2009

Incorporating Endogenous Preferences in Cost-Benefit Analysis

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ABSTRACT

The conventional assumption made by cost-benefit analysts is that individual preference structures are not altered by any of the policies that are under consideration. This simplifying "exogenous preferences" assumption is not always satisfied, however, and in some instances the preference structures of a significant proportion of the people who are impacted by a policy are "endogenous" in that they are also altered by that policy. Under those endogenous preferences circumstances an important question is presented as to whether the willingness to pay-based valuations of the impacts of the policies should be calculated with regard to the pre-policy implementation preference structures, or instead with regard to the different post-policy implementation preference structures, including any transitional preference structures that may exist for a period of time, or perhaps with regard to some combination of the above.

Several prominent scholars have previously addressed aspects of this inquiry, including most importantly Gary Becker, Cass Sunstein, Kenneth Dau-Schmidt, and Samuel Bowles, but the endogenous preferences valuation question has not yet been definitively resolved, and virtually all cost-benefit analysts continue to ignore the implications of the possibility of endogenous preferences in their work. In this article, I assess the merits of Becker's "extended utility function" valuation approach, and of the various valuation suggestions offered by Sunstein, Dau-Schmidt, or Bowles. I also offer my own thoughts regarding how the endogenous preferences valuation problem can be best addressed.

My main conclusions are that the willingness to pay-based valuations of policies should be derived solely from the post-policy

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implementation preference structures, as a general matter, and that if there are any transitional preferences structures they should also be used to value those policy consequences that occur while they are in existence. These conclusions have significant implications for the valuation of environmental policies, as well as of policies of any sort that have as one of their major objectives the shaping of character and the alteration of attitudes and preferences. This theoretical endogenous preferences valuation framework may need to be modified at times to accommodate preference structure estimation difficulties and to counter potential analyst bias, particularly with regard to prospective cost-benefit analyses.

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I. INTRODUCTION

Cost-benefit analysis is the most important policy evaluation technique now used in American public sector decision-making.[1] This approach is claimed to be effective in helping policy makers 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 determining federal environmental standards and in other federal administrative rulemaking.[4] The prominent legal scholar Cass Sunstein

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1. *See generally* CASS R. SUNSTEIN, THE COST-BENEFIT STATE: THE FUTURE OF COST-BENEFIT REGULATORY PROTECTION (Am. Bar Ass'n 2002). Some recent writers use the inverted phrase "benefit-cost analysis" to describe this form of analysis, but in this article I will consistently use the traditional label.

2. *See* E.J. MISHAN, COST-BENEFIT ANALYSIS x (Praeger Publishers 1976) ("[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.").

3. *See* 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 Nixon first created a "Quality of Life Review" that gave the Office of Management and Budget limited regulatory review authority. President Ford then required several federal agencies to also provide inflation impact statements for review by the Council on Wage and Price Stability. President Carter took another significant step towards institutionalizing cost-benefit analysis as an aspect of federal rulemaking when he established the Regulatory Analysis Review Group and issued Executive Order 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 REG. (1997), *available at* http://www.cato.org/pubs/regulation/regv20n1/reg20n1a.html; THOMAS O. MCGARITY, REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY (Cambridge Univ. Press 1991).

The significance of cost-benefit analysis for federal rulemaking was greatly enhanced by Executive Order 12291, issued in 1981 by President Reagan. *See* 46 Fed. Reg. 13193 (Feb. 17, 1981). Executive Order 12291 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, a new office created within the Office of Management and Budget, before the proposed regulation could become effective. The Clinton Administration later replaced Executive Order 12291 with a new Executive Order 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. *See* 58 Fed. Reg. 51735 (Sept. 30, 1993). The Bush Administration has also continued this policy.

Congress has also enacted numerous statutes in recent years requiring federal agencies to perform cost-benefit analyses in connection with their rulemaking efforts. *See* Matthew D. Adler & Eric A. Posner, *Rethinking Cost-Benefit Analysis*, 109 YALE L.J. 165, 167 (1999). Prospective cost-benefit analyses of rulemaking initiatives and subsequent Office of Information and Regulatory Affairs review (and, upon occasion, also judicial review) 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* SUNSTEIN,

has gone so far as to claim that "[the] American government is becoming a cost-benefit state,"[5] and to endorse this development as helping to rationalize government decision-making 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 regarding the extensive use of the 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 provides 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 embrace of the willingness to pay valuation criterion. All impacts of the policies 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 bottom-line economic efficiency assessments that do not address distributional considerations or rights-respecting limitations.[11]

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supra note 1, at 26-28. *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. *See* Matthew D. Adler & Eric A. Posner, *Implementing Cost-Benefit Analysis When Preferences Are Distorted*, 29 J. LEGAL STUD. 1105, 1105 (2000); Robert W. Hahn & Paul C. Tetlock, *Has Economic Analysis Improved Regulatory Decisions?*, 22 J. ECON. PERSP. 67, 68 (2008). *But see generally* Amy Sinden, *Cass Sunstein's Cost-Benefit Lite: Economics for Liberals*, 29 COLUM. J. ENVTL. L. 191 (2004) (criticizing Sunstein's claim as to the pervasiveness of cost-benefit analysis).

8. *See* Douglas A. Kysar, *It Might Have Been: Risk, Precaution and Opportunity Costs*, 22 J. LAND USE & ENVTL. L. REV. 1, 5-6 (2006) ("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."). *See generally* Sinden, *supra* note 7.

9. *See* Sinden, *supra* note 7, at 201 (citing a voluminous literature offering criticisms of cost-benefit analysis); 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."). *See generally* 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, *supra* note 8 (presenting a highly critical view of cost-benefit analysis).

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 towards Kaldor-Hicks efficiency—if the total benefits of

Such additional considerations and limitations are taken into account separately in the decision-making 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. They 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 difficult to quantify effects such as the empathetic sentiments aroused in some persons in support of 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 incommensurability and normative criterion problems by accepting the desirability of assessing policies primarily or even solely through aggregating the affected persons' willingness to pay to enjoy or to avoid

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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. *See* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 13 (6th ed., Aspen Publishers 2003). The Kaldor-Hicks criterion is the usual measure of efficiency utilized by economists. *Id.* There are several seminal articles and books that developed the Kaldor-Hicks efficiency concepts. *See, e.g.,* John R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696 (1939); Nicholas Kaldor, *Welfare Propositions of Economics and Interpersonal Comparisons of Utility*, 49 ECON. J. 549 (1939); ANTHONY E. BOARDMAN ET AL., COST-BENEFIT ANALYSIS AND PRACTICE (Prentice Hall 2000) (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). *See generally* 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, [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 (Harvard Univ. Press 1987). *See generally* Symposium, *Efficiency as a Legal Concern*, 8 HOFSTRA L. REV. 485 (1980) (collecting several articles on economic efficiency).

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 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 problem of determining whether offer prices or instead asking prices are the appropriate measure of willingness to pay in instances where they diverge in magnitude,[17] the dependence of the magnitude of both offer and asking prices on the existing distribution of wealth,[18] and the perhaps insurmountable problems posed by the need to incorporate and value the pervasive "person-altering consequences" of policies.[19] Those internal critiques also commonly emphasize the often severe data availability limitations facing cost-benefit analysts, including the difficulty of often 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

15. *See* 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 generally* 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, *supra* note 15.

17. *See* 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, 432 (2006). *See generally* Russell Korobkin, Note, *Policymaking and the Offer/Asking Problem Price Gap: Towards a Theory of Efficient Entitlement Allocation*, 46 STAN. L. REV. 663 (1994).

