

Valuing the Future: OMB's Refined Position

John D. Graham[†]

Federal agencies are required by presidential executive order to prepare a regulatory impact assessment (RIA) in support of any economically significant regulatory action.¹ An important feature of the RIA is a benefit-cost analysis.² Although benefit-cost considerations are not always decisive in regulatory decisionmaking, they are gradually becoming more important both in the United States and abroad.³

If the benefits and costs of a rule are projected to occur at different points in time, which is common, a discount rate is generally applied to future benefits or costs in order to convert them to present value. Until 2003, the position of the U.S. Office of Management and Budget (OMB) was that such analyses should generally employ a real (that is, inflation-adjusted) discount rate of 7 percent.⁴

OMB Circular A-4, published September 17, 2003, revisited this question.⁵ Circular A-4 was developed through a multi-year process that included a collaboration of analysts at OMB and the Council of Economic Advisors, public comment, expert peer review, and formal interagency review. The result of that process was a refined OMB position on time-preference issues.

[†] Dean, Pardee RAND Graduate School, Santa Monica, California.

¹ Exec Order 12866, 3 CFR 638 (1993) reprinted in 5 USC § 601 note (2000) (outlining the assessments of regulatory alternatives, anticipated costs, and benefits associated with proposed regulations that agencies should conduct).

² A classic treatment of cost-benefit analysis is E.J. Mishan, *Cost-Benefit Analysis: An Informal Introduction* (Routledge 4th ed 1994).

³ See Cass R. Sunstein, *The Cost-Benefit State: The Future of Regulatory Protection* ix (ABA 2002) (recognizing that cost-benefit analysis has become predominant in agency decisionmaking processes, and questioning how such analysis evaluates risk and future generations); Jonathan B. Wiener, *Better Regulation in Europe* 2–3, online at http://eprints.law.duke.edu/archive/00001586/01/_Curr.Leg.Probs_.pdf (visited Jan 22, 2007), 59 *Current Legal Probs* (forthcoming 2007) (noting that European institutions are increasingly using cost-benefit analysis). See generally Organization for Economic Co-operation and Development (OECD), *Regulatory Impact Analysis (RIA) Inventory* (Apr 15, 2004), online at <http://www.oecd.org/dataoecd/22/9/35258430.pdf> (visited Jan 22, 2007) (detailing the cost-benefit analysis programs established in OECD countries).

⁴ See Office of Management and Budget, Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs* 8 (1992), available at 57 Fed Reg 53519, 53523 (1992) (providing 7 percent as the discount rate based on past pre-tax rates of return).

⁵ See Office of Management and Budget, Circular A-4, *Regulatory Analysis* 31–37 (2003), online at <http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf> (visited Jan 22, 2007).

I. INTRAGENERATIONAL DISCOUNTING

For benefits and costs that accrue within a generation, A-4 recommends that agency analysts present two sets of benefit-cost calculations: one using the traditional rate of 7 percent; another using a lower rate of 3 percent.⁶ A-4 stipulates that the same rate must be applied to benefits and costs in order to avoid well-documented perversities.⁷

The two rates are based on different economic concepts: foregone investment and foregone consumption. In a theoretically perfect economy—one that is risk free, tax free, with all commodities perfectly divisible—one might expect the consumption rate of interest to equal the marginal rate of return on private investment. Since the real world of capital markets and consumer decisionmaking is complex, analysts are confronted with an array of interest rates (short run, long run, low risk, high risk, pre-tax, post-tax) to choose from.⁸

The 7 percent rate is intended to represent the long-term opportunity cost of capital in the U.S. economy, measured as the average rate of return on private investment (for example, average pre-tax returns on investment). Thus, if a regulatory cost displaces capital investment, the analyst needs to compute what the returns on the displaced investment would have been, assuming the investment had not been displaced.

The 3 percent rate is intended to represent the average consumer's rate of time preference, measured as the after-tax returns on savings accounts. If the cost of a regulation is imposed as a higher price on products purchased by consumers, then the consumer faces the dilemma of paying that cost through either foregone consumption or diminished savings (or greater debt).

When a specific regulation is being analyzed, it may be difficult for the analyst to determine whether the costs (or savings) will be expressed in the economy as a change in investment or a change in consumption, or both. If the rule will impact both investment and consumption, it may be difficult to discern the relative proportions. Consequently, OMB takes the position that the analyst should bound the two possibilities by presenting one set of benefit-cost results using 3 percent and another using 7 percent.

