, not discussed here, is delay cost: the difference in value between the best option available later (after CBA is performed) and the best option now. *See* Morgenstern & Landy, *supra* note 4, at 461-62. Delay costs could warrant an additional exception to our recommended cost-benefit directive; whether they do depends on the size and prevalence of these costs and on whether such an exception can be drafted without giving too much discretion to agencies.

agencies are instructed to consider. We cannot see a clean, administrable solution to this problem, analogous to the use of wealth differences as a proxy for the endowment dependence of CBA. Agencies must either be told to implement the pre-specified grid globally, notwithstanding its pockets of inaccuracy, or be given some vaguely specified option to escape the procedure and use a different one (for example, CBA). Defining the escape option more precisely, with reference to some specified type of welfare effect not captured by the grid, would be equivalent to adding another pre-specified dimension; and as we noted above, there are significant procedural costs in any scheme of multidimensional assessment where the number of pre-specified dimensions is large.[195]

Should CBA be used even more broadly than we recommend? We noted earlier that CBA might be refined so as to weight CVs by a factor inversely proportional to the wealth of the person affected. If weighting were feasible, then we would recommend that agencies employ *weighted* CBA for all large projects, without regard to wealth differences between project Winners and Losers. But no weighting scheme has yet garnered much approval among applied economists, and so our recommendation here is a more limited one. The recommendation is also partly vague—not just in failing to define "large" and "substantial," but in leaving open the question how CBA should be refined in other respects than weighting, that is, with respect to the choice between "welfare equivalents" and WTP/WTA, with respect to the problem of undefined CVs, and with respect to the degree of individualization of CVs.[196] We also do not say what an agency should do when there are substantial wealth differences between Winners and Losers, assuming that distributive weighting is not reliable. One possibility is that the agency should refer large projects to the political branches in the hope that they can arrange for a deal that compensates the Losers by using the gains from the Winners, or that spreads the losses over a larger population; another is that agencies should resort to some kind of multidimensional assessment.[197]

What if CBA fails to rank the project and the status quo? This could occur because CVs remain undefined—because of phenomena such as

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195. We do not recommend an exception for cost-effectiveness analysis, given the difficulties in specifying what counts as a single dimension that should be maximized within the fixed budget. (For example, in QUALY-based cost-effectiveness analysis, there are really multiple dimensions at play—different types of health effects, plus time—that are "single" in the sense that they are feasibly reducible to the single dimension of quality-adjusted life-years.) But this is obviously a point for further debate.

196. *See supra* Section IV.D.

197. It appears that some agencies are already sensitive to the dependence of CVs on wealth. For example, in the agricultural pesticide case study, EPA refused to conclude that more resources should be devoted to protecting the lives of rich people than the lives of poor people. *See supra* text accompanying notes 25-34.

incomparability, discontinuity, or incompensability[198]—notwithstanding refinements to the traditional definition of CVs as WTP/WTA; or because of Scitovsky reversals;[199] or, more traditionally, because the project has precisely zero net benefits relative to the status quo. In such an eventuality, the agency will need to move on to a different procedure (if only the procedure of coin-flipping), one that does provide a definitive ranking of the outcomes. In practice, the no-ranking possibility seems not to have been a serious problem.[200] We will not speculate whether this is because the possibility is truly trivial or because agencies have been misapplying CBA in a way that masks the indeterminacy that a proper application of the procedure would reveal. In any event, the no-ranking possibility is not a unique deficit of CBA. By contrast with coin-flipping, all of the procedures mooted in this Part might, in theory, end up failing to rank the project as better or worse than the status quo.

Finally, it bears emphasizing that we have left open the question of how agencies should deal with valuations based on ill-informed, distorted, or non-self-regarding preferences. We have done so because, aside from the acknowledgment that preferences should not be taken as given, little can be said about this problem at a high level of generality. Agencies have already begun working through these problems case by case. The Grand Canyon case study shows that agencies will provide information to people before asking them to register their preferences.[201] An evaluation of a mental health project assumed that the WTPs of mental health patients are unreliable, and instead measured benefits according to the project's effect on their lifetime earnings.[202] The EPA sometimes ignores so-called "existence values" in performing CBA; a resource's "existence value," as opposed to its "use value" or "option value," is the amount of money a person would pay for its sheer continued existence (say, the continued existence of a wilderness area or an endangered species), irrespective of any physical interaction with the resource on that person's part, and often reflects moral rather than self-regarding preferences.[203] So agencies sometimes rely on adjusted preferences, rather than on pure preferences derived from market behavior or elicited through surveys. How such

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198. *See supra* text accompanying notes 155-157.

199. *See supra* text accompanying notes 52-53.

200. For example, in none of the case studies contained in a recent study of EPA's use of CBA did that agency end up concluding that the project and status quo could not be ranked by CBA. *See* ECONOMIC ANALYSES AT EPA, *supra* note 4.

201. *See* Deck, *supra* note 35, at 277-82 (describing how EPA determined CVs for various air-quality levels over the Grand Canyon by using photographs to inform persons of the visibility that would result from a given air-quality level).

