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NEWS & ANALYSIS

The Fatal Flaw of Cost-Benefit Analysis: The Problem of Person-Altering Consequences

by Gregory Scott Crespi

Editors' Summary: Cost-benefit analysis, which is now the dominant approach in American public-sector decisionmaking, suffers from a serious and perhaps even fatal flaw that is unfortunately not widely recognized. Any social policy, among its other impacts, will also have "person-altering consequences" in that it will have geometrically cascading and eventually universal effects on the genetic identities of the members of future generations. The cost-benefit analysis methodology as now applied fails to incorporate those consequences. As a result, the policy recommendations reached through this methodology are essentially irrelevant to the real choices at hand. However, any attempt to incorporate person-altering consequences into cost-benefit analysis through the usual willingness-to-pay metric leads to the counterintuitive and unhelpful result that all of the policy options under consideration will each generate massive future net benefits of uncertain magnitude. There does not appear to be any plausible way to avoid this result within the framework of secular and consequentialist ethical premises from which the cost-benefit analysis methodology is derived, and the willingness-to-pay valuation criterion may therefore have to be supplemented by or even discarded altogether in favor of normative criteria developed from secular but non-consequentialist ethical premises, or from overtly theistic premises.

Cost-benefit analysis is the most important policy evaluation technique now used in American public sector decisionmaking.¹ This approach has proven to be effective in helping policymakers identify those measures that will broadly advance social welfare,² and as a means of countering the efforts of special interest groups that often resist their implementation.³ Cost-benefit analysis plays a particularly important role in federal administrative rulemaking.⁴ The

prominent legal scholar Cass Sunstein has gone so far as to claim that "American government is becoming a cost-bene-

cost-benefit analysis as an aspect of federal rulemaking when he established the Regulatory Analysis Review Group and issued Executive Order No. 12044 which required economic impact statements for all proposed rules having an overall impact of more than \$100 million. See generally Murray Weidenbaum, *Regulatory Process Reform From Ford to Clinton*, 20 REGULATION 20 (1997); THOMAS O. MCGARITY, *REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY* (1991).

The significance of cost-benefit analysis for federal rulemaking was greatly enhanced by Executive Order No. 12991, issued in 1981 by President Ronald Reagan. Exec. Order No. 12291, 46 Fed. Reg. 13193 (Feb. 17, 1981). Executive Order No. 12991 required many proposed executive branch regulatory initiatives to be accompanied by a regulatory impact analysis containing an extensive cost-benefit analysis of the proposal that had to be submitted to and approved by the Office of Information and Regulatory Affairs (OIRA), a new office created within the OMB, before the proposed regulation could become effective. The William J. Clinton Administration later replaced Executive Order No. 12991 with a new Executive Order No. 12866 which made some minor changes in wording and procedures, but which retained the substance of the cost-benefit analysis requirement for major rulemaking initiatives. Exec. Order No. 12886, 58 Fed. Reg. 51735 (Sept. 30, 1993). The George W. Bush Administration has also continued this policy. Exec. Order No. 13422, 72 Fed. Reg. 2703 (Jan. 18, 2007) (similar minor amendments to the prior Clinton Executive Order).

Congress has also enacted numerous statutes in recent years requiring federal agencies to perform cost-benefit analyses in connec-

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1. See generally CASS R. SUNSTEIN, *THE COST-BENEFIT STATE: THE FUTURE OF COST-BENEFIT REGULATORY PROTECTION* (2002). Some recent writers use the inverted phrase "benefit-cost analysis" to now describe this form of analysis, but in this Article I will consistently use the traditional label.
2. "[I]n cost-benefit analysis we are concerned with the economy as a whole, with the welfare of a defined society, and not any smaller part of it." E.J. MISHAN, *COST-BENEFIT ANALYSIS* x (1976).
3. SUNSTEIN, *supra* note 1, at 26-28.
4. This method of policy evaluation was used to some extent in regulatory reviews under the Nixon, Ford, and Carter Administrations. President Richard M. Nixon first created a "Quality of Life Review" that gave the Office of Management and Budget (OMB) limited regulatory review authority. President Gerald Ford then required several federal agencies to also provide inflation impact statements for review by the Council on Wage and Price Stability. President Jimmy Carter took another significant step toward institutionalizing

fit state,"⁵ and endorses this development as helping to rationalize government decisionmaking and insulate it from the pressure of special interest groups, as well as increasing regulatory transparency and public accountability.⁶

While Sunstein's descriptive claim as to the extent of use of cost-benefit methodology appears to be well founded,⁷ his endorsement of this trend is more problematic.⁸ In particular, there is considerable controversy regarding whether cost-benefit analysis can provide an adequately inclusive and unbiased means of assessing policies and programs.⁹ The literature on this topic is extensive and includes a significant number of Articles that sharply criticize this approach.¹⁰

The essential feature of cost-benefit analysis is the use of the willingness-to-pay valuation criterion of welfare economics. All impacts of the policy under consideration are measured, to the extent feasible, by the affected persons' willingness to pay to obtain the resulting benefits, or to avoid the resulting burdens. Those benefit and cost measures are then aggregated into a bottom-line economic efficiency assessment that does not address distributional considerations or rights-respecting limitations.¹¹ Such addi-

tional considerations and limitations are taken into account separately in the decisionmaking process, if at all.

The numerous critiques of this methodology can be roughly but usefully classified as being either external or internal.¹² The external critiques largely reject the approach altogether. They generally emphasize the threshold measurement problem posed by what they regard as the fundamental incommensurability of policy impacts of different character, and commonly conclude that cost-benefit analysis is fatally flawed because of the impossibility of meaningfully measuring diverse impacts ranging from purely financial consequences to loss of life itself, and including unquantifiable effects such as empathetic sentiments toward those persons more directly affected by a policy, by a unitary monetary metric.¹³ These external critiques also commonly focus upon the well-known shortcomings of the use of economic efficiency as a normative standard.¹⁴

The internal critiques, in contrast, sidestep these broad incommensurability and normative criterion problems by accepting as a given the desirability of assessing policies primarily or even solely through aggregating the affected persons' willingness to pay to enjoy or to avoid their consequences. These critiques instead address the cost-benefit methodology on its own economic efficiency-oriented terms, and point out a number of valuation problems that alone or in combination, may render futile attempts to quantify costs and benefits in an objective manner, i.e., in a manner that does not simply reflect the analyst's personal, ethical, and political preferences.¹⁵ The valuation problems noted by these internal critiques include the difficulty in determining appropriate discount rates for use in evaluating future consequences,¹⁶ the potential endogeneity of prefer-

tion with their rulemaking efforts. Matthew D. Adler & Eric A. Posner, *Rethinking Cost-Benefit Analysis*, 109 YALE L.J. 165, 167 (1999) (citing to a law review article which in turn cites several such statutes). Prospective cost-benefit analyses of rulemaking initiatives and subsequent OIRA review (and, upon occasion, also judicial review, see generally SUNSTEIN, *supra* note 1, therefore now appear to be entrenched as a significant feature of the federal regulatory process. Similarly, cost-benefit analyses are now also utilized to a lesser extent by many state governmental agencies for similar purposes. See generally Robert W. Hahn, *State and Federal Regulatory Reform: A Comparative Analysis*, 29 J. LEGAL STUD. 873 (2000).

5. SUNSTEIN, *supra* note 1, at 19-20.

6. *Id.* at 26-28.

7. But see Amy Sinden, *Cass Sunstein's Cost-Benefit Lite: Economics for Liberals*, 29 COLUM. J. ENVTL. L. 191 (2004) (criticizing in some detail Sunstein's descriptive claim as to the pervasiveness of cost-benefit analysis).

8. See generally *id.* (rebutting Sunstein's normative claims as to the advantages of cost-benefit analysis in some detail). See also Douglas A. Kysar, *It Might Have Been: Risk, Precaution, and Opportunity Costs*, 22 LAND USE & ENVT'L REV. 1, 4-5 (2007) ("The basic superiority of CBA [cost-benefit analysis] as a tool for risk regulation . . . is no longer seriously doubted [e]xcept, of course . . . by serious observers of the administrative state.").

9. Sinden, *supra* note 7, at 201-12. There is a voluminous body of literature offering criticisms of cost-benefit analysis. See also Adler & Posner, *supra* note 4, at 167 ("The reputation of cost-benefit analysis . . . among American academics has never been as poor as it is today. . . ."); Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. PA. L. REV. 1553 (2002) (presenting a highly critical view of cost-benefit analysis); Kysar, *id.* (same).

10. See, e.g., Adler & Posner, *supra* note 4; Ackerman & Heinzerling, *supra* note 9; Kysar, *supra* note 8.

11. Stated in more theoretical terms, cost-benefit analysis is an attempt to determine the Kaldor-Hicks efficiency consequences of a policy so that this information can guide the decision whether or not to implement that policy. A policy will constitute a Kaldor-Hicks improvement—a move toward Kaldor-Hicks efficiency—if the total benefits of the policy exceed its total costs, with both benefits and costs measured by the willingness-to-pay of the affected persons to obtain those benefits or avoid those costs. RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 13 (6th ed. 2003). The Kaldor-Hicks criterion is the usual measure of efficiency utilized by economists. *Id.* The seminal articles that developed the Kaldor-Hicks efficiency concepts are Nicholas Kaldor, *Welfare Propositions of Economics and Interpersonal Comparisons of Utility*, 49 ECON. J. 549 (1939) and John R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696 (1939). For a comprehensive discussion of many as-

pects of cost-benefit analysis, see generally ANTHONY E. BOARDMAN ET AL., *COST-BENEFIT ANALYSIS CONCEPTS AND PRACTICE* (1996); Mishan, *supra* note 2.

12. Sinden, *supra* note 7, at 202.

13. *Id.* There is an extensive literature advancing external critiques of the cost-benefit methodology based on the incommensurability problem. See, e.g., Ackerman & Heinzerling, *supra* note 9, at 1553, 1563-64; Henry S. Richardson, *The Stupidity of the Cost-Benefit Standard*, 29 J. LEGAL STUD. 971, 986-89 (2000); Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L.J. 1981, 1984-85 (1998); Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 MICH. L. REV. 779, 784 (1994); Laurence H. Tribe, *Policy Science: Analysis or Ideology?*, 2 PHIL. & PUB. AFF. 66 (1972).

14. There is an extensive literature criticizing the use of economic efficiency as a normative criterion. See, e.g., Adler & Posner, *supra* note 4, at 191 ("[B]ecause [Kaldor-Hicks efficiency] is, taken as a moral principle, unsound, CBA [cost-benefit analysis] cannot be justified by reference to Kaldor-Hicks."); Ackerman & Heinzerling, *supra* note 9, at 1567-68; Gregory Scott Crespi, *The Mid-Life Crisis of the Law and Economics Movement: Confronting the Problems of Nonfalsifiability and Normative Bias*, 67 NOTRE DAME L. REV. 231, 234-37 (1991); MARK KELMAN, *A GUIDE TO CRITICAL LEGAL STUDIES* 114-50 (1987). See generally Symposium, *Efficiency as a Legal Concern*, 8 HOFSTRA L. REV. 485 (1980) (collecting several articles on economic efficiency).