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

19. The phrase "person-altering consequences" refers to the idea that one of the consequences of any significant policy is that it will lead to exponentially cascading and eventually universal changes in the fundamental genetic identities of future persons. The implementation of that policy will therefore be a necessary condition of the existence of those future persons, and the policy would obviously be very highly valued by them as a result regardless of its other consequences for their welfare. *See generally* Gregory Scott Crespi, *The Fatal Flaw of Cost-Benefit Analysis: The Problem of Person-Altering Consequences*, 38 ENVTL. L. REP. 10703 (2008) (discussing the nature of person-altering consequences and their significance for the conduct and validity of cost-benefit analysis) [hereinafter Crespi (2008)]; 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 ENVTL. L. REP. 10873 (2007) [hereinafter Crespi (2007)].

20. Sinden, *supra* note 7, at 208-10 (discussing several problems which call into question the validity and reliability of various methods of measuring willingness to pay).

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 been underappreciated and, under some circumstances, has significant implications for the assessment of policy consequences by the willingness to pay yardstick. My criticism is that conventional cost-benefit analyses do not adequately address the difficulties involved in valuing policy consequences under those circumstances when one of those consequences is a significant alteration of the preferences of a substantial number of people.

The conventional simplifying analytical assumption made by cost-benefit analysts is that while the policy under consideration may well affect the circumstances facing persons in numerous ways, it will not affect those persons' underlying preference structures.[23] In other words, preferences are generally assumed to be established exogenously and are not endogenously determined by the policy under consideration. Such a simplifying assumption certainly facilitates analysis, but what if this is not the case in a particular instance? The loss of explanatory power and policy relevance that would result from basing an analysis on this assumption when it is not satisfied may be too high a price to pay for such analytical tractability.[24]

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

22. *See, e.g.*, Crespi (2008), *supra* note 19; Crespi (2007), *supra* note 19; Crespi, *supra* note 17; Crespi, *supra* note 14.

23. *See* Samuel Bowles, *Endogenous Preferences: The Cultural Consequences of Markets and other Economic Institutions*, 36 J. ECON. LIT. 75, 75 (1998) ("Markets and other economic institutions . . . influence the evolution of values, tastes and personalities. Economists have long assumed otherwise; the axiom of exogenous preferences is as old as liberal political philosophy itself."); Albert O. Hirschman, *Against Parsimony: Three Easy Ways of Complicating Some Categories of Economic Discourse*, 1 ECON. & PHIL. 7, 10 (1985) ("Economists often . . . think of citizens as consumers with unchanging or arbitrarily changing tastes in matters of civics as well as commodity-oriented behavior. This view tends to neglect the possibility that people are capable of changing their values."); George J. Stigler & Gary S. Becker, *De Gustbus Non Est Disputandum*, 67 AM. ECON. REV. 76, 76-77 (1977) ("[O]ne may usefully treat tastes as stable over time . . . no other approach of remotely comparable generality and power is available."); 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 153 (Robin Paul Malloy & Christopher Braun eds., Peter Lang Publ'g 1995) ("The traditional economic analysis of law . . . assumes that people's preferences are exogenous.").

24. *See* Bowles, *supra* note 23, at 75 ("[By making the assumption of exogenous preferences] the scope of economic inquiry is thereby truncated in ways which restrict its explanatory power, policy relevance, and ethical coherence. If preferences are affected

The questions presented by policy valuation when preferences are endogenous with regard to the policy at issue have significant practical consequences, since it is clear that some policies will have as one of their impacts the substantial alteration of many of the affected persons' preferences.[25] Environmental policies are one area where this is particularly likely to be the case. Many persons may never have experienced certain environmental amenities, and simply because of their lack of familiarity with the character of those amenities they may value them very modestly relative to their costs and therefore oppose policies designed to bring them into existence.[26] Once such environmental policies have been implemented, however, and people begin to experience those amenities, some of those people may well reassess their preferences in light of their greater awareness and understanding of the benefits provided by those amenities and may now accord them a higher value that exceeds their cost. A willingness to pay-based cost-benefit analysis valuation of such a policy might turn out very differently if the policy is valued by the yardstick of the post-policy implementation preference structures than if it is valued by the pre-policy implementation preference structures.

More generally, many policies have educational and character-shaping objectives,[27] which may sometimes even be the primary goal of the policy at issue.[28] If those policies are successful in achieving this

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by the policies or institutional arrangements we study, we can neither accurately predict nor coherently evaluate the likely consequences of new policies or institutions without taking account of preference endogeniety."); Kenneth Dau-Schmidt, *An Economic Analysis of the Criminal Law as a Preference-Shaping Policy*, 1990 DUKE L.J. 1, 16 (1990) ("It is becoming increasingly apparent that the failure to address the malleability of preferences seriously limits the explanatory power of economic analysis.").

25. *See* Cass R. Sunstein, *Endogenous Preferences, Environmental Law*, 22 J. LEGAL STUD. 217, 220 (1993) ("[T]here is sometimes no such thing as a fully acontextual preference, and that preferences are endogenous to existing legal policy, including the setting of the legal entitlement.").

26. *See id.* at 236-37 (giving an example of what Sunstein refers to as "adaptive preferences").

27. *See* Dau-Schmidt, *supra* note 23, at 153 ("[There are] various areas in the law . . . in which legal prohibitions are not merely intended to act as a price on the proscribed behavior, but are also intended to influence the underlying preferences of the sanctioned parties and other members of society.").

28. *See* Dau-Schmidt, *supra* note 24, at 17 ("Preference shaping . . . is an important human endeavor. It has been identified as a primary or secondary goal of childrearing, education, religion, advertising, public service announcements, legislation, and. . .criminal punishment. Although economists might find it useful to assume that preference-shaping processes are exogenous to their analysis of traditional markets, when economists expand their analysis to social institutions that are more intimately related to the preference-shaping processes, either affecting or being affected by them, this assumption should be relaxed. . . . Although it complicates empirical tests and introduces greater subjectivity via the social welfare analysis, relaxing the assumption that preferences are exogenous promises greater understanding of many social phenomena.");

objective, some persons who originally opposed those policies may, on the basis of their new attitudes and preferences, now regard them as being cost-justified. In these instances, the choice between using pre-policy implementation or instead post-policy implementation preference structures for valuations may prove outcome-determinative.

If a policy significantly alters the preference structures of a substantial number of persons, and if one wishes to incorporate this preference structure endogeniety into the valuation calculations, some difficult analytical questions are presented. Should the pre-policy implementation preference structures be used to value the policy's consequences, or should instead the different post-policy implementation preference structures be used to make those valuations? If the latter, what role, if any, should be played by any transitional post-policy implementation preference structures that may exist for a period of time before the final stable post-policy implementation preference structures come into being?[29]

Under the simplifying exogenous preferences assumption, the same preference structures are assumed to exist both before and after the implementation of the policy, and there are also implicitly assumed to be no transitional preference structures to complicate matters. Analysts making this assumption for valuation purposes generally fail to make clear in their analyses whether those preference structures are being utilized for valuation purposes because they are the pre-policy implementation preference structures, with the fact that they are also the post-policy implementation preference structures not being germane, or whether they are being utilized because they are the post-policy implementation preference structures, with the fact that they are also the pre-policy implementation preference structures not being germane. There is no real need for them to address this question as to the underlying rationale of their valuation approach if the preference structures are assumed to be invariant.

Under endogenous preferences circumstances, however, a rationale must be advanced that would justify the choices made among these differing preference structures for valuation purposes. A modest body of

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Hirschman, *supra* note 23, at 10 ("A principle purpose of publicly proclaimed laws and regulations is to stigmatize antisocial behavior and thereby influence citizens' values and behavior codes. This educational, value-molding function of the law is as important as its deterrent and repressive functions.").