202. *See* BRENT, *supra* note 160, at 38.

203. *See* Matthew D. Adler & Eric A. Posner, Implementing Cost-Benefit Analysis When Preferences Are Distorted 12-13, 15-16 (July 20, 1999) (unpublished manuscript, on file with *The Yale Law Journal*) (discussing existence values and EPA practice).

adjustments should be made is a complex question. Each adjustment remedies inaccuracies in traditional CBA at the cost of introducing uncertainty and opacity into the process of project evaluation—in effect, making CBA less like the extreme reductive procedures such as risk-risk and more like the complex multidimensional procedures. The optimal placement of project evaluation on this continuum has yet to be worked out.

VI. NONWELFARIST CONSIDERATIONS

Sometimes it is objected that CBA fails to reflect nonwelfarist considerations—for example, considerations of fair distribution.[204] And sometimes it is said, in response to this objection, that to talk of fairness is simply to express a preference and that the preference for fairness (like any other) would indeed figure in a proper accounting of costs and benefits.[205] In our view, both the objection and the response are misconceived.

Start with the response. The response is misconceived on two counts. First, it embodies a *metaethical* confusion about the nature of moral facts. It is a moral fact that, all else being equal, government projects that promote overall well-being are better than government projects that do not. It is also a moral fact that government should not deliberately murder an identified, innocent person, even if doing so increases overall well-being. This latter moral fact cannot be reduced to preferences. Even if virtually everyone preferred to murder the one innocent, doing so would still be wrong. Nor can the former moral fact be so reduced: Even if virtually everyone preferred, say, projects that benefited an elite that had succeeded in brainwashing the population into believing the elite to be morally superior, it would still remain a moral fact that, as between a project P_1 that improves overall well-being and a project P_2 that benefits the elite, P_1 is morally better. The metaethical notion that a moral fact reduces to a fact about what everyone, or the majority, prefers is an implausible version of conventionalism about ethics.[206]

Second, the response conflates preference and well-being. Satisfying certain preferences *is* important, but this is not a foundational matter; it is not because, at bottom, moral claims are claims about preferences. Rather,

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204. *See, e.g.*, Lave, *supra* note 18, at 104, 113-15.

205. *Cf.* Louis Kaplow & Steven Shavell, Fairness Versus Welfare Economics in Normative Analysis of the Law (Feb. 10, 1997) (unpublished manuscript, on file with *The Yale Law Journal*) (arguing that fairness should count in economic analysis only insofar as fairness is reflected in persons' preferences).

206. On ethical conventionalism, see, for example, BRINK, *supra* note 146, at 14-36. At best, moral facts reduce to facts about ideally informed preferences, which are still different from facts about what the majority or all of us actually prefer. For an argument that moral facts do reduce to facts about ideally informed preferences, see MICHAEL SMITH, THE MORAL PROBLEM 151-81 (1994).

it is true *within* ethics because, among other things, overall well-being is morally important, and certain preferences are constitutive of well-being. Which ones? That depends, as we have already explained, on one's theory of well-being. The right theory is a desire-based theory, and, if "preference" is taken broadly to mean desire—that is, a pro-attitude—then people are indeed better off to the extent that certain of their preferences are satisfied. The word "certain" deserves emphasis, here, because desire-based theories might require restricted desires, or informed desires, or even good desires. If a project will alleviate the misery of the rural poor, then the misanthrope who has the sadistic preference to see the rural poor suffer is arguably *not* better off if in fact they do suffer. Sadistic preferences might not be—indeed, plausibly are *not*—constitutive of well-being.[207] Similarly, if a project will alleviate the misery of the rural poor, and a concerned taxpayer (1) concludes that distributive justice requires helping them, and therefore (2) prefers the rural-poverty project, then this fairness-preference might not be—indeed, plausibly is *not*—constitutive of the taxpayer's well-being.[208] Do we want to say that the rural project is supported both by considerations of fair distribution and by the taxpayer's well-being? That seems implausible. We do not believe that the fairness of a project increases its CV insofar as persons prefer the project just because they judge it to be fair. An economist who disagrees will need to argue, more specifically than economists have done, about the nature of well-being. He will need to show why preferences for fairness are constitutive of well-being, just like preferences for concerts, widgets, and skiing. And even if he shows this, he will need to admit that the moral force of fairness is not exhausted by preference. A project might be, all things considered, morally wrong (say, distributively unjust), even though it does improve overall well-being.

So our welfarist defense of CBA is nested within a view of morality that is cognitivist[209] (not skeptical) at the metaethical level, and non-utilitarian at the substantive level. Again, overall well-being is morally relevant, not morally decisive. To claim moral *decisiveness* is to affirm utilitarianism, which famously leads to a variety of counterintuitive moral positions—for example, that killing one to save two is morally required, or that persons are obliged to abandon their personal pursuits if doing so would increase overall well-being.[210] The nonwelfarist considerations that bear upon the worth of governmental projects may include some or all of the following: (1) deontological considerations—specifically, constraints

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207. *See, e.g.*, Harsanyi, *supra* note 108, at 56.