15. Adler & Posner, *supra* note 4, at 202-03. There is an extensive literature advancing such internal critiques of the cost-benefit methodology. See, e.g., Sinden, *supra* note 7, at 205-10 (citing many articles presenting such critiques). See also Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941 (1999) (criticizing commonly used approaches to discounting future loss of life consequences).

16. There is an extensive literature relating to the question of the choice of discount rates by which to discount future impacts in cost-benefit analysis. See generally Revesz, *id.*

ences relative to the policies undertaken,¹⁷ the recurring problem of determining whether offer prices or asking prices are the appropriate measure of willingness-to-pay in instances where they diverge in magnitude,¹⁸ and the dependence of the magnitude of willingness-to-pay-based measures of both offer prices and asking prices on the existing distribution of wealth.¹⁹ They also commonly emphasize the often severe data availability limitations facing cost-benefit analysts, including the ubiquitous difficulty of having inadequate data to confidently establish the willingness-to-pay of affected persons for even the known impacts of a policy,²⁰ as well as the common and more fundamental problem of scientific uncertainty as to both the scope and magnitude of the likely consequences of many policies or programs.²¹

I have previously attempted to contribute to both branches of this critical literature.²² In this Article, however, I will not address any of these prior external or internal critiques. I will instead elaborate upon a different internal critique of the cost-benefit methodology, one which has heretofore been greatly underappreciated and which has such significant implications for the ability to meaningfully assess policy consequences by the willingness-to-pay yardstick that it is in effect also a sweeping and devastating external critique of the cost-benefit methodology, and more broadly of any governmental decisionmaking approach that focuses solely upon the consequences of policies for specific individuals.

My criticism is that conventional cost-benefit analyses consistently ignore the pervasive and dramatic “person-altering consequences” of policies. I will discuss the nature of these person-altering consequences in much more detail below. For now let me merely state succinctly that what I am referring to by this phrase is the fact that any significant policy that is undertaken will without doubt affect some human reproductive acts and thus alter which particular sperm-egg fertilizations will occur, leading over time to an exponentially spreading cascade of fundamental genetic changes in the population of individuals subsequently conceived. After a relatively short transitional period, in a historical sense, the identity of all individuals that are conceived and born over the rest of eternity will be fundamentally different from who they would have been in the absence of the policy. In other words, one dramatic impact of any significant policy

measure will be the elimination of all members of the population of distant future generations that would have been conceived and born absent the policy, and their replacement by an entirely different group of people. Yet another way to describe the situation in more technical economic language is to say that we face a pervasive “endogeneity of identity” problem, that the identity of future persons is not determined exogenously but is instead endogenous to the policies pursued. These person-altering consequences would from the perspective of the affected individuals of course completely dwarf the combined effect of all other policy consequences.

In conventional cost-benefit analyses these important endogenous person-altering consequences are invariably overlooked. The typical cost-benefit analyst calculates both the benefits and the costs of the policy at issue by the willingness to pay of the affected persons, as compared to the reference point of a hypothetical, counterfactual baseline scenario of a world without the policy’s impacts. This procedure is tantamount to an implicit assumption that personal identity is exogenous; that the same future population of individuals will exist whether or not the policy is implemented. Such an assumption is not merely implausible but is demonstrably false, and is tantamount to simply ignoring those person-altering consequences. The calculation of costs and benefits relative to an unachievable and thus meaningless baseline reference scenario renders the conclusions of such an analysis essentially irrelevant to the real choices at hand among the actual consequences that are possible to achieve through the alternative policies under consideration.

It might at first appear that this analytical problem could be solved simply by more realistically specifying the hypothetical baseline scenario used as a reference point for valuing the impacts of the policy at issue. This scenario could be specified in a manner that recognizes that different future persons would exist were the policy to be implemented and generate its pervasive and eventually universal person-altering consequences. The valuations then would be done in a more accurate fashion that took into account these endogenous person-altering consequences that would ensue if the policy were implemented. Unfortunately, further reflection suggests that the problem is not so easily fixable.

The basic analytical conundrum presented is that if one attempts to so incorporate these person-altering consequences into a cost-benefit analysis, rather than simply ignoring them, the valuation calculations become so unwieldy and imprecise as to essentially be indeterminate. As I will discuss below it then becomes difficult if not impossible to avoid the conclusion that *any* policy option that is pursued will generate massive (if not infinite) aggregate future net benefits of very uncertain magnitude, relative to the appropriately specified baseline scenario, even if these future benefits are time-discounted at relatively high discount rates. Such a sweeping conclusion that massive future benefits of highly uncertain magnitude will likely result no matter which course of action is pursued seems intuitively implausible, to say the least. It certainly does not provide meaningful guidance to policymakers for discriminating among alternative courses of action.

Once a cost-benefit analyst recognizes that all policies have pervasive and eternal person-altering consequences, she is put into in a real bind with no good choices available

17. See generally Samuel Bowles, *Endogenous Preferences: The Cultural Consequences of Markets and Other Economic Institutions*, 36 J. ECON. LIT. 75 (1998); Kenneth Dau-Schmidt, *Legal Prohibitions as More Than Prices: The Economic Analysis of Preference Shaping Policies in the Law*, in LAW AND ECONOMICS: NEW AND CRITICAL PERSPECTIVES (Robin Paul Malloy & Christopher Braun, eds. 1995); Cass R. Sunstein, *Endogenous Preferences*, *Environmental Law*, 22 J. LEGAL STUD. 217 (1993); see also Kysar, *supra* note 8, at 37.

18. Gregory Scott Crespi, *Valuation in Cost-Benefit Analysis: Choosing Between Offer and Asking Prices as the Appropriate Measure of Willingness to Pay*, 39 J. MAR. L. REV. 429 (2006); Russell Korobkin, *Policymaking and the Offer/Asking Problem Price Gap: Towards a Theory of Efficient Entitlement Allocation*, 46 STAN. L. REV. 663 (1994).

19. Sinden, *supra* note 7, at 206-07.

20. *Id.* at 208-10 (discussing several problems which call into question the validity and reliability of various methods of measuring willingness-to-pay).

21. See generally *id.* at 205-12.

22. Crespi, *Mid-Life Crisis*, *supra* note 14; Crespi, *Valuation*, *supra* note 18.

within this methodological framework. Continuing to ignore those consequences, given their overwhelming significance to the persons affected, would disregard the willingness-to-pay valuation principle that underlies the cost-benefit approach, and is no longer an option if one wants to reach results that are relevant to the actual choices at hand. However, once one incorporates those person-altering consequences into the analysis, there does not appear to be any way to meaningfully estimate in a willingness-to-pay-based manner and then compare the size of the massive net benefits to future generations that would result under each of the various policy options so as to provide useful guidance.

The problem is fundamental since cost-benefit analysis is simply the systematic application to decisionmaking of the basic willingness-to-pay valuation principle of welfare economics, which is in turn logically derived by straightforward reasoning from conventional and widely embraced secular and consequentialist ethical premises.²³ In light of the seemingly insurmountable problems that the willingness-to-pay-based valuation framework faces in meaningfully assessing the significance of person-altering consequences, it may simply be the case that cost-benefit analysis should no longer be regarded as a useful analytical tool.²⁴ If one cannot reach meaningful conclusions and policy recommendations solely on the basis of conventional ethical premises and their willingness-to-pay-based valuation corollary, then analytical efforts may henceforth have to incorporate a broader range of non-consequentialist or even theistic normative criteria as alternative or supplementary bases for offering recommendations to policymakers.²⁵ This is a

rather troubling thought, since once one goes beyond giving weight only to the policy impacts upon specific individuals as measured by their willingness to pay any consensus as to the appropriate evaluative criteria to apply will be most difficult to achieve.

In the remainder of this Article I will proceed as follows. Having hopefully in this introduction piqued the reader's interest in the problem of person-altering consequences, in Part I below I will explain in more detail what I mean by that phrase. In Part II, I will discuss the serious problems encountered in attempting to incorporate person-altering consequences into cost-benefit analyses in the conventional manner. I will then discuss a couple of alternative ways that one might attempt to incorporate those consequences into the cost-benefit valuations in a meaningful fashion that still respects the willingness-to-pay principle, and will point out the serious shortcomings of each of these efforts that renders them inadequate responses to the problem. I will then offer a few preliminary thoughts regarding what new normative criteria might be utilized to assess policy impacts upon future generations, and how the conclusions reached through application of those criteria might be combined with the willingness-to-pay-based valuations of policy impacts upon existing persons. Part III will present a brief and rather pessimistic overall conclusion regarding the viability of the cost-benefit methodology even if it is so augmented with additional normative criteria.

I. The Problem of Person-Altering Consequences

The noted British philosopher Derek Parfit first articulated in 1976²⁶ a simple yet profound insight that philosophers have since labeled "the Non-Identity Problem,"²⁷ and which

23. By the phrase "secular premises" I refer to ethical premises that are derived from reflections on the human condition that are agnostic with regard to the existence of a supreme supernatural being of ethical relevance. I will not address in this Article the difficult question as to whether there is a sufficient basis in one or more of the mainstream religious traditions for recognizing an ethical obligation to the members of distant future generations. By the phrase "consequentialist premises" I refer to the ethical premise that actions have ethical relevance only to the extent that they have consequences for the rights or interests of specific persons, and that actions have no ethical relevance in and of themselves apart from those consequences. I will consider briefly in Part III.C. of this Article whether there exist any sufficient secular but non-consequentialist grounds for asserting that we have any ethical obligations to the members of distant future generations, or to the human race as a whole, that exist apart from any ethical obligations grounded in the consequences of our conduct for specific persons. However, my arguments in this Article are addressed primarily to the relatively narrow yet practically quite important question as to whether and if so how cost-benefit analyses that are based upon conventional secular and consequentialist ethical premises should be conducted if one wishes to incorporate person-altering consequences into those assessments.
24. Such analyses may, however, continue to have considerable utility as persuasive rhetorical devices when addressing audiences that are not sophisticated enough to recognize how much the validity of the cost-benefit methodology is undercut by the pervasiveness of person-altering consequences, whether or not those consequences are taken into account.
25. I have addressed more fully the ethical implications of the problem of person-altering consequences, and the application of this line of thought to major environmental policy decisions such as radioactive waste disposal approaches and global warming mitigation efforts, in Gregory Scott Crespi, *What's Wrong With Dumping Radioactive Wastes in the Ocean? The Surprising Ethical and Policy Analysis Implications of the Problem of Person-Altering Consequences*, 37 ELR 10873 (Dec. 2007). See also Gregory Scott Crespi, *Would It Be Unethical to Dump Radioactive Wastes in the Ocean? The Surprising Implications of the Person-Altering Consequences of Policies*, 35 ECOL. L. CURRENTS 43 (2008). I also address in the *Environmental Law Reporter* article to a minor extent the cost-benefit analysis

concerns presented by this problem that are discussed more fully in this Article. Crespi, *What's Wrong?*, *id.* at 10885-86.