29. In some cases temporary, transitional preference structures may be created for some persons by the policy's implementation, and these transitional preference structures may persist for some time before the final, stable post-policy implementation preference structures come into being. If so, these transitional preference structures would be additional candidates for inclusion in a valuation framework. *See, e.g.*, GARY S. BECKER, ACCOUNTING FOR TASTES 20 (Harvard Univ. Press 1996).

literature exists that notes the significance of the endogenous preferences problem for policy valuation efforts[30] and to a limited extent attempts to address the problem.[31] However, that scholarship is incomplete and has not definitively resolved the conundrum and, as noted above, most cost-benefit analysts simply ignore the implications of the possibility of endogenous preferences in their work.

In this article, I will discuss how policy impacts should be valued in those instances when there are significantly differing pre-policy implementation and post-policy implementation preference structures, and possibly also distinct transitional preference structures, for a substantial number of affected persons. In order to more clearly focus my analysis on these specific questions, I will limit its scope in certain regards. First, I will take as a given the premise that people have at any point in time coherent preferences, and that their preference structures can be accurately ascertained and then used for determining those persons' willingness to pay for policy benefits or to avoid policy costs.[32] Given these assumptions, the main question at issue is how best to choose among these preference structures to obtain a policy valuation that most meaningfully reflects the preferences of the affected persons.

Second, I will consider only non-paternalistic approaches to resolving the endogenous preferences valuation problem. I will not explore the possibility of taking a paternalistic approach that might utilize for valuation purposes whichever of those two or more actual preference structures are regarded by the analyst as best reflecting the "true" interests of the affected persons, those interests being somehow defined apart from their actual preference structures. Nor will I consider the even more paternalistic tact of utilizing for valuations some other hypothetical "ideal" preference structure that the analyst believes that the

30. *See, e.g., id.* ("The endogeniety of preferences would appear to play havoc with traditional approaches to welfare evaluations of economic outcomes.").

31. *See generally id.*; Bowles, *supra* note 23; Dau-Schmidt, *supra* note 23; Sunstein, *supra* note 25.

32. Not every commentator agrees with this assumption. In particular, Cass Sunstein has argued extensively that people's preferences often "do not, in any simple way, antedate the process that is used to elicit them . . . preferences can be a function of methods of elicitation, or construction." Cass R. Sunstein, *How Law Constructs Preferences*, 86 GEO. L.J. 2637, 2652 (1998). Under those circumstances, valuations achieved through use of those preferences would inevitably be suspect since biased by the manner of elicitation. Sunstein has also argued that even apart from those biases introduced by measurement efforts, "sometimes there are no acontextual preferences with which to do normative or descriptive work," and under those circumstances "policymakers cannot simply identify preferences and try to satisfy them since the preferences are influenced by law, and since there is no way to identify the preferences that would exist in the absence of law." Sunstein, *supra* note 25, at 221.

affected persons "should have" to further their "true" interests, and that differs from all of the actually observed preference structures.[33]

I will also not address in this article the important but conceptually distinct question of whether offer prices or instead asking prices should be utilized to establish the magnitude of willingness to pay once the appropriate preference structures for valuation purposes have been chosen.[34] In addition, I will not consider the very difficult and inadequately recognized problem posed by the need to value policy consequences impacting future persons who are conceived and born after the implementation of a policy, and for whom the policy has not merely altered their preferences but has had the far more dramatic "person-altering consequences" of determining their fundamental genetic identities.[35] I will instead limit the discussion to the questions posed with regard to valuing policy consequences for those persons who were already born (or at least conceived) at the time that the policy was first implemented, or who were conceived and born post-policy implementation but whose fundamental genetic identity was not affected by the cascading person-altering consequences of the policy,[36] but who in either instance have nevertheless had their preference structures significantly altered by the policy in question.

I will address in this article to a limited extent the nature and severity of the measurement difficulties involved in ascertaining these different preference structures, and how these difficulties may as a practical matter call for some departure from theoretically ideal valuation procedures. I will focus this particular discussion upon how those measurement difficulties may vary with regard to whether pre-policy implementation or instead post-policy implementation preference structures are being ascertained, and with regard to whether the cost-

33. I will instead accept as a premise the desirability of utilizing persons' actual preference structures for valuation purposes in a non-paternalistic fashion, and will consider only the questions that arise under endogenous preference circumstances where there is more than one plausible candidate for this role. I recognize that this is a contestable approach. Some commentators have argued that there may often not be any such "actual" preference structures that are not biased by the method of elicitation that can be applied for making valuations without the need for prior and inevitably paternalistic corrections of those biases; that all revealed preference structures are contextual and influenced by law and thus any attempt to ascertain peoples' preference structures for valuation purposes is also an inherently paternalistic enterprise. *See, e.g.*, Sunstein, *supra* note 32, at 2652.

34. *See generally* Crespi, *supra* note 17; Korobkin, *supra* note 17.

35. *See* Crespi (2007), *supra* note 19, at 10885.

36. I describe such persons in my earlier work as being the "transitional generations" of persons conceived after the implementation of a policy but before the person-altering consequences of that policy have become universal in scope. *See id.*

benefit analysis is being conducted on a prospective or instead a retrospective basis.

Let me here briefly summarize my overall conclusions. In my opinion, under those circumstances where preferences structures are to a significant extent endogenous with regard to the policy at issue, that policy should as a general matter be evaluated solely with regard to the post-policy implementation preference structures, rather than by the yardstick of the pre-policy implementation preference structures. If there are any transitional preference structures, they should be used for valuing those particular policy consequences that occur while those transitional preference structures are in existence. The use of an endogenous preference valuation framework in this manner when conducting cost-benefit analyses of certain environmental policies that may alter preferences, and of numerous other policies that may also alter preferences, may upon occasion have significant consequences for the results of those analyses. This recommended endogenous preferences valuation framework may, however, need to be modified upon occasion to reflect preference structure estimation difficulties and to counter potential analyst bias, particularly when conducting prospective rather than retrospective cost-benefit analyses.

I will proceed as follows in this article. In Part II, I will briefly discuss the efforts of several other scholars to address the problem of incorporating endogenous preference into cost-benefit analysis valuation efforts. I will then in Part III offer my own thoughts regarding how this problem can be best addressed as a theoretical matter and what adjustments in that theoretical approach are likely to be necessary to accommodate practical measurement limitations. In Part IV of the article I will present a brief summary of my conclusions.

II. PRIOR EFFORTS TO ADDRESS THE PROBLEM OF ENDOGENOUS PREFERENCES WHEN MAKING VALUATIONS IN COST-BENEFIT ANALYSIS

The most substantial contributions in this area have been provided by Gary Becker, Cass Sunstein, Kenneth Dau-Schmidt, and Samuel Bowles. Let me briefly discuss in turn the contributions of each of these scholars.