208. *See supra* text accompanying notes 93-94, 97-98 (arguing for a restricted-desire account of welfare).

209. On cognitivism, see DARWALL ET AL.. *supra* note 105, at 15-19.

210. *See* Bernard Williams, *A Critique of Utilitarianism, in* J.J.C. SMART & BERNARD WILLIAMS, UTILITARIANISM: FOR AND AGAINST 77 (1973).

against performing projects that maximize good consequences;[211] (2) egalitarian or "distributive" considerations, such as the effect of the project on the welfare of the least well-off group, or on persons below the poverty line, or on the equality of welfare or resources;[212] (3) desert-based considerations, namely, the extent to which the project rewards the deserving and harms the culpable;[213] (4) perfectionist considerations, such as the purported intrinsic good of preserving endangered species or ecosystems, or, more generally, good consequences produced by the project quite apart from any effect on welfare.[214] We do not mean to commit ourselves to a particular view about the nonwelfarist component of morality; we simply mention these four as frequently discussed possibilities.

CBA does not capture, and is not meant to capture, nonwelfarist considerations. The objection that CBA fails to capture them is really no objection at all—any more than, say, the failure of a statistical measure of equality to track overall well-being (rather than equality) is an objection to the proposition that agencies should use that measure in assessing the distributional consequences of its projects. We do not conceptualize CBA as the exclusive choice procedure for government, but rather as one part of the overall set of procedures and institutions by which projects are ultimately approved, rejected, or amended. How nonwelfarist considerations *should* be captured—whether agencies should generally use CBA and nonwelfarist procedures seriatim; or instead there should be a separation of welfarist and nonwelfarist considerations between agencies; or instead nonwelfarist considerations should be uniquely the concern of the legislature, the court system, or both—is too complex an issue to be considered here.

VII. CONCLUSION

CBA is a useful decision procedure and it should be routinely used by agencies. CBA is superior to rival methodologies in enabling agencies to evaluate projects according to the extent that they contribute to overall well-being. It allows agencies to take into account all relevant influences on overall well-being, unlike simpler decision procedures such as risk-risk; and it enables agencies to weigh the advantages and disadvantages of projects in a clear and systematic way, unlike more complex decision procedures. Maximizing overall well-being is an important role of the government. It is

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211. *See supra* note 120 and accompanying text.

212. *See supra* text accompanying notes 126-130, 139-140.

213. *See* GEORGE SHER, DESERT (1987).

214. *See* HURKA, *supra* note 167; HOLMES ROLSTON III, ENVIRONMENTAL ETHICS: DUTIES TO AND VALUES IN THE NATURAL WORLD 126-59 (1988).

not the government's only role, and CBA does not presume that it is. For CBA to be an appropriate component of agency decisionmaking, overall well-being need simply be a relevant, not a conclusive consideration bearing on governmental choice. Finally, CBA plays the important political role of increasing regulatory transparency. The political branches can monitor agencies more easily when the agencies monetize the advantages and disadvantages of projects than when agencies use qualitative decision procedures.

However, CBA serves these useful purposes only under certain conditions, and agencies should take account of these conditions when evaluating projects. First, CBA must give way to important nonwelfarist concerns, such as deontological rights. An agency should not approve a project that has a positive sum of CVs if it involves the unjustified sacrifice of an innocent. Second, CBA must give way when the endowments of affected people vary a great deal. Either the agency should attempt to adjust CVs in light of wealth differences, or it should encourage the political branches to construct a deal that compensates the Losers, or (most likely) it should abandon CBA in these circumstances in favor of a nonmonetized decision procedure. Third, CBA may need to be adjusted to account for uninformed or distorted preferences, and more generally for the possible disjunction between preference satisfaction and welfare enhancement. Agencies may be able to overcome these problems by informing individuals before determining individuals' CVs, or even by engaging in an imaginative reconstruction of their welfare-relevant preferences. But in all these cases, the extent to which the agency should defer to people's stated preferences must depend on its competence, the importance of transparency, the effectiveness of political monitors, and so on.

Interestingly, agencies already seem to depart from textbook CBA in order to respond to these concerns. As the pesticide case study shows, agencies are sensitive to wealth differentials. EPA did not assume lower CVs for risk of death for migrant farm workers than for the average person.[215] As the Grand Canyon case study shows, agencies are sensitive to information problems.[216] However crude the technique may have seemed, the agency clearly understood that informed preferences were more relevant than uninformed preferences. As the lead-in-drinking-water case study shows, difficulties in monetizing benefits can be overcome.[217] Of course, the departures from standard CBA methods create some uncertainty, and this uncertainty makes it more difficult to evaluate agency decisions. Nevertheless, compromise of some sort is sensible and unavoidable, and

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215. *See supra* text accompanying notes 25-33.
216. *See supra* note 201 and accompanying text.
217. *See supra* text accompanying notes 20-24. For additional examples of departure from textbook CBA, see Adler & Posner, *supra* note 203.

EPA's behavior shows that while CBA methods cannot be applied mechanically, agencies can use them to guide judgment in a way that rationalizes and clarifies agency action.

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