26. Derek Parfit, *On Doing the Best for Our Children*, in ETHICS AND POPULATION 100-15 (M. Bayles, ed. 1976). Gregory Kavka argues that Parfit's insight was also discovered independently at approximately the same time by Robert Adams and Thomas Schwartz, in Gregory S. Kavka, *The Paradox of Future Individuals*, 11 PHIL. & PUB. AFF. 93-112 (1982) (citing Robert M. Adams, *Existence, Self-Interest, and the Problem of Evil*, NOUS 13 (1979), and also citing Thomas Schwartz, *Obligations to Posterity*, in OBLIGATIONS TO FUTURE GENERATIONS 3-13 (Richard Sikora & Brian Barry, eds. 1978)). Parfit further discusses his insights in Derek Parfit, *Future Generations, Further Problems*, 11 PHIL. & PUB. AFF. 113, 115-17 (1982), in DEREK PARFIT, REASONS AND PERSONS 351-80 (1984), and in Derek Parfit, *Comments*, 96 ETHICS 832 (1986).
27. Parfit later labeled this problem as "the Non-Identity Problem," PARFIT, REASONS AND PERSONS, *id.* at 378, and it is generally so described by other academic philosophers. See, e.g., Doran Smolkin, *Towards a Rights-Based Solution to the Non-Identity Problem*, 30 J. SOC. PHIL. 194 (1999); David Wasserman, *The Nonidentity Problem, Disability, and the Role Morality of Prospective Parents*, 116 ETHICS 132 (2005). The problem also is described by some other scholars as the "Parfit Paradox." See, e.g., Kavka, *supra* note 26, at 95 ("[Parfit's] argument poses a . . . Paradox of Future Individuals"); Edith Brown Weiss, *What Obligation Does Our Generation Owe to the Next? An Approach to Global Environmental Responsibility: Our Rights and Obligations to Future Generations for the Environment*, 84 AM. J. INT'L L. 198, 204 (1990) (referring to this insight as "Derek Parfit's famous paradox"); Lothar Gundling, *What Obligation Does Our Generation Owe to the Next? An Approach to Global Environmental Responsibility: Our Responsibility to Future Generations*, 84 AM. J. INT'L L. 207, 210 (1990) (referring to this insight as "Parfit's paradox"). Those scholars who regard Parfit's insight as posing a paradox commonly state the question that he poses along the lines of: "How can we owe a duty to future persons if the very act of discharging that duty wipes out the very individuals to whom we allegedly owe that duty?" See, e.g., Anthony D'Amato, *What Obligation*

I will refer to in this Article as the problem of person-altering consequences.²⁸ This insight calls into serious question whether we have any ethical obligations at all to distant future generations that can be justified on the basis of conventional secular and consequentialist ethical premises.²⁹ It also renders inadequate any analytical efforts that overlook those consequences, even though as I will discuss below it is difficult if not impossible to conduct meaningful cost-benefit analyses that do incorporate those consequences. While this problem has fostered substantial (though inconclusive) discussion among philosophers and other scholars over the last three decades at an abstract, academic level regarding its ethical significance,³⁰ its dramatic practical implications for policymakers in general and cost-benefit analysts in particular have not yet been adequately addressed.³¹

gation Does Our Generation Owe to the Next? An Approach to Global Environmental Responsibility: Do We Owe a Duty to Future Generations to Preserve the Global Environment?, 84 AM. J. INT'L L. 190, 191 (1990). I prefer to pose the problem as a non-paradoxical though difficult question of determining the ethical implications of policies that have among their other long-term effects pervasive person-altering consequences; the elimination of the existence of all yet-unborn future persons who would have been born absent the policy's impacts, and the birth instead of a different set of future persons.

28. In my opinion, Parfit's own "Non-Identity Problem" label is more apt than the "Parfit Paradox" label because the question is not really a paradox so much as it is a conceptual problem regarding ethical obligations. However, Parfit's label obscures somewhat the precise nature of the problem for those who are not academic philosophers and are not familiar with the problem and the body of scholarship that it has engendered. I therefore will use in this essay the more straightforward descriptive phrase "the problem of person-altering consequences."
29. See *supra* note 23.
30. See, e.g., Adams, *supra* note 26; Schwartz, *supra* note 26; Kavka, *supra* note 26; James Woodward, *The Non-Identity Problem*, 96 ETHICS 804-31 (1986); Smolkin, *supra* note 27.
31. But see Crespi, *What's Wrong?*, *supra* note 25, where I have attempted to contribute to such a fuller assessment. There is a legal literature of modest size and scope that addresses some of the implications of the problem of person-altering consequences, but that literature fails to fully incorporate the insights of the philosophers who have addressed the matter. See Aaron-Andrew P. Bruhl, *Justice Unconceived: How Posterity Has Rights*, 14 YALE J. L. & HUMAN. 393, 397 (2002) ("[T]he topic of future generations' rights has spawned a growing literature—or, rather, at least two separate literatures, one in law and the other in philosophy, with very little interaction between the two."). Most of the relevant legal literature focuses on the specific person-altering consequences issues raised by assisted reproductive technologies; whether persons born with birth defects as a result of such technologies but who would not have otherwise been born have standing to claim that they were thereby injured by a "wrongful life" tort. See, e.g., Carter J. Dillard, *Rethinking the Procreative Right*, 10 YALE HUM. RTS. & DEV. L.J. 1 (2007); John A. Robertson, *Procreative Liberty and Harm to Offspring in Assisted Reproduction*, 30 AM. J. L. & MED. 7 (2004); Eric Rakowski, *Who Should Pay for Bad Genes?*, 90 CAL. L. REV. 1345 (2002); Phillip G. Peters, *Harming Future Persons: Obligations to the Children of Reproductive Technology*, 8 CAL. INTERDISC. L.J. 375 (1999); Michael Laudor, *In Defense of Wrongful Life: Bringing Political Theory to the Defense of a Tort*, 62 FORDHAM L. REV. 1675 (1994). There are only a few articles in the legal literature that consider the significance of person-altering consequences in other contexts. See, e.g., Amy J. Sepinwall, *Responsibility for Historical Injustices: Reconciling the Case for Reparations*, 22 J.L. & POL. 183 (2006) (considering the significance of person-altering consequences for the validity of the claims made by the descendants of slaves for reparations payments); Lukas H. Meyer, *The Palestinian Refugees and the Right of Return: Theoretical Perspectives: Historical Injustice and the Right of Return*, 5 THEORETICAL INQUIRIES L. 305 (2004) (considering the significance of person-altering consequences for the validity of the claims made by the descendants of displaced Palestinian refugees for a right to return to their ancestral homeland). I am not aware of any prior attempts to more broadly assess the significance of per-

In this brief Article I will not attempt to fully articulate or resolve the complex philosophical arguments that have been offered regarding the problem of person-altering consequences, although I will reference much of that literature for those philosophically oriented readers who wish to later explore this problem in a more rigorous and systematic fashion.³² I will instead discuss the problem in a more condensed and straightforward manner that is intended to be helpful to academics in other fields and practicing lawyers who are not deeply versed in these technical philosophical debates, but who nevertheless wish to better understand the nature of the problem of person-altering consequences and its implications for practical policymaking, particularly with regard to its implications for the conduct and relevance of cost-benefit analyses.

Parfit has clearly been the primary instigator of and contributor to discussions of the difficulties involved in assessing the person-altering consequences of policies through several works that he published over the 1976-1986 decade.³³ The most significant of these efforts were his seminal 1976 article³⁴ and his more comprehensive 1984 book

son-altering consequences for the conduct and relevance of cost-benefit analysis in all contexts whatsoever, although Douglas Kysar has recently recognized that those consequences do pose "deep conceptual challenges" to any analytical method such as cost-benefit analysis "that is framed in terms of the rights, preferences, or interests of particular individuals." Kysar, *supra* note 8, at 37.

Two other prominent law professors who have addressed the problem of person-altering consequences at least tangentially in their work are Daniel Farber and Jeffrey Gaba. Daniel A. Farber, *From Here to Eternity: Environmental Law and Future Generations*, 2003 ILL. L. REV. 289, 302 n.69 (2003) (citing quotes made by Parfit on this topic); DANIEL A. FARBER, *ECO-PRAGMATISM: MAKING SENSIBLE ENVIRONMENTAL DECISIONS IN AN UNCERTAIN WORLD* 15 n.38 (1999) (same); Jeffrey M. Gaba, *Environmental Ethics and Our Moral Relationship to Future Generations: Future Rights and Present Virtue*, 24 COLUM. J. ENVTL. L. 249, 258 n.24 (1999).

32. See Crespi, *What's Wrong?*, *supra* note 25 for a more comprehensive review of this literature.
33. Parfit, 1976, *supra* note 26; Parfit, 1982, *supra* note 26; Parfit, 1984, *supra* note 26; Parfit, 1986, *supra* note 26.
34. Parfit, 1976, *supra* note 26. In this 1976 essay Parfit uses the hypothetical situation of a woman deciding whether to postpone becoming pregnant until she recovers from an illness that would result in any child conceived being born with a handicap to illustrate the person-altering consequences of a decision for persons who as a result will now *not* be born. *Id.* at 100-01. Parfit notes that if the pregnancy is postponed and her child is later conceived after the illness is cured, the child that would initially have been born will not now be born without the handicap, but instead will never be born at all. *Id.* at 101. It is instead someone else with a different genetic endowment that will be born without the handicap.
- Whether a handicapped child is better off for not being born is an impossible question to answer in abstract, general terms. It seems plausible that most if not all handicapped persons would prefer their lives to nonexistence, particularly if the handicaps are of lesser severity. A mother who decides to become pregnant while suffering such an illness and who therefore bears a handicapped child cannot be criticized on the basis of the consequences for the child unless we assume that the child would have preferred nonexistence to being born. *Id.* Such a sweeping and counterintuitive assumption about the nature of the preferences of future persons is unwarranted. Similarly, it is far more plausible that future people would prefer existence even with severe environmental constraints to nonexistence.
- To illustrate the effects of policies with person-altering consequences on people who *will* be born as a result Parfit in this Article poses the hypothetical situation of a policy measure that would have only positive effects upon existing persons, but that would also have very adverse effects for future persons. *Id.* at 101-02. He notes that absent the implementation of the policy those particular future persons would never have been born, and argues that they would prefer

Reasons and Persons,³⁵ but he has also made other contributions to this debate.³⁶ Stated succinctly, Parfit's seminal in-

living subject to the adverse effects of the policy at issue to the alternative of never having been born. *Id.*

35. Parfit, 1984, *supra* note 26. Parfit once again revisited the questions posed by person-altering consequences in this comprehensive 1984 book, now for the first time labeling the issue the "Non-Identity Problem," *id.* at 378 ("This problem arises because, in the different outcomes, different people would exist. I therefore call this the Non-Identity Problem."), and devoting an entire chapter to its analysis, *id.* at 351-379, that drew heavily upon his earlier 1982 article, Parfit, 1984, *supra* note 26. After an extended analysis of numerous hypothetical situations Parfit concludes by reasserting his position that a policy that has person-altering consequences will not be worse for those persons thereby born as a result of the policy than would be their nonexistence should the policy not have been implemented. *Id.* at 378.