A. The Becker "Extended Utility Function" Approach

The problem of valuing policy consequences under circumstances of endogenous preferences can be analytically dealt with in a number of facially different but conceptually equivalent ways. For example, one

could redefine any situation where a policy would alter preference structures as instead being a situation where the affected persons' preference structures were exogenously determined and *not* altered by that policy, but where there were now some additional policy impacts specified that were just significant enough in magnitude to generate the same overall policy valuation that would result under an endogenous preference assumption if the post-policy implementation preference structures were there utilized for making the valuations, but without those newly specified policy impacts being included in the valuation calculations. In other words, one could redefine the preference changes caused by a policy under an endogenous preferences assumption as instead being newly specified policy impacts of an appropriate magnitude under an exogenous preferences assumption, and still reach the same policy valuation results. This type of alternative conceptual framework for dealing with endogenous preferences has been suggested by the Noble Prize-winning economist Gary Becker in his well-known book *Accounting for Tastes*.[37]

Becker there defines the concept of an exogenously determined "extended utility function"[38] that would also include two additional factors affecting a person's utility that are qualitatively different from the availability of ordinary goods and services. He labels these new factors "personal capital" and "social capital," respectively.[39] The amount of each of these capital stocks held by an individual at any point in time would then affect the total utility that the person would obtain from the availability of ordinary goods and services, and from the other circumstances facing that individual, at that point in time.[40] The consequences of a policy for each affected individual at any point in time would then be partly a function of the changes the policy has made in the amount of these personal and social capital stocks. Those individual valuations of the policy's consequences at each point in time would then each be time-discounted to a present value as of the time of the implementation of the policy, and then these time-specific valuations would be aggregated into an overall assessment of the policy's consequences for that individual. Those individual policy valuations would then be aggregated across the population to obtain an overall

37. *See* BECKER, *supra* note 29, at 3-23.

38. *Id.* at 5.

39. *Id.* at 4 ("*Personal Capital, P*, includes the relevant past consumption and other personal experiences that affect current and future utilities. *Social Capital, S*, incorporates the influence of past actions of peers and others in an individual's social network and control system.").

40. *Id.* at 5.

global policy assessment.[41] Becker argues that the conventional exogenous preference assumption can be usefully and credibly retained in this manner for cost-benefit analytical work, despite his recognition that preferences are in fact often endogenous, if the valuations of policy impacts are based upon such extended utility functions that still posit exogenous preferences but which now also take into account the policy impacts upon these two appropriately defined capital stock factors over time in a suitable manner.[42]

I am reluctant to criticize in any way an economist of Becker's stature, but I do not believe that his suggested approach solves the endogenous preferences valuation problem. His attempt to retain the exogenous preference assumption while mitigating its shortcomings through the inclusion of two additional factors in the utility function specification that together substitute for recognizing preference endogeniety is indeed creative and interesting. But this approach ultimately only reframes the valuation problem rather than resolving it, and moreover does so in a manner that tends to obscure rather than illuminate the nature of the choices that must be made.

Let me explain this point more fully. In the endogenous preferences framework, the central question presented is whether the pre-policy implementation preference structures should be used to value a policy's consequences, or whether instead the post-policy implementation preference structures, perhaps including any transitional preference structures, should be used for making those valuations. Under Becker's proposed extended utility function approach, the analogous question posed would be whether the utility functions with the pre-policy implementation stocks of personal and social capital, as he has defined them, should be used to make the policy valuations, or instead whether the utility functions with the post-policy implementation levels of these capital stocks, and perhaps also utility functions with transitional levels of these capital stocks, should be used for making the valuations.

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41. *See id.* at 20 ("A welfare analysis should consider not only the initial effects on utility when . . . [the affected persons may intensely dislike the policy], nor only the ultimate effects when . . . [the affected persons may like the policy], but the discounted value of both the initial and later changes in utilities that incorporates the transition between the initial and later attitudes toward [the policy]. . . . In other words, initial preferences should have no priority over final preferences in welfare analysis when policies change preferences.").

42. *See id.* ("These difficulties [of conducting valuations where preferences are endogenous to the policy in question], however, are intrinsic not to the endogeniety of preferences but to inadequate incorporation of this endogeniety into welfare criteria. If the relevant utility function for welfare analysis includes personal and social capital, the effect on utility of . . . public policies can be evaluated without any ambiguity.").

The close parallels between an endogenous preference approach and Becker's extended utility function approach are fairly obvious. His method simply transforms the need to ascertain the contours of the different preference structures that are in existence at each point in time, a requirement for conducting valuations under the endogenous preferences framework to the extent that each of these preference structures will play a part in deriving the final policy valuations, into the need to measure the size of the different stocks of personal and social "capital," as idiosyncratically defined by Becker, at each point in time under an exogenous preferences assumption, to the extent that these different capital stocks at different points in time will play a part in deriving the final policy valuation.

There is nothing that would prohibit one from making this transformation of analytical categories, but it is not clear what the pay-off is for doing so. One could certainly incorporate those post-policy implementation stocks of Beckerian personal and social capital that exist at any point in time into the willingness to pay-based valuation calculations in the same manner that one would incorporate the post-policy implementation quantities of goods and services that normally affect utility. If the parameters of the extended utility function and the magnitude of the changes made in the personal and social capital stocks of various individuals at each point in time were each appropriately specified so as to yield the same valuations of policy impacts as would the endogenous preference framework were one to use post-policy implementation preference structures, then Becker's approach would lead to exactly the same policy valuation results as one would obtain under the endogenous preferences framework.

However, as noted above, this analytical tact only reframes rather than resolves the central valuation questions posed by the existence of endogenous preferences. The main unanswered question under the endogenous preferences formulation of the valuation problem is whether the post-policy implementation preference structures, permanent or transitional, should be privileged over the pre-policy implementation preference structures in deriving the policy valuation, and if so to what extent. Becker's approach specifies an alternative conceptual framework of exogenous preferences combined with newly defined personal and social capital stocks that change in response to policy impacts, rather than endogenous preference changes, as establishing the parameters that need to be established to calculate the willingness to pay-based policy valuations for each relevant period of time. But his method simply transforms the central and difficult question presented by the endogenous preferences framework into the equally difficult question of whether the pre-policy implementation or instead post-policy implementation

personal and capital stocks are to be privileged in conducting a policy valuation, and if so, then what weight, if any, will be given to transitional amounts of these stocks as compared to their final, stable amounts? This new question is unfortunately left unaddressed by Becker.

B. Other Commentary Regarding Incorporating Endogenous Preferences in Cost-Benefit Analysis

Let me now turn to consider the efforts of some other scholars to address the endogenous preferences valuation problem. None of the few commentators other than Gary Becker who have considered this question in any depth, specifically Cass Sunstein,[43] Kenneth Dau-Schmidt,[44] and Samuel Bowles,[45] offer a framework for choosing the appropriate preference structures to use to conduct a cost-benefit valuation of the impacts of a particular policy that does not require a paternalistic assessment on the part of the analyst as to which of these preference structures best reflect the affected persons' "true" preference structure, or otherwise is more deserving of respect. Let me briefly discuss each of their contributions below, and I will then draw upon their insights and the work of Becker in Part III of this article where I will offer my own contributions.

1. Cass Sunstein's Views

As I have noted, this article proceeds upon the premise that, under endogenous preference circumstances, one can accurately measure the pre-policy implementation preference structures, post-policy implementation preference structures, and any transitional preference structures. Given this premise, I here address the question of how to appropriately choose among the different policy valuations that can be derived from each of these preference structures in a non-paternalistic fashion. Cass Sunstein in his seminal 1993 article on endogenous preferences, however, calls into question this entire enterprise.[46]

Sunstein there argues that there often are no objectively existing preference structures that can be ascertained that merit such deference, and that an analyst therefore often has no choice but to paternalistically impose what she regards as the most appropriate preference structures to use for valuation purposes. These selected preference structures may not closely resemble any of the different pre-policy implementation or post-

43. *See generally* Sunstein, *supra* note 25.
44. *See generally* Dau-Schmidt, *supra* note 23.
45. *See generally* Bowles, *supra* note 23.
46. *See generally* Sunstein, *supra* note 25.

policy implementation preference structures noted above, which he argues may not even exist in any meaningful sense.

Sunstein's core argument is that legal rules or other social policies inevitably have effects on preferences, and consequently no preference structures can be properly regarded as pristine pre-legal and pre-political expressions of people's "true" preferences.[47] Pre-policy implementation preference structures in his view often do not merit deference for use in valuing the policy's consequences because they are "adaptive preferences,"[48] i.e., artifacts of and psychological accommodations to the limitations imposed by existing law and social institutions.[49] Even though these pre-policy implementation preference structures have been shaped by previously adopted laws and policies, rather than by the policy at issue that is being evaluated in cost-benefit terms in advance of its possible implementation, in Sunstein's opinion those pre-policy implementation preference structures are often so tainted as purported measures of "true" individual preferences because of the adaptive preferences effects of existing laws and other social institutions that they do not merit deference for policy valuation purposes.[50] Sunstein gives particular emphasis to arguments that debates regarding many environmental policy questions are rendered less meaningful because they take place against the background of pre-policy implementation preference structures that are distorted by this adaptive preference effect.[51]

Sunstein also in his 1993 article briefly calls into question the use of post-policy implementation preference structures as a basis for policy valuation, on the general grounds that "when preferences are a function of legal rules, the rules cannot be justified by reference to the preferences."[52] There is, in his opinion, a bootstrapping problem presented by the use of post-policy implementation preference structures; policies cannot be meaningfully evaluated or justified by those very preference structures that they have helped create.[53]

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47. *Id.* at 221-35.

48. *Id.* at 236-37.

49. *Id.* at 234-35 ("The most general point is that the preference-shaping effects of legal rules cast doubt on the idea that environmental regulations should attempt to satisfy or follow some aggregation of private preferences. . . . Sometimes there is no such thing as a prelegal or prepolitical 'preference' that can be used as the basis for decision. If this is so, government is not quite faced with a choice between respecting and rejecting private preferences. This is a misdescription of the real options.").

50. *Id.* at 254 ("Private preferences are an inadequate basis for environmental policy insofar as these are adaptive to an environmentally inadequate status quo.").

51. *Id.* at 230-42.

52. Sunstein, *supra* note 25, at 235.

53. *See id.* at 221, 234-35, 237.

Sunstein buttresses these arguments for not utilizing either the pre-policy implementation or the post-policy implementation preference structures for policy valuation purposes with the related but conceptually distinct argument that any measured preference structures, even apart from their being distorted from "true" preferences by psychological adaptations to the limitations imposed by pre-policy implementation legal and political circumstances or by the effects of the policy in question, simply do not have an objective existence independent of their means of elicitation.[54] There is something analogous to the "Heisenberg uncertainty principle" at work here; any method by which an analyst attempts to measure preference structures will strongly influence the results obtained, rendering those results suspect as indicia of "true" preferences even apart from the adaptative preferences and bootstrapping effects.[55] Sunstein's more recent work shows that he is still firmly of this opinion as to the sensitivity of measures of preference structures to the context of and methods of their elicitation.[56]

Sunstein clearly recognizes that preferences are often endogenous to a significant extent. However, as I have noted above, he implicitly rejects the core premise of this article that it may be possible to establish an appropriate framework for selecting among the different pre-policy implementation and post-policy implementation preference structures for use in valuing a policy in a non-paternalistic fashion, since he rejects all of these preference structures as potentially being too biased and/or unreliably ascertained to use for policy valuation purposes. He therefore does not offer a proposed resolution of the endogenous preferences valuation problem in the terms that I have framed it in this article. Some of his insights, however, are nevertheless germane to the enterprise of attempting to resolve the valuation problem viewed in these terms, and I will draw upon those insights in Part III of this article.

Sunstein continues in his more recent work to flatly reject the idea that policy valuations can or should be carried out in a non-paternalistic manner that is grounded in expressed or otherwise revealed preferences.[57] He instead endorses the more paternalistic approach of disregarding these preferences, both pre-policy implementation

54. *See* Sunstein, *supra* note 32, at 2652.

55. *See id.*

56. *See* Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1161 (2003) ("[I]n many domains, people lack clear, stable or well-ordered preferences. What they choose is strongly influenced by details of the context in which they make their choice, for example default rules, framing effects . . . and starting points. These contextual influences render the meaning of the term 'preferences' unclear.").

57. *See id.* at 1164 ("The first misconception is that there are viable alternatives to paternalism.").

preferences and post-policy implementation preferences, and choosing instead to value policies with regard to their efficacy "to move people in welfare-promoting directions"[58] that are determined to be so desirable by some external criteria other than those persons' preferences. His attempt to justify this approach in the face of the usual strong criticisms made of governmental policymakers who choose to disregard expressed or otherwise revealed preferences to purportedly achieve greater social welfare[59] is to me rather unconvincing, but that is the subject of another article.

2. Kenneth Dau-Schmidt's Views

Kenneth Dau-Schmidt has written two important pieces relating to endogenous preferences, each of which focuses primarily, although not exclusively, on issues raised by the criminal law.[60] His primary emphasis in these two articles is making clear the importance and pervasiveness of the preference-shaping effects of many laws and social policies,[61] and determining when preference-shaping policies are to be preferred over policies that only shape opportunities.[62] He was not focusing upon my inquiry regarding how to properly conduct a cost-benefit assessment of a policy that has both opportunity-altering and preference-shaping consequences, a topic that he addresses only tangentially. He does, however, offer some insights that are useful for one making this effort.

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58. *Id.* at 1162.

59. *See id.* at 1166 ("Once it is understood that . . . a form of paternalism cannot be avoided, and that the alternatives to paternalism (such as choosing options to make people worse off) are unattractive, we can abandon the less interesting question of whether to be paternalistic or not, and turn to the more constructive question of how to choose among the possible choice-influencing options. To this end we make two general suggestions. First, programs should be designed using a type of welfare analysis, one in which a serious attempt is made to measure the costs and benefits of outcomes (rather than relying on estimates of willingness to pay). Choosers should be given more choices if the welfare benefits exceed the welfare costs. Second, some results from the psychology of decisionmaking should be used to provide ex ante guidelines to support reasonable judgments about when consumers and workers will gain most by increasing options."). This quote clearly articulates the controversial paternalistic premise that governmental officials, supported by "reasonable guidelines" that are grounded in modern theories of psychology, can be trusted to accurately assess the "true" social costs and benefits of policies without having to rely upon the expressed willingness to pay for or to avoid policy consequences of the affected persons to make those assessments.

60. *See generally* Dau-Schmidt, *supra* note 23; Dau-Schmidt, *supra* note 24.

61. *See, e.g.*, Dau-Schmidt *supra* note 23, at 158-68; Dau-Schmidt *supra* note 24, at 16.

62. *See, e.g.*, Dau-Schmidt *supra* note 23, at 168-70; Dau-Schmidt *supra* note 24, at 14-24.

Dau-Schmidt clearly recognizes that the existence of endogenous preferences with regards to a policy undermines the application of conventional social welfare criteria to evaluate that policy,[63] including the willingness to pay criterion that is generally utilized in cost-benefit analysis under the exogenous preference assumption. The closest that he comes to taking an explicit position as to which of the various pre-policy implementation and post-policy implementation preference structures should be utilized for valuation purposes in cost-benefit analysis is the following, somewhat cryptic statement that he offers in his 1990 article regarding what he views as the minimally acceptable properties of an adequate social welfare function:

> To ensure a rational social preference ordering [in light of the "impossibility theorem" results demonstrated by Kenneth Arrow], economists usually assume that interpersonal comparisons of the intensity of individuals' preferences are possible, and that the intensity of individuals' preferences is reflected in the social preference ordering. If one allows preferences to vary, then it is also necessary to assume that intertaste comparisons of the intensity of an individual's preferences are possible, and that intertaste intensity is also reflected in the social preference function. To account for these interpersonal and intertaste comparisons, the social welfare function has been modeled as a summation of individual utility functions which reflect the intensity of preference in their measure of utility.[64]

I have assumed for the purposes of the inquiry presented in this article that the pre-policy implementation preference structures, the post-policy implementation preference structures, and any transitional preferences structures can each be accurately ascertained, and the primary question here considered is how to combine the policy valuations derived from each of these different preference structures for overall policy valuation purposes. Under this assumption, the willingness of any individual to pay for a given policy can be precisely determined under each of these preference structures, thus satisfying Dau-Schmidt's suggested minimal requirements for a valuation

63. There are a variety of possible social welfare criteria that can be derived from individual utility functions that could be used for policy assessment. The approach utilized by cost-benefit analysis in aggregating willingness to pay across all affected persons is only one of the many possible options. Many of the proposed social welfare criteria, however, are grounded in some fashion upon individual preferences as to possible states of society. All social welfare functions of this type are faced with the need to deal somehow with the endogenous preferences problem in making their assessments of policies that alter preferences. *See* Dau-Schmidt, *supra* note 24, at 6-8.