Parfit takes in this book what he labels the "No Difference View;" the claim that although a policy will have person-altering consequences and therefore will not be worse for any specific individual it still could be judged to be undesirable on moral grounds. Person-altering consequences that make a policy worse for no one ultimately make no difference in a moral evaluation of that policy. *Id.* at 366-71. He also concludes his chapter on the Non-Identity Problem by reaffirming his earlier broad, aspirational claim first made in his 1982 Article, Parfit, 1982, *supra* note 26, at 169-72, that it may be possible to formulate a valuation approach that appropriately addresses the problem of person-altering consequences, and which can justify moral condemnation even of policies that hurt no one. Parfit, 1984, *supra* note 26 at 377-79. He generically labels this approach "Theory X," *id.* at 378, and states that he will later in the book attempt to formulate such a theory ("In what follows I will try to find Theory X."), *id.* at 379. He predicts once again that this criterion will *not* be based upon an assessment of whether its consequences are good or bad for affected future persons. *Id.* His final and more pessimistic conclusion at the end of this book, however, is that he has again failed to formulate an approach that adequately addresses the problem of moral evaluation in the context of person-altering consequences without creating other difficulties that render the approach unacceptable, although he still optimistically believes that it might yet be possible to do so. "Though I failed to discover X, I believe that, if they tried, others could succeed." *Id.* at 443.

Parfit notes several properties that his envisioned "Theory X" would have to satisfy to be an adequate ethical approach: "Theory X must solve the Non-Identity Problem, avoid the Repugnant and Absurd Conclusions, and solve the Mere Addition Paradox. I failed to find a theory that can meet these four requirements." *Id.* at 443. "Most of us would believe that the Repugnant and Absurd Conclusions are what I have called them. Until we know how to avoid both conclusions, and how to solve both the Non-Identity Problem and the Mere Addition Paradox, we will have beliefs that we cannot justify, and that we know to be inconsistent." *Id.* at 452.

36. Parfit, 1982, *supra* note 26; Parfit, 1986, *supra* note 26. Parfit later revisited the questions posed by the person-altering consequences of policies that he had first raised in his original 1976 article in a later 1982 article. Parfit, 1982, *supra* note 26, that was written as a companion piece to a shorter article on the topic by Kavka, Kavka, *supra* note 26, that Parfit's 1976 essay had helped to inspire. Kavka, *supra* note 26, at 93. After a long and detailed analysis of the problem, and of Kavka's modified Kantian categorical imperative-type proposals for addressing it, Parfit once again concluded that policies with person-altering consequences simply cannot be properly evaluated on the basis of whether the results of those policies are better or worse for the rights or interests of future persons. Parfit, 1982, *supra* note 26 at 171-72. He again argued that "some new principle of beneficence" not yet identified that is not based on those person-affecting considerations will be needed to judge the merits of such policies. *Id.* He closed by stating that while it would be quite difficult to formulate such a new principle, it would be hasty to conclude that it was impossible to do so, because "non-religious moral philosophy is a very young subject." *Id.* at 172.

Parfit's 1986 ETHICS article, Parfit, 1986, *supra* note 26, was included in an ETHICS symposium issue focusing on his 1984 book REASONS AND PERSONS, and which also included contributions by Brian Barry, Susan Wolf, Bart Schultz, Shelly Kagan, Bart Gruzalski, Arthur Kuflik, and James Woodward, *see* 96 ETHICS 703-872 (1986). In that article Parfit responded in detail to each of the other symposium contributors' comments on his 1984 book. In particular, Parfit responded in some detail to James Woodward's ar-

sight is that virtually any human action, however slight its impacts, is likely to have at least minor effects on the timing of or other circumstances surrounding some acts of sexual reproduction, leading to different sperm-egg fertilizations than would otherwise have taken place, and consequently will over time lead to exponentially cascading consequences of a person-altering nature as now genetically different individuals mature and reproduce and in other ways influence the sexual behavior of a broader and broader circle of people.³⁷ After a relatively short period of time, in a historical sense, of probably no more than a few decades at the most this will lead to the entire human population for all eternity now being composed of individuals that each have significantly different genetic endowments from those persons that would have existed absent that initial policy action.³⁸ The policy will thus have changed the core identity of all of those future persons; they will be different people in the most fundamental genetic sense.

Personal identity is thus in all instances an endogenous variable. Put another way, one rather dramatic consequence of any policy measure, even one of rather limited and localized initial impact, is that over the longer term it will eliminate the coming into existence of many and eventually all future individuals³⁹ who would otherwise have been conceived and born. It will result instead in the conception and

article, James Woodward, "The Non-Identity Problem," 96 ETHICS 804-31 (1986) that specifically focused on the Non-Identity Problem. Parfit, 1986, *supra* note 26, at 854-62. He there reaffirmed his longstanding "No Difference View" conclusion, most fully articulated in Parfit, 1984, *supra* note 26, at 366-71, that despite the fact that policies with adverse long-term consequences will not make things worse for any particular future individuals because of those policies' person-altering consequences, there are still moral reasons for not choosing such policies. Parfit, 1986, *supra* note 26 at 854, and that these moral reasons are just as strong in spite of the fact that no particular individuals are harmed by such policies, *id.* at 855-56. Parfit once again conceded, however, that he was unable to formulate the needed "new theory about beneficence" that would justify this conclusion. *Id.* at 854.

37. For fuller elaboration of this point, see D'Amato, *supra* note 27, at 190-92.

38. *Id.* at 191. How rapidly the person-altering consequences of a policy will proliferate, and how quickly the genetic divergence will be large enough to be of major significance to the personal identities of the persons affected, will differ from policy to policy. The identity of future persons will begin to be altered approximately nine months after the implementation of a policy once persons conceived after the policy's implementation begin to be born (I am classifying those persons conceived before a policy is implemented but perhaps affected in utero by its consequences as "existing persons" with regard to that policy). One would expect that given the obvious sensitivity of the forming of a particular sperm-egg fusion to a great multitude of circumstances that the scope of the person-altering consequences of a policy would expand with exponential rapidity once some genetically altered individuals are born, and that even relatively isolated human communities would be impacted and then completely transformed within a few years or at most a few decades. In addition, while the initial genetic alterations resulting may in some instances be relatively minor in impact (eye color, "junk" DNA changes, etc.), arguably leaving unaffected the "identity" of the persons genetically altered in such minor fashion, the number of genetic alterations per person will also exponentially increase over time through the same cumulative feedback process, rapidly leading to unarguable fundamental alterations in identity of all future persons.

39. There will be a post-policy "transitional period" starting approximately nine months after the implementation of a policy during which some but not all of the individuals born will have their fundamental genetic identities altered by the a policy's consequences, before the person-altering consequences are of universal scope. The length of such a transitional period, and the proportion of individuals born with fundamentally altered identities at each point during this transitional period, will presumably vary from policy to policy.

birth of an increasingly and eventually entirely genetically different group of people,⁴⁰ with their genetic endowments also increasingly diverging from those of the persons who would otherwise have been born.⁴¹ The policy will thus fundamentally alter the personal identities of all members of distant future generations; one vast group of potential persons will now never be conceived and will be replaced by an entirely different group of individuals. From the perspective of those affected persons, both those who will now be conceived and born as a consequence of the policy, and those who as another consequence of the policy will now never come into existence, there could not be a more dramatic impact. These person-altering consequences will for each person affected obviously dwarf in significance the combined effect of all other policy impacts. These consequences as well as the other consequences of a policy therefore obviously need to be taken into account in any comprehensive assessment of its merits, whether that assessment is done through the cost-benefit methodology or otherwise.

Parfit's insight is clearly correct, as a matter of scientific fact,⁴² and is an example of what is commonly referred to as the "butterfly effect" of chaos theory⁴³ where small perturbations in initial conditions can lead to massive overall systemic effects. Parfit was primarily concerned in his philosophical work on person-altering consequences with assessing their ethical implications, which he understandably found to be quite disturbing.⁴⁴ In this Article, however, I will

address those ethical implications only tangentially, and will focus instead upon the implications of person-altering consequences for the conduct and relevance of cost-benefit analysis of policy options.

II. The Implications of Person-Altering Consequences for Cost-Benefit Analysis

A. Applying Standard Cost-Benefit Valuation Techniques to Assess Person-Altering Consequences

It is immediately apparent that to evaluate the merits of a policy that will have person-altering consequences—which I would argue includes any policy whatsoever given the inevitability of exponentially spreading genetic consequences from even initially minor and localized effects—through a cost-benefit analysis, it will not be adequate merely to apply a time discount to the policy's future impacts, as is now done under the conventional implicit assumption embodied by the usual specification of the hypothetical baseline scenario that the policy will not alter the identities of future individuals, but will only affect their wealth in some fashion. Person-altering consequences will have to be explicitly incorporated in some manner. The justifications generally offered for discounting future impacts at an appropriate discount rate are not necessarily affected by inclusion of these consequences,⁴⁵ but it is now also necessary to sharply differentiate between the policy's future impacts upon existing persons⁴⁶ over the rest of their post-policy implementation lives, which do not include person-altering consequences, and the policy's impacts upon future persons,⁴⁷ which will include those consequences.

One must initially recognize that there are two distinct groups of future persons that will be affected in fundamentally different ways by the person-altering consequences of a policy. There is, first of all, the very large group of future persons who will be conceived and born over the subsequent course of history as a result of those consequences. For them, the implementation of the policy is a necessary condition of their existence. From this simple fact much will follow. Second, there is the vastly larger group of what I will

40. *Id.*

41. Not only will the proportion of births that are policy-altered increase over time after the implementation of the policy, but the cumulative magnitude of the genetic alterations for typical individuals will also increase over time as the policy's person-altering consequences become more widely manifested and reinforce one another.

42. D'Amato, *supra* note 27, at 192. This conclusion assumes, of course, that a person's identity is determined by their genetic endowment and/or by the physical and cultural circumstances of their lives, rather than determined by some kind of ethereal Cartesian ego or "soul" that is wholly independent of genetic characteristics or physical or cultural influences. I will assume for the purposes of this Article that if the genetic endowment of a person is significantly altered as a consequence of a policy this can be regarded as a change in that person's fundamental identity, whereas any consequence of a policy that does not significantly alter a person's genetic endowment, no matter how significant that consequence otherwise is to that person's life, does not change the fundamental identity of that person.

43. *Id.* at 190-92.

44. Parfit himself is obviously most uncomfortable with the unavoidable implication of his insight that current policies that favor existing persons but that have adverse or even disastrous impacts upon future persons would nevertheless be regarded as beneficial by those future persons relative to their alternative of nonexistence if the policy is not pursued, and thus those policies cannot be criticized on the usual person-affecting basis that they would injure particular people. "[T]he long-term effects of social policies, even if clearly disastrous—even if it clearly affects people for the worse—won't be worse for particular people. They are thus ignored by our principle. We might claim that we should grant *less* weight to the further future. . . . But a 'person-affecting' principle gives to the further future *no* weight. This seems indefensible." Parfit, 1976, *supra* note 26, at 102 (italics in original).