64. *Id.* at 7-8.

methodology that it be able to make interpersonal and intertaste comparisons.

These minimal requirements, however, do not mandate that any particular choices be made among the different policy valuations derived from each of these different preference structures in making the overall policy valuation. However, the major thrust of Dau-Schmidt's work is to emphasize the importance of recognizing the endogeniety of preferences in areas such as the criminal law where preference-shaping is often one of the primary goals of the policies undertaken, and to offer suggestions regarding how to assess when such preference-shaping measures are appropriate to undertake. It is consequently most unlikely that he would embrace a valuation methodology that totally ignored the post-policy implementation preference structures and any transitional preference structures, since this approach would be tantamount to making the exogenous preference assumption that he rejects as particularly inadequate in those contexts.

3. Samuel Bowles' Views

Samuel Bowles is a prominent economist who has emphasized in an article the importance of taking into account preference endogeniety for both descriptive and normative purposes.[65] While clearly recognizing the advantages of the conventional exogenous preferences assumption for analytical tractability and for placing limits upon excessive paternalism,[66] Bowles also recognizes that under many circumstances the lack of realism of this assumption undercuts its usefulness.[67]

Bowles' work parallels that of Dau-Schmidt in that he attempts to emphasize the importance of recognizing preference endogeniety in many important policy-making contexts. He also suggests the general

65. *See* Bowles, *supra* note 23, at 75 ("If preferences are affected by the policies or institutional arrangements we study, we can neither accurately predict nor coherently evaluate the likely consequences of new policies or institutions without taking account of preference endogeniety.").

66. *See id.* at 102 ("The implicit premise that policies . . . do not affect preferences has much to recommend it: the premise provides a common if minimal analytical framework applicable to a wide range of issues of public concern, it expresses a prudent antipathy toward paternalistic attempts at social engineering of the psyche. It modestly acknowledges how little we know about the effects of economic structure and policy on preferences, and it erects a barrier both to ad hoc explanation and to the utopian thinking of those who invoke the mutability of human dispositions in order to sidestep difficult questions of scarcity and social choice.").

67. *See id.* at 105 ("Realism, however, cannot be among the virtues invoked on behalf of the exogenous preferences assumption. . . . A broader concept of market failure is thus required, one encompassing the effects of economic policies and institutions on preferences and for this reason more adequate for the consideration of an appropriate mix of markets, communities, families, and states in economic governance.").

contours of the comprehensive research program that he believes is called for to increase our currently inadequate understanding of the processes of preference formation and alteration,[68] and describes the practical significance that such greater understanding of those processes would have for economic and social policy.[69] But while Bowles notes generally that preference endogeniety has implications for policy evaluation,[70] he does not offer any specific suggestions germane to this article's inquiry as to how the different pre-policy implementation and post-policy implementation preference structures, once determined, should be utilized for cost-benefit analysis valuation purposes. His comments do, however, suggest caution in giving substantial weight to post-policy implementation preference structures in making policy valuations under circumstances where the uncertainties regarding the accuracy of the forecasting of those future preference structures are sufficiently great to raise concerns of covert paternalistic biases being imposed by analysts.[71]

III. MY APPROACH TO MAKING VALUATIONS IN COST-BENEFIT ANALYSIS UNDER ENDOGENOUS PREFERENCES CIRCUMSTANCES

Before I offer my own thoughts for the reader's consideration as to the most appropriate theoretical framework for the incorporation of endogenous preferences into cost-benefit analysis, I would like to first briefly point out a few practical considerations that may have some significance for making proper use of the results of the theoretical inquiry. I will then present my theoretical analysis and conclusions, and later revisit these practical considerations and discuss the extent to which they may impose limitations upon the use of my suggested valuation methodology.

A. Practical Considerations that Should Be Kept in Mind When Applying an Endogenous Preferences Valuation Framework

1. Under Some Circumstances the Choice Among Alternative Preference Structures is Mooted

First, there are some instances where even though a policy may significantly alter the preference structures of a substantial number of

68. *See id.* at 102-03.
69. *See id.* at 104-05.
70. *See id.* at 104 ("[P]reference endogeniety gives rise to a kind of market failure and suggests a reconsideration of some aspects of normative economics.").
71. *See* Bowles, *supra* note 23, at 102.

persons, it will not be necessary for a cost-benefit analyst to choose between valuations derived from the pre-policy implementation preference structure and those derived from the post-policy implementation preference structure. This will be the case whenever the net benefits calculations under either set of preference structures lead to the same conclusion as to the merits of the policy at issue relative to those of the other policy alternatives. In other words, if the valuation calculations are invariant in the sense that they would lead to endorsement (or rejection) of the policy in question relative to the alternatives when valuations are done with regard to either of these two preference structures, then the issue is rendered moot and no choice among them need be made.[72] For example, with regard to advertising expenditures which presumably have at least some effect in altering consumer preferences as well as providing information, it has been argued that it is generally unnecessary to choose between using pre-advertising preferences or post-advertising preferences in order to value the effects of the advertising expenditures, since the results will usually not be significantly affected by the choice.[73]

As a general matter, however, when there are significant differences in the contours of the pre-policy implementation and post-policy implementation preference structures for a substantial number of affected persons, a cost-benefit analyst might well reach different conclusions as to the relative merits of the policy in question as compared to the possible alternatives depending upon which set of preference structures was used for valuing the policy's consequences. Under those circumstances, a choice between these preference structures for valuation purposes will have to be made.

72. However, even if all of these preference structures would yield identical policy recommendations as compared to the merits of the policy alternatives, a person following Cass Sunstein's paternalistic recommendations might reject all of those preference structures and substitute instead for valuation purposes another set of preference structures which when used for valuations in the analyst's opinion better facilitates achieving social welfare. *See generally* Sunstein & Thaler, *supra* note 56.

73. Avinash Dixit & Victor Norma, *Advertising and Welfare*, 9 BELL J. ECON. 1, 2 (1978) ("[I]n general, advertising that is beneficial at the margin as judged by preadvertising tastes will also be beneficial according to postadvertising tastes, and advertising that is harmful according to the latter will also be harmful when judged by the former."). This sweeping claim is certainly a counter-intuitive result, since one would expect advertisers to attempt to alter preferences in favor of the advertised goods and services rather than merely limit themselves to providing information as to their properties and availability and that such preference-shaping efforts may or may not be successful.