Parfit thus demonstrates that he understands the serious problem posed by person-altering consequences for any utilitarian criterion or related measure such as the Kaldor-Hicks wealth-maximization criterion that attempts to aggregate in some fashion the impacts of policies upon the affected persons. "Such difficulties [posed by person-altering consequences] may seem to face only utilitarians. This is not so. They face most of those who give any weight to a utilitarian principle." *Id.* at 100. He is unfortunately somewhat opaque in this brief 1976 essay regarding how this problem should be resolved. He clearly rejects the alternative of simply ignoring the exponentially cascading person-altering consequences that will generally occur

when a policy is implemented, particularly given that the total number of future persons that would be born will also likely be affected as well as their individual identities. *Id.* at 103. He does state that the problem of person-altering consequences implies that the long-term consequences of policies should *not* be determined by their impacts upon the rights and interests of the affected future persons, *Id.* at 102, but he does not offer an alternative valuation method.

45. I will not in this article address the question of whether discounting the future impacts of a policy is appropriate, or if so how the appropriate discount rate should be ascertained. For discussion of these issues, see generally Revesz, *supra* note 15.

46. By the term "existing persons" I mean to refer broadly to not only those persons who are already born at the time of the policy in question's implementation, but also those persons already conceived but not yet born at that time, as well as those members of the "transitional generations" following the policy who were conceived after the implementation of the policy and whose genetic identity has not yet been significantly altered by the spreading person-altering consequences of the policy.

47. By the term "future persons" I mean to refer broadly to those persons conceived after the implementation of the policy in question whose genetic identity has been significantly altered by the spreading person-altering consequences of the policy. For any policy there will be a transitional period of some length during which some but not all persons born will have had their genetic identities fundamentally altered by the person-altering consequences of the policy, before those consequences become universal in scope. *See also id.*

here refer to as “potential but now never to be conceived future persons” who would have been conceived and born as a consequence of our pursuing one or another of the potentially unlimited number of alternative courses of action other than the policy at issue, including the null option of taking no action, but who will not be conceived if the policy at issue is implemented.⁴⁸

It is obvious that the hypothetical preferences of this second group of untold trillions of potential but now never to be conceived future persons should not be given any weight in a cost-benefit analysis of the policy at issue. With their very existence at stake, each of these future persons would likely regard any specific policy—other than the single policy that would result in their coming into existence—as imposing immense costs upon them,⁴⁹ resulting in a very large if not infinite aggregate cost measure for any specific policy whatsoever that would dominate any measure of benefits that is utilized. This absurd result of massive rejection of any course of action whatsoever (including the null option of taking no action) indicates that it would be a category mistake to accord standing to potential but now never to be conceived future persons in an analysis of the consequences of a policy that necessarily precludes the existence of those persons. The hypothetical preferences of all of those future persons who have the potential to exist under one policy alternative or another, but whose existence would be precluded by the specific policy measure under consideration, should be ignored in assessing that policy’s effects.⁵⁰

48. It is perhaps a misnomer to refer to purely theoretical “beings” that never will come into existence at all as being “persons” in any sense whatsoever, but for lack of a better descriptive phrase I will refer to them as such.

49. This is under the assumption that offer prices, a more conservative and constrained measure of willingness to pay, are utilized as the approach for measuring willingness to pay. These aggregate costs would likely be infinite if asking price measures rather than offer price measures were utilized.

50. Jeffrey Gaba has insightfully likened this situation to the science fiction motif of an infinite number of universes being generated each instant as our present decisions create multiple alternative futures. Gaba, *supra* note 31, at 258 note 24. He also draws the analogy to multi-universe interpretations of the probabilistic results of quantum physics. *Id.* He also concludes as do I that the adverse impacts of our policies upon this multitude of potential but now never to be conceived persons should be ignored, though not for the reason that I give that their inclusion in the analysis would lead to absurd results, but instead because their competing interests should be regarded as “cancelling out;” cost-benefit analysis should in effect be “renormalized” to eliminate infinite values in a manner that parallels what physicists do in their quantum mechanics equations. *Id.*

Steven Landsburg in his recent and entertaining book *MORE SEX IS SAFER SEX* (2008) also addresses to a modest extent the question of how to value the consequences of our actions for yet-unconceived future persons. *Id.* at 238-43. Landsburg recognizes that our policy choices raise moral questions with regard to their impacts upon yet-unconceived future generations (“Do we have any moral obligation to account for the interests of trillions of *potential* people, who will never have the opportunity to live unless we conceive them?”), and that these questions are of practical significance for real-world policymaking, *id.* at 243. He also recognizes the perhaps insurmountable difficulty of these questions, *id.* at 239 (“Perhaps [we should just admit] that we’re incapable of being logically rigorous about issues involving the unconceived.”). His analysis, however, appears to regard unconceived future persons as comprising a single large group who can either be conceived or not, depending on what course of action we pursue, rather than recognizing that they actually constitute a vast multiplicity of alternative groups of persons extending through time. A policy action leading the conception of one group would necessarily preclude the conception of all of the other groups, necessitating the development of a framework for addressing these stark intra-group conflicts of interest

But what about the first group of future persons who *will* be conceived and born post-policy, for whom the policy’s implementation is a necessary condition of their existence? One would expect that at least the overwhelming majority of these future persons who would owe their very existence to the implementation of a policy would if given the opportunity assign very high offer prices⁵¹ to the policy even were that policy to have some adverse or even catastrophic consequences for their well-being. Given that these person-altering consequences will persist for all eternity, it is of course not knowable in advance how many future persons from each era would exist and be voting in such a hypothetical referendum, let alone what the wealth endowment and precise preference structure of each of these future persons that would constrain the magnitude of their offer prices would be. It therefore will not be possible to ascertain the distribution of the costs and benefits of a policy between existing persons and future persons. What is clear, however, is that any policy with person-altering consequences, no matter how broadly catastrophic its long-term impacts, would result in truly massive aggregate net benefits for those future persons⁵² who otherwise would not have been born that would completely dominate the magnitude of any impacts upon existing persons,⁵³ for the obvious reason that all of the untold trillions of future persons whose hypothetical preferences are being considered would owe their very existence to the implementation of that policy. This presents a real problem for cost-benefit analysis because any policy measure whatsoever, including the null option, will now result in massive net benefits of highly uncertain magnitude for the combined group of existing persons and future persons when person-altering consequences are included. Of what use, if any, would such analyses be for policymakers in choosing among alternatives?

Consider, for example, a present-oriented proposal to put all of our high-level radioactive wastes into steel barrels that will not provide effective long-term containment and then dump them all overboard into the Pacific Ocean.⁵⁴ This policy would free billions of dollars of resources now devoted each year to radioactive waste storage efforts to be diverted to other pressing social needs. While those future persons born several centuries from now and thereafter may well suffer very significant adverse environmental consequences from such an action, the multi-billion dollar resource reallocations that such a policy would allow would have cascading person-altering consequences that would surely be universal in scope well before those barrels began to leak their poisons.

As previously discussed, those potential but now never to be conceived future persons who as a result of those resource reallocations would now not be born should not be accorded standing in a cost-benefit analysis of the ocean

were any rights for unconceived persons to be recognized. Landsburg does not address this difficulty, and consequently does not appear to understand the full significance of person-altering consequences for policy analysis.

51. And likely infinite asking prices if this is the willingness-to-pay measure utilized.

52. This is true even using restrictive offer price measures rather than uncapped asking price measures of these benefits.

53. I am assuming that future persons are psychologically similar to existing persons in this regard.

54. This particular hypothetical is analyzed in some detail in my earlier articles on the subject; *see supra* note 25.

waste dumping policy.⁵⁵ The future persons that will be born as a consequence of that ocean waste dumping policy would owe their very existence to it. If they could be asked for their opinions about the policy, if they are at all like existing persons in their psychological make-up they would surely overwhelmingly (if not unanimously) prefer coming into existence, even if their lives involved grappling with a serious radioactive waste problem, to nonexistence. They would of course much prefer existence without the radioactive waste problem, were that an option that could be chosen, but the central insight of the problem of person-altering consequences is that this is not logically possible. The only choice that those future persons would be hypothetically presented with is the bundled Hobson's Choice of life with the radioactive waste problem or nonexistence, and if they are at all like existing persons they would assign very large net benefits to the policy however those benefits are assessed.

The ocean waste dumping policy will therefore be very favorably evaluated by a cost-benefit analysis that incorporates person-altering consequences, since the existing persons who will almost surely be dead long before the wastes leak into the environment and cause adverse biological consequences would be on balance be net beneficiaries of the large resource reallocations thereby made possible by the policy,⁵⁶ and the long parade of generations of future persons for whom the policy is a necessary condition of their existence could be plausibly assumed to chime in with declarations of truly massive net benefits, though of very uncertain magnitude in the aggregate. So this ocean waste dumping policy will receive a ringing endorsement from the cost-benefit analysis. As I have already made clear, however, so would any other policy proposal, even those that are broadly disfavored by existing persons, since the cost-benefit calculations would invariably be dominated by the vast horde of members of distant future generations for whom the particular policy at issue would be a necessary condition of their existence.

The severe valuation problem posed for cost-benefit analysis by person-altering consequences is thus squarely posed. For those untold trillions of future persons whose identity will be affected by those consequences of a policy, the policy is a necessary condition of their existence. Its impacts will thus be valued very highly by those persons as against their actual alternative of nonexistence. The conventional practice of valuing the consequences of a policy as compared to the hypothetical baseline scenario of a world in which those same persons would exist, but without experiencing the policy's impacts, makes no sense at all since such an alternative scenario could not possibly occur. Willingness-to-pay-based assessments of net benefits for future persons that are derived in such a fashion are completely arbitrary. Moreover, net benefit assessments so derived are not only arbitrary but they are also biased downward, in some

instances dramatically so. This is so because for some policies (such as the ocean waste dumping hypothetical that I have discussed above) many future persons may strongly prefer the hypothetical though unattainable scenario in which they are presumed to still exist, but without experiencing the impacts of the policy at issue, as compared to the world that would actually result for them from the policy's consequences. Under this comparative framework, those future persons would then assign net costs rather than very large benefits to the policy's consequences, leading in the aggregate to a perhaps massive undervaluation of the future effects of the policy as compared to its valuation if those future persons were to assess it as against their actual alternative of nonexistence. This approach would thus give far too much weight to the consequences of that policy for existing persons relative to its actual massively beneficial impacts on future persons. The current conventional approach of utilizing hypothetical baseline scenarios that ignore person-altering consequences is fatally flawed; that much is clear.

In my opinion, the failure of cost-benefit analysts to incorporate person-altering consequences in their analyses has been primarily due to their overlooking those consequences rather than deliberately choosing to ignore them. There is apparently a general lack of familiarity among analysts with the work of Parfit and other philosophers who have wrestled with the problem of giving proper weight to these kinds of consequences. An argument can be made that the use of a demonstrably unattainable hypothetical baseline reference scenario that leads to the omission of person-altering consequences can be justified on the basis of parallels between this endogeneity of identity situation and the lesser problem presented for cost-benefit analysis under some circumstances by endogenous preferences. I believe, however, that this argument is very strained and unconvincing.

There has been a modest amount of work done in recent years addressing the problem of evaluating policies that have as one of their consequences the alteration of the preference structures of some or all of the persons impacted by the policy.⁵⁷ One might attempt to characterize the endogeneity of identity problem presented by person-altering consequences as simply being an extreme extension of the endogenous preferences situation, different only in magnitude and not in its essential character, and then attempt to seek guidance for evaluating policies with person-altering consequences from the ideas that have been proposed for addressing the lesser difficulties posed by endogenous preferences.

In the paradigmatic endogenous preferences situation a group of persons whose circumstances have been impacted by a policy have also had their preference structures altered by the policy, although their fundamental genetic identities are assumed to be unchanged. The question there posed for cost-benefit analysis is whether those persons' pre-policy implementation preferences, or instead their different post-policy implementation preferences, should be utilized to generate their willingness-to-pay-based cost and benefit assessments of the policy's impacts, as compared in either case to the reference point of the policy not being implemented and those persons' initial circumstances and preference structures both remaining unchanged. The three schol-

55. See *supra* note 50 and the associated text.

56. I concede that there may well be existing persons who empathize sufficiently with the environmental problems that the ocean waste dumping policy may cause for the members of distant future generations that they would regard the policy as imposing net costs on themselves, despite the more immediate and tangible benefits that may accrue to them from the resource allocation savings. However, I feel confident that on balance the net costs this policy would impose on these unusually empathetic persons will be substantially outweighed by the net benefits for the large number of existing persons whose empathetic time horizons do not span as far into the future as several centuries or more.

57. See Sunstein (1993), *supra* note 17.

ars who have most directly addressed policy assessment under endogenous preference circumstances are the previously mentioned Sunstein, Kenneth Dau-Schmidt, and Samuel Bowles.⁵⁸ None of these writers have taken a clear and unequivocal position regarding which of the two sets of preference structures provides the appropriate basis for cost-benefit analysis valuation under endogenous preference circumstances. Their work suggests, however, that in some cases the pre-policy implementation preferences are the more appropriate preferences by which the policy consequences should be valued, and in other cases the post-policy implementation preferences should be utilized.⁵⁹ According to these authors, the decision of which preferences to utilize for policy valuation purposes apparently depends upon a paternalistic assessment by the analyst as to which preference structure more accurately reflects those persons' "true" underlying preferences, to the extent that the concept of a true preference structure that exists independently of social policies is coherent.⁶⁰ In at least some situations, therefore, the analyst may choose to ignore the post-policy implementation preferences in valuing the policy's consequences. One could argue that if the endogeneity of identity problem can plausibly be viewed in some regards as simply an extreme extension of the endogenous preferences problem, one might be similarly justified in at least some cases in ignoring the post-policy implementation preferences of the persons whose identities have been altered by the policy, which is arguably accomplished by the conventional specification of the hypothetical baseline scenario.

This parallel being drawn between the endogenous preferences and endogeneity of identity situations is, however, rather superficial and breaks down under closer inspection. In the paradigmatic endogenous preference situation only currently existing persons are involved, and a choice need only be made as to which of the two preference structures that exist at different points in time for those persons better reflects their "true" preferences. In the endogeneity of identity situation, in sharp contrast, the future persons involved obviously do not exist prior to the implementation of the policy, and have only one preference structure, their post-policy implementation preferences that very strongly favor the policy at issue. The use of the conventional hypothetical baseline scenario assumption therefore does not merely substitute an earlier and different structure of preferences held by those persons for use in obtaining those persons' valuation of the policy. That conventional assumption instead substitutes as the reference point for comparison a hypothetical factual circumstance—those persons' existence but without the policy's consequences—that cannot possibly occur and that bears no relationship to those persons' preferences, "true" or otherwise. The arguments that might justify use of pre-policy implementation preferences under some circumstances to value a policy in the endogenous preferences context obviously do not justify the use of a demonstrably unattainable standard of comparison in the endogeneity of identity context.

So person-altering consequences can no longer be simply ignored. But the other horn of the dilemma is that attempting

to value those person-altering consequences in the usual willingness-to-pay-based manner unfortunately leads to the cost-benefit analysis methodology "blowing up." All policy options whatsoever will now generate very massive future net benefits⁶¹ that will dominate the policy's effects upon existing persons, but those future net benefits are simply not measurable with sufficient precision to allow the alternative policy options to be meaningfully compared and ranked.

Is there a viable middle ground here? Can we develop a willingness-to-pay-based method of including person-altering consequences in cost-benefit analysis that would lead to intuitively reasonable results and meaningful discrimination among policy alternatives? Or do we face a fundamental and insoluble problem with the cost-benefit methodology in that person-altering consequences cannot credibly be ignored any longer, but also cannot be meaningfully valued in the willingness-to-pay-based fashion that essentially defines the cost-benefit methodology, that may require us to discard that approach and take an entirely new analytical tact?

This endogeneity of identity problem may well be fatal to cost-benefit analysis. It may simply be the case that because of the pervasiveness and significance of person-altering consequences meaningful policy recommendations cannot be formulated solely on the basis of conventional secular and consequentialist ethical premises and their willingness-to-pay-based valuation corollary. We may have little choice but to develop new assessment methodologies grounded at least partly upon non-consequentialist and/or theistic normative criteria to adequately handle those consequences. However, before endorsing such a radical change, let me first explore a couple of alternative willingness-to-pay-based valuation approaches to including person-altering consequences in cost-benefit analysis that one might consider in an attempt to rescue the methodology from this dilemma.

B. Consideration of Two Alternative Cost-Benefit Approaches for Valuing Person-Altering Consequences

Let me set forth and discuss two alternative valuation approaches for person-altering consequences that each retain the conventional willingness-to-pay valuation premise that is the very heart of the cost-benefit methodology. One approach would be to first value all of the impacts of a policy on the members of distant future generations for whom it is a necessary condition of their existence by their estimated offer prices, rather than by their estimated asking prices,⁶² so as to initially generate a finite (although still very large) aggregate net benefit measure, rather than an analytically intractable infinite net benefit measure, and then discount those future net benefits at a very high discount rate; high enough so that they have an aggregate present value of essentially zero. Under this approach the massive net benefits of a policy for the members of distant future generations for whom it is a necessary condition of their existence would

58. *Id.*

59. *Id.* at 235; Dau-Schmidt (1995), *supra* note 17, at 168-70; Bowles (1998), *supra* note 17, at 102-05.

60. Sunstein, (1993), *supra* note 17, at 234-35.

61. In fact they will clearly each result in infinite net benefits if asking price measures of willingness-to-pay are utilized.

62. Whether offer prices or instead asking prices should be used to measure costs and benefits is a very controversial question that I have elsewhere explored at length, *see generally* Crespi, *Valuation*, *supra* note 18, and plausible arguments can be made for the use of offer price measures of benefits. *Id.* at 464-65.

then be reduced to insignificance and thus not overwhelm the effects of the policy on existing persons, which would then essentially become the sole consideration in reaching a conclusion.

Let me consider this approach in more detail. First of all, the use of offer price rather than asking price measures of impacts has some plausibility. Offer prices are now conventionally used in cost-benefit analyses, rather than asking prices, to measure both the costs and benefits of the policy under consideration.⁶³ While some observers regard this choice of valuation measures as arbitrary and imposing a sometimes severe downward bias on the numbers thereby obtained,⁶⁴ a more in-depth analysis of the question suggests that the use of offer prices rather than asking prices can perhaps be adequately justified, at least for benefit measures, although the question of how the cost impacts of a policy are most appropriately measured is a much more difficult question whose proper resolution is still uncertain.⁶⁵

The use of a very high discount rate to minimize the impacts of the resulting policy benefits for future persons is, however, far more problematic. Most arguments that are offered for discounting future impacts are based upon either observed rates of investor time preference or social rates of return on invested capital, and cannot plausibly justify the use of annual discount rates higher than at most 10-15%.⁶⁶ While discount rates of such magnitude would suffice to reduce to relative insignificance even very large net benefits that occurred a century or more in the future,⁶⁷ they would not suffice to prevent the person-altering consequences for the many millions of people likely to be affected within a few years (or at most a few decades) after a policy's implementation, given the great sensitivity of particular sperm-egg unions to even very minor changes in the circumstances of an act of sexual intercourse, from completely dominating the calculations.⁶⁸ Annual discount rates in the high triple digits would probably be necessary to reduce those nearer-term large future benefits to insignificance.⁶⁹

63. *Id.* at 436.

64. *Id.* at 445.

65. The issue of whether offer prices or instead asking prices are the most appropriate way to measure costs and benefits is exhaustively addressed in *id.*, and in Korobkin, *supra* note 18.

66. I will not address in this Article the current debate regarding the appropriate choice of discount rates with regard to conventional cost-benefit analyses that ignore person-altering consequences. See generally Revesz, *supra* note 15.

67. For example, benefits that occurred 100 years in the future would by the use of a 10% annual discount rate be reduced by a factor of approximately 13,740, and benefits occurring 200 years in the future would be reduced by a factor of approximately 1,888,000!

68. For example, benefits that occurred five years in the future would by the use of even a 15% annual discount rate only be discounted by a factor of approximately two. Even those benefits that did not occur for 30 years, by which time the person-altering consequences of almost any policy are likely to be universal, would only be discounted by a factor of approximately 66, leaving them likely still several orders of magnitude greater than the policy's impacts upon existing persons.

69. For example, use of a 100% annual discount rate would discount benefits that occurred five years in the future by a factor of only 32, which would still result in the very large benefits resulting from person-altering consequences dominating the analysis. However, an annual discount rate of, say, 700%, would lead to the discounting of such fifth-year benefits by a factor of 16,807, which might suffice to reduce them to an aggregate level that is insignificant relative to the policy's impacts on existing persons.

High triple-digit annual discount rates cannot be grounded on any plausible theory of investor time preferences or social rates of return on capital investment, and the use of this approach to value person-altering consequences is rather obviously a contrived means of nominally addressing person-altering consequences in a willingness-to-pay valuation framework while in substance ignoring those consequences so as to avoid the paralyzing computational difficulties. Moreover, this approach is perhaps even less adequate than the current conventional approach in handling the problem of person-altering consequences, if that is possible to imagine. The current approach, as discussed above, rather than attempting to value person-altering consequences implicitly substitutes valuation of a policy's effects relative to a demonstrably unattainable baseline scenario that ignores those consequences. The suggested offer prices/very high discount rate alternative, in contrast, candidly recognizes the existence of person-altering consequences as a formal matter but then proceeds to value them at essentially zero through the high discount rate ploy. This zero measure of impacts upon future persons could in some instances be even less accurate than the arbitrary measure that is obtained through the conventional approach, under which it is quite possible to obtain a positive rather than zero aggregate valuation of a policy's impacts on future persons relative to the hypothetical baseline scenario. It thus might lead in some cases to an even more pronounced bias toward radically present-oriented policies than that of the current approach.