2. Preference Structure Estimation Difficulties May Limit the Ability to Implement the Theoretically Appropriate Valuation Approach

There are generally difficulties of one sort or another that will be encountered in estimating the contours of preference structures, particularly with regards to preference structures that do not yet exist, or no longer exist, at the time of estimation. In addition, there are differential difficulties encountered in estimating preference structures depending upon whether the cost-benefit analysis is being undertaken prospectively in advance of a policy's implementation or is instead being carried out retrospectively in order to assess whether a policy that has been implemented has had the desired results. Let me address each of these problems in turn.

a. General Preference Structure Estimation Difficulties

It is of course often difficult even under the conventional simplifying exogenous preference assumption for cost-benefit analysts to ascertain the contours of the applicable preference structures so as to calculate the willingness to pay-based valuations of the consequences of the policies under consideration. There is often a lack of the revealed preference data that would be most useful for ascertaining these preferences, and the various methods used by analysts to ascertain preferences in the absence of such data are open to criticism.[74] This problem obviously becomes more severe under endogenous preferences assumptions where two or more different preference structures may need to be ascertained. The practical difficulties involved in determining the contours of each of perhaps several preference structures suggests that it may often be infeasible to attempt to ascertain the contours of transitional (and perhaps short-lived) preference structures, and that the most that can reasonably be accomplished in many instances would be to estimate only two distinct preference structures—the pre-policy implementation preference structures and the final stable long-term post-policy implementation preference structures—and then choose which of these two preference structures should be utilized to value the policy's consequences. It may even in some instances be impossible to estimate with any real confidence the post-policy implementation preference structures, forcing the analyst to in effect make his valuations under an implicit exogenous preference assumption even when that assumption is recognized to be false.

74. *See, e.g.*, Sunstein, *supra* note 25, at 208-10.

b. Prospective and Retrospective Cost-Benefit Analyses Present Different Kinds of Problems for Estimating the Applicable Preference Structures

Another point worth keeping in mind is that the practical difficulties presented by the need to determine the contours of the relevant preference structures will be different both in kind and in severity depending whether the cost-benefit analysis is being done prospectively or instead retrospectively. Cost-benefit analyses are most commonly done prospectively as part of the process of reaching a decision as to whether to implement a particular policy. Under those circumstances, the pre-policy implementation preference structures already exist and can ideally be empirically ascertained.[75] However, the subsequently resulting post-policy implementation preferences structures do not yet exist before the implementation of the policy. They will have to be projected solely on the basis of estimates of the impacts that the policy will have on the pre-policy implementation preference structures. Given our limited understanding of the processes of preference formation and alteration,[76] such projections will be relatively uncertain and subject to additional sources of error that go beyond the difficulties inherent in ascertaining existing preference structures.

This need to forecast the contours of post-policy implementation preference structures raises a real concern than an analyst might be tempted to utilize result-oriented projections of preference structure alterations that are formulated with the hidden agenda of either favoring or disfavoring the policy at issue.[77] Given the inherent uncertainty of such projections of future preference structures, these kinds of analyst manipulations may be difficult or impossible to recognize and discredit prior to the implementation of the policy, by which time it may be too late to effectively revisit the decision.

This practical concern as to the potential for analyst bias that would be difficult or impossible to police adequately might call for giving relatively greater weight to valuations derived from the more easily ascertained existing pre-policy implementation preference structures, and correspondingly giving relatively lesser weight to the more subjective and uncertain projections of post-policy implementation preferences structures, than would be justified by purely theoretical considerations were there not such significant differentials in the measurement difficulties presented by the need to establish the contours of the

75. At least, in theory, this can be done, although determining the relevant individual preference structures in the absence of revealed preference data can be very difficult.

76. *See* Bowles, *supra* note 23, at 102-03.

77. *See id.* at 102.

alternative preference structures. In a case where the estimates of post-policy implementation preference structures are particularly uncertain, this concern might even justify relying solely upon the pre-policy implementation preference structures—in effect reimposing the assumption of exogeniety of preferences for the policy at issue under circumstances where this assumption is recognized to be false—in order to avoid the possibility of being misled by analyst bias.

Cost-benefit analyses are, however, sometimes done retrospectively rather than prospectively in an attempt to determine whether a policy has been successful in achieving its objectives, though this effort of revisiting policies with the advantage of hindsight is not undertaken nearly as often as some commentators would prefer.[78] Under those retrospective analysis circumstances, the post-policy implementation preference structures exists at the time at which the analysis is conducted and can ideally be empirically ascertained. In addition, the pre-policy implementation preference structures and any transitional preference structures, while they would no longer exist at the time of the analysis, would presumably have left some historical record and can be more accurately ascertained than can post-policy implementation preference structures in the prospective analysis context where they can only be forecast.

This difference in analytical context suggests that there should be somewhat less concern about the possibility of hidden analyst bias in preference structures estimation for retrospective cost-benefit analyses than for prospective analyses. In other words, the differential difficulties presented with regard to establishing the contours of preference structures that do not exist at the time that the analysis is conducted are more serious in the prospective cost-benefit analysis context than they are in the retrospective analysis context. Therefore, the practical concerns about avoiding potential sources of analyst bias that might call for giving greater weight to the valuations derived from the pre-policy implementation preference structures than to those valuations that are derived from estimated post-policy implementation preference structures in the prospective analysis context are more significant than are the comparable concerns that would call for giving greater weight to valuations derived from post-policy implementation preference structures than to those derived from the pre-policy implementation preference structures in the retrospective analysis context. It may, therefore, be the case that the policy valuations derived from endogenous preferences assumptions should under some circumstances perhaps be calculated somewhat differently for prospective cost-benefit analyses than for

78. *See, e.g.*, Hahn & Tetlock, *supra* note 7, at 77-78.

retrospective analyses, even absent any theoretical reasons for such disparate treatment.

B. A Proposed Methodology for Combining Valuations Obtained Through the Use of Different Preference Structures

To provide a context for my subsequent analysis, I ask the reader to assume for the sake of argument that a cost-benefit analyst wishes to evaluate the impacts of a policy, either prospectively or retrospectively, under circumstances where the policy will have (or has had) significant effects upon the preferences of a substantial number of people. In other words, assume that there initially exists one set of preference structures that characterizes those persons' pre-policy implementation preferences, but that another and different stable set of preference structures will characterize those persons' preferences after the policy has been implemented for some period of time, and perhaps one or even a series of transitional preference structures will also characterize those persons' preferences at various times during the transition period to their final stable post-policy implementation preference structures. Assume also for now that each of these preference structures can be accurately ascertained so that the uncertainty of estimation and analyst bias issues discussed in Parts III.A.2.a. and b. do not arise. Finally, further assume that one is taking a non-paternalistic stance under which one is committed to deferring to the extent possible to the preferences of the affected persons. Given these assumptions, what combination of policy valuations derived from each of these preference structures would be the most appropriate theoretical framework to use for valuing the policy impacts in accordance with the underlying willingness to pay principle that essentially defines cost-benefit analysis?

I have concluded that at least in most instances the post-policy implementation preference structures should be used to value policy consequences, rather than the pre-policy implementation preference structures, for both prospective and retrospective cost-benefit analyses. The most intuitively plausible justification for this choice is the obvious fact that the post-policy implementation preference structures embody the actual preferences that will exist when the policy consequences are experienced by the affected persons. This justification is given further support by Dau-Schmidt's argument that to use the pre-policy implementation preference structures to value those policies that are intended partially or even primarily to alter preferences would be to completely miss the point of those policies.

Sunstein, as discussed above, is for various reasons critical of using either pre-policy implementation or post-policy implementation

preference structures to value policies, but his arguments certainly cannot be read to favor the use of the pre-policy implementation preference structures over the post-policy implementation preference structures for making valuations; if anything, they would suggest the contrary. Neither Becker nor Bowles specifically address this choice among preference structures for valuation purposes question in their work, except that Becker briefly notes that "initial preferences should have no priority over final preferences in welfare analysis when policies change preferences,"[79] and that Bowles notes the potential for analyst bias in the estimation of post-policy implementation preference structures, an issue I will later address when considering practical limitations upon the use of an endogenous preferences valuation methodology.