Despite these shortcomings, one could argue that an approach that at least in principle recognizes the existence of person-altering consequences, even though it then mathematically manipulates them out of the analysis, is at least a small step in the right direction. Those important consequences are now not completely ignored at the outset, and the core willingness-to-pay-based valuation framework has nominally been retained. However, this approach ultimately avoids confronting the difficult valuation question in a meaningful fashion, and moreover may suffer from an even stronger bias in favor of radically present-oriented policies than does the conventional approach. I conclude that this offer prices/very high discount rate alternative approach is an inadequate means of modifying cost-benefit analysis to incorporate person-altering consequences.

The second alternative valuation approach that I suggest for consideration would accomplish essentially the same result, but in a more candid manner. Under this approach one would simply ignore altogether all of the impacts of a policy on the members of distant future generations, and consider only the benefits and costs that would result for existing persons.⁷⁰

The basic argument that can be made for taking this approach is as follows. Those members of distant future generations who would be conceived and born as a result of any particular policy choice, and who understood the narrow range of logically possible outcomes—the limited bundled choices that we face because of the policy's person-altering consequences for future generations—would ascribe very large benefits to that policy since it provides the necessary conditions for their existence. But there is no feasible way to quantify and compare the huge aggregate benefits that

70. See *supra* note 46.

would result for each of the different groups of future persons that would be conceived and born under each of our many possible policy options. Given this fact, perhaps it makes sense to simply ignore the massive beneficial impacts of each policy under consideration upon the particular group of future persons that it brings into being and focus only upon the impacts upon existing persons.⁷¹ Those massive but practically indeterminate benefits to those future persons who are born under each of the different possible policy options might thus be regarded as “cancelling out” across the those policy options, in a sense.⁷²

This second approach—formally recognizing the existence of person-altering consequences but then ignoring them in the valuation calculations—is, however, also problematic. It is concededly common for conventional cost-benefit analyses to overlook impacts that the analyst cannot meaningfully reduce to quantitative terms. For example, the diffuse psychological impacts on persons due to their empathetic recognition of benefits conferred or costs imposed on other persons are difficult or impossible to measure with sufficient precision to meaningfully combine with more tangible policy impacts, and are commonly ignored. In many instances this practice of limiting the scope of the analysis to feasibly quantifiable impacts can be justified as a reasonable and necessary analytical simplification on the basis that those overlooked and practically unmeasurable impacts are relatively small in magnitude relative to the more easily measured impacts, and/or that they tend to be offsetting of one another in the aggregate, so that the ultimate conclusions of the analysis are not significantly affected by their omission.

However, person-altering consequences are very different in these regards. They are, first of all, huge in magnitude relative to the measurable impacts upon existing persons, and obviously cannot be overlooked without dramatically affecting the results of the analysis. Second, they are not internally offsetting; virtually all future persons would likely ascribe very large net benefits to a policy that is a necessary condition of their existence. The conventional arguments offered for selectively overlooking certain difficult to quantify policy impacts in a cost-benefit analysis thus do not support doing so when person-altering consequences are involved.

71. *Id.*

72. Jeffrey Gaba has argued that the very many different groups of persons whose conception and birth would be precluded by any policy that is chosen from the immense set of possible alternatives should perhaps have their interests ignored in an analysis on the basis that they “cancelled out” in the analysis. Gaba, *supra* note 31. While Gaba is only referring to cancelling out the interests of those groups of persons whose birth is precluded by the policy that is chosen, this cancelling out approach might be extended to also ignore in an analysis the interests of those future persons who would be born as a result of the policy under consideration. Such a broader cancelling out approach with regard to both those future persons who will be born as a result of a policy and those potential future persons whose births are precluded by the policy has been suggested by Eric Posner:

For ordinary regulations such as environmental regulation, there will be little reason to think there is a morally significant difference between producing the first group of people [those born if the policy is not implemented] and producing the second group of people [those born if the policy is implemented]. Therefore I think the two would cancel out.

Eric Posner, Personal correspondence with the author (Feb. 5, 2008) (on file with the author).

A second shortcoming of this approach is again the downward bias problem noted above with regard to the offer prices/very high discount rate approach. Assigning zero value to the impacts upon future persons⁷³ may under some circumstances yield results that are even less accurate than are the arbitrary conclusions reached under the conventional approach, and could again lead to an even more pronounced bias towards radically present-oriented policies.

As a practical matter both approaches discussed above would lead to cost-benefit analysis policy recommendations that were based upon consideration of only the impacts upon existing persons,⁷⁴ and which ignored any impacts upon future persons.⁷⁵ These approaches would thus tip the scales even more in favor of radically present-oriented policies that provide current benefits and whose adverse impacts primarily occur in distant future years, such as my ocean waste dumping policy hypothetical, and against policies that primarily result in current costs and distant future benefits, such as, for example, measures that would impose restrictions on fossil fuel use in an attempt to mitigate long-term global warming consequences, than does the current conventional approach.

Between these two alternative valuation approaches I marginally favor the second approach over the first approach as at least being the more candid of the two methods for circumventing the future effects valuation problem posed by person-altering consequences. Either approach would move the analytical ball forward, at least marginally, by initially recognizing in principle the pervasiveness of person-altering consequences, and only then subsequently declining in one fashion or another to attempt to meaningfully quantify those consequences, rather than starting with the demonstrably false implicit assumption that such consequences do not occur and then calculating the policy impacts on future persons on that arbitrary basis. The more difficult question, of course, is whether either of these ploys are sufficient to rescue cost-benefit analysis from the difficulties posed by the problem of person-altering consequences.

Clearly the conventional and demonstrably false implicit assumption that person-altering consequences do not occur at all leads to both arbitrary results and potentially radical undervaluation of policy impacts on future persons, and must be discarded. But is it sufficient to salvage the cost-benefit methodology to formally recognize that such consequences do indeed occur and are in fact of far greater significance than all other consequences combined for the affected future persons, but then to simply ignore them in one fashion or another on the basis that they cannot be meaningfully quantified? I think not. While it is perhaps a small positive step to nominally recognize the existence of person-altering consequences, any mode of analysis that then fails to attempt to meaningfully quantify the impacts of those consequences for comparative purposes cannot credibly be advanced as a comprehensive framework for guiding policy decisions. What you would get from such new valuation approaches such as I have just discussed is what the noted cost-benefit scholar E.J. Mishan has colorfully labeled “horse and rabbit stew,” an unappealing concoction which retains its equine flavor no matter how carefully the rabbit is

73. See *supra* note 47.

74. See *supra* note 46.

75. See *supra* note 47.

chosen for its taste.⁷⁶ For each of these approaches, the “horse” would be an overwhelmingly strong orientation to favor radically present-oriented policies that generate benefits for existing persons, regardless of the magnitude of their later adverse impacts on future persons, and to disfavor any future-oriented policy that imposed net sacrifices on existing persons. To many persons this radical present-orientation would be just as unacceptable a feature of a policy evaluation framework as is the current practice of simply ignoring person-altering consequences through the use of demonstrably false baseline valuation assumptions.

Things do not look good for the continued viability of cost-benefit analysis.⁷⁷ Moreover, there is a further difficulty that would have to be faced even if measuring techniques for quantifying person-altering consequences could somehow be much improved. Assume for a moment that it were possible to develop plausible willingness-to-pay-based estimates of the magnitude of the person-altering consequences of policies, of the very large net benefits for distant future generations that would result from each of the policies under consideration, so that these policies could then be meaningfully compared and ranked in an inclusive manner that incorporated those consequences. A fundamental bias would still remain, this time a radically future-oriented bias. Even minor differences in the relative size of the very large estimates of the future net benefits for the various policy options, even if discounted at relatively (though not implausibly) high discount rates, would in all likelihood completely dominate any differences among the policies with regard to their net impacts on existing persons. The cost-benefit analysis recommendations would then be made solely on the basis of which policy option created the greatest net benefits for future persons. The preferences of all existing persons taken together would have essentially no weight in the decision.

Making important policy decisions without regard to the preferences of any or even all existing persons is a bizarre and absurd idea. So even if the magnitude of the person-altering consequences of different policies could somehow be meaningfully measured and compared in cost-benefit analyses they would still provide unhelpful results and recommendations. This conclusion further highlights the weaknesses of the willingness-to-pay valuation criterion that underlies cost-benefit analysis with regard to assessing person-altering consequences. I am forced to conclude that there are no easy fixes; cost-benefit analysis is simply no longer a credible analytical approach once person-altering consequences are recognized.⁷⁸ We have little choice but to develop new and broader normative criteria that also incorporate a broader range of secular but non-consequentialist ethical premises, or even overtly theistic premises, in a manner that will allow for meaningful recognition of the person-altering consequences of policies. By definition, however, any analytical approach that gave any weight at all to policy consequences apart from their effects on specific future persons as measured by willingness-to-pay principles could no longer be considered to be “cost-benefit analysis” as that phrase is conventionally understood.

C. Developing Alternative Criteria for Assessing the Impacts of Person-Altering Consequences

In this subsection of this Article I will offer a few preliminary thoughts as to how the significance of a policy’s effects on future generations might be assessed in a manner that is not linked to the willingness-to-pay of specific individuals, but which still allows for quantitative aggregation with a willingness-to-pay-based assessment of the consequences for existing persons that has been derived through a conventional cost-benefit analysis. None of the alternative lines of inquiry that I will suggest appear to me to be particularly promising, but we nevertheless need to come up with some new assessment techniques, so more efforts along these or other lines are definitely called for.

I will not attempt to offer or comment upon any theistically based valuation criteria. To the extent that one or more of the mainstream religious traditions provide sufficiently precise guidance as to how to ascertain and quantify the consequences of policies for future generations, apart from the estimated willingness-to-pay to enjoy or avoid those consequences of specific future individuals, such approaches may provide acceptable policy assessment techniques for those persons who embrace those particular traditions. However, let me briefly note the rather obvious point that theistic criteria may well not embrace the sharp dichotomy between policy impacts that will affect existing persons and those temporally more distant impacts that will affect only future persons. They may therefore call into question the use of willingness-to-pay-based valuations of the impacts of policies upon existing persons as part of an overall assessment methodology. I will here only address the possibility of developing new secular valuation criteria that differ from conventional cost-benefit valuations that are based upon the willingness-to-pay of specific individuals, and that could be used to value in quantitative terms policy impacts upon future persons and would thus allow for mathematical aggregation of those valuations with the conventional willingness-to-pay-based valuations of policy impacts upon existing persons.

As a threshold matter, it is clear that any attempt to value a policy’s impacts upon future persons in a willingness-to-pay-based manner with reference to any hypothetical baseline scenario (other than the actual alternative of those persons’ nonexistence) would be subject to the same devastating criticisms made of the current practice of utilizing a demonstrably unattainable baseline reference scenario which assumes that those same persons would exist but would not experience the policy’s impacts. Some other tact will have to be taken. There appear to be three possible lines of inquiry with regard to the development of a secular valuation criterion that is not grounded in their estimated willingness-to-pay of specific future persons.