I offer the "at least in most instances" qualification in my recommendation above because one can certainly conceive of extreme circumstances where valuations that are made solely on the basis of post-policy implementation preference structures can be criticized as a means of attempting to justify undesirable policies on the basis of distorted preferences that the policies themselves have created.[80] As a practical matter, however, most policies do not appear to directly distort preferences but merely provide more information that allow persons the option to alter their preferences, but does not force them to do so. I therefore do not think the bootstrapping concern adverted to by Sunstein significantly undercuts the argument for relying solely upon the post-policy implementation preference structures for policy valuation in the usual cases.

This approach of using post-policy implementation preference structures to value policies that alter preferences will tend to favor those environmental policies and other preference-altering policies for which the post-policy implementation preference structures are more favorable to the policy in question when weighing the trade-offs between policy benefits and costs. In some instances, this effect could be outcome-determinative; a policy option that is regarded as inferior when assessed by the yardstick of the pre-policy implementation preference structures may prove to be the preferred alternative when assessed with regard to the post-policy implementation preference structures. I have argued in

79. BECKER, *supra* note 29, at 20.

80. One can imagine extreme examples of this situation. Would anyone accept as a justification for imposing forced lobotomies on people the fact that post-lobotomy, those persons seemed content with their new lot in life? As a less extreme example, a policy that facilitated access to addictive drugs might well be favorably regarded by subsequent addicts who had initially opposed those policies pre-addiction. Should the valuations by the addicts then be regarded as definitive as to the value of the addictive drug access policy?

this article that under these circumstances the latter, more favorable assessment of the policy in question is the correct cost-benefit assessment.

My decision to endorse the use of the post-policy implementation preference structures for valuation purposes raises the derivative question as to what weight to give to transitional preference structures, where they exist, relative to the final stable post-policy implementation preference structures. My conclusion here is in general accord with Becker's discussion of the proper roles that time-discounting and preference structure duration should play in policy valuation and should be relatively uncontroversial. Policy consequences that occur while a transitional preference structures exist should be valued on the basis of those transitional preference structures and then time-discounted to a present value based on when those consequences occur. Once the final stable post-policy implementation preference structures have come into existence, all subsequent policy consequences should be valued in accordance with those preference structures and then time-discounted to a present value as appropriate.

Under this discounting approach, the longer that a transitional set of preference structures exists, other things being equal, the more weight they will be given in the overall policy valuation. This seems most sensible. In addition, the time-discounting applied to the valuations derived from each of the applicable post-policy implementation preference structures to convert them all to present value terms will render those valuations commensurate for the purpose of aggregation into an overall policy valuation.

This endogenous preferences valuation framework that I recommend here on theoretical grounds may, however, need to be practically modified in some instances to reflect the preference structure estimation difficulties and potential analyst biases that I have discussed in Part III.A.2.a. and b. I will address these issues in the next subsection of this article.

C. Recognizing Practical Limitations on an Endogenous Preferences Valuation Methodology

As noted above, there may sometimes be severe difficulties involved in estimating the contours of transitional preference structures. In such instances, it may be necessary as a practical matter to make the simplifying assumption that the final stable post-policy implementation preference structures will immediately come into existence upon the implementation of the policy. In those instances where the transitional preference structures are short-lived or where they do not differ

significantly from the final stable post-policy implementation preference structures, or both, this simplifying assumption is unlikely to introduce significant error into the valuation calculations.

Most cost-benefit analyses are done prospectively, and in some instances the analyst may unfortunately not only be unable to determine the contours of any transitional preference structures, but also unable to estimate with any confidence even the contours of the final stable post-policy implementation preference structures. Under these circumstances, there is no ideal way to proceed, and a difficult choice is presented as to the best analytical approach.

One could direct the analyst to proceed with the policy valuation exercise on the basis of the pre-policy implementation preference structures, assuming that they can be empirically ascertained with reasonable accuracy, essentially utilizing the exogenous preferences framework in a situation where this assumption is known or at least believed to be inaccurate. On the other hand, one could direct the analyst to persevere with the endogenous preferences valuation approach in the face of this difficulty and use the best estimate of the post-policy implementation preference structure(s) that she can ascertain. This latter tact of course raises the possibility that the analyst may incorporate into the cost-benefit analysis highly speculative and biased estimates of these preference structures that are designed to justify a particular result that she favors, and that will be difficult or impossible for others to recognize as such and criticize. This problem of potential and effectively unreviewable analyst bias will, as previously discussed, be much less of a concern in the retrospective cost-benefit analysis context where the post-policy implementation preference structures exist and can presumably be empirically estimated with some reasonable accuracy, and where there is no need under my suggested valuation approach to undertake the more difficult exercise of estimating the contours of the former pre-policy implementation preference structures on the basis of historical evidence.

IV. CONCLUSION

Cost-benefit analysis is the most important policy evaluation technique now used in American public sector decision making. It is therefore crucial that these analyses be properly conducted. The conventional assumption made by cost-benefit analysts is that individual preference structures are not altered by any of the policies that are under consideration. This simplifying exogenous preferences assumption is not always satisfied, however, and in some instances the preference structures of a substantial proportion of the people who are impacted by a

policy are endogenous in that they are also significantly altered by that policy. Under those endogenous preferences circumstances, an important question is presented as to whether the willingness to pay-based valuations of the impacts of the policies called for by the cost-benefit methodology should be calculated with regard to the pre-policy implementation preference structures, or instead with regard to the different post-policy implementation preference structures, including any transitional preference structures that may exist for a period of time, or perhaps with regard to some combination of the above.

Several prominent scholars have previously addressed aspects of this inquiry, including most importantly Gary Becker, Cass Sunstein, Kenneth Dau-Schmidt, and Samuel Bowles. While each of those writers has made a substantial contribution to the effort, the endogenous preferences valuation question has not yet been definitively resolved and virtually all cost-benefit analysts continue to ignore the implications of the possibility of endogenous preferences in their work. In this article, I have assessed the merits of Becker's extended utility function valuation approach, and of the various valuation suggestions offered by Sunstein, Dau-Schmidt, and Bowles. Within a framework of hopefully reasonable assumptions that I have made as to the ability of analysts to ascertain the contours of preference structures, I have offered my own thoughts regarding how the endogenous preferences valuation problem can be best addressed in a non-paternalistic fashion.

My main conclusion is that the willingness to pay-based valuations of policies provided by cost-benefit analyses should be derived solely from the post-policy implementation preference structures, as a general matter. If there are any transitional preferences structures, they should also be used to value those policy consequences that occur while those transitional preference structures are in existence. This valuation framework recognizes the important fact that post-policy implementation preferences are the actual preferences that will exist when the policy consequences are experienced by the affected persons, recognizes that many policies will alter and are even designed to alter preferences, and gives proper weight to the timing of policy consequences and the duration of various post-policy implementation preference structures.

This recommended cost-benefit valuation framework will be more favorable to those environmental and other policies that have as one of their consequences the alteration of preferences in a manner that favors the policy at issue, and in my opinion that favoritism is justified for the reasons discussed above. As I have also discussed, however, this theoretical endogenous preferences valuation framework may need to be modified at times to accommodate preference structure estimation difficulties and to counter potential analyst bias, particularly with regard

to prospective cost-benefit analyses. My hope is that cost-benefit analysts will come to recognize the shortcomings of invariably assuming that preferences are exogenous with regard to the policies under consideration, and will give more thought to ways of incorporating preference endogeniety into their analyses. I also hope that this article will provide them with some assistance in this effort.