One possibility would be to continue to focus upon policy impacts upon specific future persons, but value those impacts through some methodology other than those persons’ willingness-to-pay to enjoy or avoid policy consequences. A second possibility would be to develop a different consequentialist valuation criterion that focused upon consequences other than the policy impacts upon specific future individuals. The third possibility would be to take an explicitly non-consequentialist approach and somehow assign a value to each policy option without regard to its conse-

76. Mishan, *supra* note 2, at 160-62.

77. *But see supra* note 24 as to the possible continuing utility of cost-benefit analyses as persuasive rhetorical techniques.

78. *Id.*

quences. Under each of these approaches the valuation thereby derived would then have to be aggregated with the subject policy's willingness-to-pay-based valuations with regard to its impacts upon existing persons in order to obtain an overall policy assessment.

This first tact does not appear to be a very fruitful approach. Each policy option because of its person-altering consequences will, as extensively discussed earlier in this Article, lead to a different and vast population of future individuals over an extended period of time. The chosen criterion would have to be able to quantify the effects of each policy for each of the members of each of the relevant and immense population groups. The same seemingly insurmountable problem of measurement uncertainty that would plague attempts to compare the relative impacts of policies under the willingness-to-pay-based criterion, when person-altering consequences are taken into account, would therefore exist here as well unless that new valuation criterion through its time-discounting approach or otherwise accorded only minimal significance to policy impacts upon future persons as compared to the impacts upon existing persons. If it did so, however, it would again as do the two willingness-to-pay-based alternatives that I have discussed in the prior subsection of this Article consistently favor radically present-oriented policies. It would likely be widely regarded as unacceptable on that basis alone.

The second possible analytical tact would be to attempt to value the impacts of policies on future generations by a different consequentialist criterion that does not consider impacts upon specific future persons as one of the relevant consequences. There is a modest literature that has begun to explore the use of such alternative consequentialist policy evaluation criteria, and I have summarized and discussed that work in an earlier article that also appeared in this journal⁷⁹ and that focused on the ethical implications of the problem of person-altering consequences. That literature,

however, unfortunately has some rather severe shortcomings and limitations.

First of all, those writers have focused primarily upon establishing the ethical underpinnings that might justify recognizing such a consequentialist obligation to future generations that is not grounded in the impacts upon specific future individuals. They have not, however, yet attempted the far more difficult undertaking of proposing and defending an analytical framework by which the extent to which a policy implicates such an obligation could be quantified for aggregation with the willingness-to-pay-based impacts of the policy upon existing persons. On what possible basis could meaningful numbers be assigned to the discharge (or violation) of such impersonal obligations? Second, and more importantly, that literature is unconvincing on its own terms. Those writers generally argue in one fashion or another that such an obligation is grounded in an impersonal duty to the human race as a whole. These arguments in turn implicitly rest upon the view that the human race meaningfully exists in a moral sense apart from the individuals that comprise it.⁸⁰ However, the human race necessarily is comprised only of the specific individuals who come into existence over time, and to endorse a particular policy option as the preferred alternative on "human race enhancing" grounds, so to speak, would simply serve to privilege one group of potential future persons who would be brought into existence under that policy over the vast multitude of other groups of persons who would be conceived and born under each of the virtually infinite number of policy alternatives. It is most unclear how this privileged group would be selected, and how the net benefits to this group would then be quantified under such a criterion for aggregation with the willingness-to-pay-based impacts of policies upon existing persons.

The third possible tact would be to abandon altogether the attempt to formulate a consequentialist valuation criterion, and simply ignore policy impacts on specific future persons and instead assess the extent to which each policy option conforms with the chosen non-consequentialist ethical criterion. Examples of such criteria would be the nature of the motives of the policymaker, or the degree to which each policy option evidences a Kantian aversion to imposing uncompensated harms on future persons without their consent. Such a non-consequentialist valuation approach also appears to me to be unpromising, however, partly because of the obvious difficulties posed in reaching a consensus as to the appropriate criterion, and partly because I frankly cannot even imagine how such a criterion could ever be quantified in application so as to render its valuations of a policy commensurate with the policy's willingness-to-pay-based impacts upon existing persons.

III. Conclusion

Cost-benefit analysis is a widely used and highly influential analytical technique to evaluate policies on the basis of their consequences for affected persons, as measured by those persons' willingness-to-pay to enjoy or to avoid those consequences. The recent work of Parfit and other philosophers, however, has made it clear that any social policy undertaken, besides its other effects, will also trigger an expo-

79. Crespi, *What's Wrong?*, *supra* note 25, at 10881-84. Scholars who have made contributions to this inquiry include, among others, Anthony D'Amato, Edith Brown Weiss, Lothar Gundling, Michael Laudnor, William Grey, Rahul Kumar, and Doran Smolkin. *Id.* at 10883-84. One tact some of these writers have suggested is to define some sort of "rights" for future persons to not be burdened with overly adverse consequences, even if those consequences are logically necessary conditions of their existence, and then incorporate respect for those rights in some fashion in policy deliberations. *See, e.g.,* Bruhl, *supra* note 31; Doran Smolkin, *Towards a Rights-Based Solution to the Non-Identity Problem*, 30 J. Soc. PHIL. 194 (1999). Another possible approach is to define as morally significant entities that have both rights and interests various collective groups of persons, such as specific future generations or even the "human race" as a whole, apart from the specific individuals that comprise those groups, and then assign values to impacts upon those entities. For arguments that have been made along these lines, see, e.g., Kyser, *supra* note 8, at 37-38 ("[O]ne promising mechanism for doing so is to conceive of the 'communities which future persons belong to [as] deserving of concern and respect in their own right.'"); Weiss, *supra* note 27, at 203-05 (referring to "group rights, as distinct from individual rights" that create a duty grounded in "planetary, or intergenerational rights [that] are not rights possessed by individuals."); Gundling, *supra* note 27, at 207 (same); D'Amato, *supra* note 27, at 197-98 ("[i]t is somehow wrong to despoil the environment...even when we cannot calculate how such acts would make any present or future persons worse off"). *See also* Michael Laudnor, *In Defense of Wrongful Life: Bringing Political Theory to the Defense of a Tort*, 62 FORDHAM L. REV. 1675, 1679-80 (1994); William Grey, *Possible Persons and the Problems of Posterity*, 5 ENVTL. VALUES 161, 168-72 (1996); Rahul Kumar, *Who Can Be Wronged?*, 31 PHIL. & PUB. AFF. 99, 116-17 (2003).

80. Crespi, *What's Wrong?*, *supra* note 25, at 10884 (citing extensively to the relevant literature).

nentially cascading series of genetic alterations in subsequently conceived persons that will eventually lead to the existence for all eternity of an entirely different group of future persons than those people that would have existed had the policy not been implemented. In other words, all policies have pervasive, eventually universal, and eternal person-altering consequences of overwhelming significance. If cost-benefit analysis is to provide comprehensive and unbiased policy making guidance it will clearly need to take those consequences into account in some appropriate fashion.

Current cost-benefit analysts essentially ignore these person-altering consequences by implicitly assuming that policies will not have such consequences; that the hypothetical future persons whose valuations of policies are being estimated are the exact same persons who would exist absent the implementation of those policies. This demonstrably false assumption simply ignores the fact that these person-altering consequences are to the affected persons the most significant impact by far of the policies at issue, and any recommendations that are derived from incomplete and biased analyses that overlook these consequences are simply not relevant to the actual choices at hand. If one attempts to address this problem by incorporating person-altering consequences into cost-benefit analysis in the usual willingness-to-pay-based fashion that is the core premise of that approach, however, one reaches unhelpful results. All policies then generate truly massive future benefits of very uncertain magnitude, making it impossible to meaningfully discriminate among alternatives either with regard to their different future effects or with regard to the different trade offs they present between current impacts and future effects.

There unfortunately does not appear to be an answer to this conundrum within the willingness-to-pay-based valuation framework of welfare economics upon which cost-benefit analysis is grounded. Continuing to ignore person-altering consequences by valuing the future effects of policies with regard to implausible baseline scenarios that implicitly assume away those highly beneficial consequences to the affected persons will continue to lead to biased policy recommendations of a radically present-oriented character, and is therefore unacceptable. But there does not appear to be any way to meaningfully incorporate these person-altering consequences into the analysis yet avoid reaching the counterintuitive and unhelpful sweeping conclusion that any policy under consideration, whatever it may be, would result in massive benefits to future persons of uncertain magnitude that would swamp its effects on existing persons. Attempts to avoid this result within the willingness-to-pay valuation framework through the use of discount rate manipulations, or through simply refusing to assign values to person-altering consequences, are evasive and unconvincing.

We appear to have little choice but to abandon cost-benefit analysis as it is now conducted. Moreover, any governmental decisionmaking approach whatsoever that limits itself to focusing upon policy consequences upon specific persons, however those consequences are measured, is subject to essentially the same difficulties as is cost-benefit analysis with regard to assessing person-altering consequences.⁸¹ We therefore need to try to develop broader normative criteria that are more inclusive in scope than merely considering policy consequences for specific persons, and that will then allow analysts to meaningfully incorporate person-altering consequences into their assessments yet still provide policy recommendations that are both helpful and intuitively reasonable.

This will be a very difficult undertaking, to say the least, given our fundamental disagreements in this area. In particular, several very difficult questions are presented. Can a different consequentialist criterion be developed that focuses on consequences other than those that affect specific existing individuals? Which if any secular but non-consequentialist criteria or theistic criteria might be appropriate to use as primary or at least supplementary normative standards for social policy making?⁸² If some such alternative criteria are to be used, then what quantitative weight should then be given to those criteria relative to the willingness-to-pay-based impacts upon specific individuals? These questions are indeed daunting, but the problem posed by person-altering consequences must somehow be addressed.

81. I am indebted to Eric Posner for this insight. Posner, *supra* note 72.

82. One possible tact would be to define some sort of "rights" for future persons to not be burdened with overly adverse consequences, even if those consequences are logically necessary conditions of their existence, and then incorporate respect for those rights in some fashion in policy deliberations. *See, e.g.,* Bruhl, *supra* note 31; Smolkin, *supra* note 27. Another possible approach would be to define as separate and morally significant entities that have both rights and interests various collective groups of persons, such as specific future generations or even the "human race" as a whole, apart from the specific individuals that comprise those groups, and then assign values to the impacts upon those entities. For arguments that have been made along these lines, *see, e.g.,* Kyser, *supra* note 8, at 37-38 ("[O]ne promising mechanism for doing so is to conceive of the 'communities which future persons belong to [as] deserving of concern and respect in their own right.'"); Weiss, *supra* note 27, (referring to "group rights, as distinct from individual rights" that create a duty grounded in "planetary, or intergenerational rights [that] are not rights possessed by individuals"); Gundling, *supra* note 27; D'Amato, *supra* note 27 ("[i]t is somehow wrong to despoil the environment . . . even when we cannot calculate how such acts would make any present or future persons worse off"). *See also* Laudnor, *supra* note 79; Grey, *supra* note 79; Kumar, *supra* note 79. While a detailed analysis of the merits of such alternative approaches to cost-benefit analysis is outside of the scope of this Article, let me note briefly that I find them to be most unconvincing in establishing meaningful additional criteria for evaluating policies that can be meshed in some plausible fashion with the assessments of policy effects on specific future persons.