⁶ Id at 33.

⁷ Id at 34. See also Emmett B. Keeler and Shan Cretin, *Discounting of Life-Saving and Other Nonmonetary Effects*, 29 *Mgmt Sci* 300, 305 (1983) (arguing that the use of a lower discount rate for benefits than for costs leads to "peculiar, even absurd, consequences").

⁸ See J. Lipscomb, M.C. Weinstein, and G.W. Torrance, *Time Preference*, in Marthe R. Gold, et al, eds, *Cost-Effectiveness in Health and Medicine* 214, 216–19 (Oxford 1996) (recognizing that the imperfections of the real world prevent a clear-cut discounting analysis from being easily implemented).

In A-4, OMB also acknowledges that agency analysts may discover, in the context of specific rulemaking, that a rate other than 3 percent or 7 percent may be appropriate to analyze. For example, A-4 expresses particular concern about rules that might cause capital to be reallocated away from the corporate sector of the economy, where average (pre-tax) real returns were 10 percent in the 1990s, “returning to the same level observed in the 1950s and 1960s.”⁹ A-4 provides the agency analyst the technical discretion to present benefit-cost results based on other rates, in addition to 3 percent and 7 percent.

II. INTERGENERATIONAL DISCOUNTING

For the first time, OMB in A-4 addressed specifically the question of how benefits or costs in one generation should be compared to benefits or costs incurred in another generation.¹⁰ Previously, OMB had assumed implicitly that the same rate of discount, presumably 7 percent, should be applied in both the intragenerational and intergenerational contexts.

Though not stated explicitly, OMB appears to be acknowledging that the results of a regulatory analysis could be highly sensitive to whether a discount rate of 3 percent, 2.8 percent, or 2.5 percent is employed. This sensitivity is particularly likely when either a large cost or a large benefit is projected to occur more than a generation from now. In addition, OMB was aware of some technical arguments—still controversial—suggesting that smaller discount rates are likely to be appropriate for problems with very long time horizons (though such arguments do not necessarily correspond neatly with generations).¹¹ For example, there is some psychological and survey evidence that discount rates decline as the time horizon expands into the future.¹² When surveyed, economists themselves tend to supply lower discount rates for impacts in the “distant future” compared to those in the next cou-

⁹ OMB, Circular A-4 at 34 (cited in note 5).

¹⁰ Id at 35–36 (noting that future generations could still be treated fairly while applying a discount rate).

¹¹ See, for example, Martin L. Weitzman, “Just Keep Discounting, but . . .”, in Paul R. Portney and John P. Weyant, eds, *Discounting and Intergenerational Equity* 23, 29 (Resources for the Future 1999) (arguing that uncertainty about future interest rates suggests that small discount rates should be used for “deep-future projects”).

¹² See, for example, Maureen L. Cropper, Sema K. Aydede, and Paul R. Portney, *Preferences for Life Saving Programs: How the Public Discounts Time and Age*, 8 *J Risk & Uncertainty* 243, 251–55 (1994) (describing empirical research suggesting that the discount rates individuals apply are inversely related to time delay); Charles M. Harvey, *The Reasonableness of Non-Constant Discounting*, 53 *J Pub Econ* 31, 35–36 (1994); John K. Horowitz, *Discounting Money Payoffs: An Experimental Analysis*, in Stanley Kaish and Benjamin Gilad, eds, *Handbook of Behavioral Economics: Behavioral Decision Making* 309, 316 (JAI 1991); Richard Thaler, *Some Empirical Evidence on Dynamic Inconsistency*, 8 *Econ Letters* 201, 205 (1981).

ple of years. For example, Geoffrey Heal argues that there is certainly no economic consensus concluding that impacts one hundred years from now should be discounted at the same annual rate as impacts five years from now.¹³

For intergenerational contexts, OMB again instructs agencies to present results using 3 percent and 7 percent, coupled with an explicit discussion of the ethical or distributional ramifications of the intergenerational impacts. However, A-4 goes further and acknowledges the possibility that it may also be informative to present results using a nonzero rate of discount that is less than 3 percent.¹⁴

III. GENERAL VERSUS PARTIAL EQUILIBRIUM ANALYSES

Professor Heal reminds us that the utility discount rate is distinct from the consumption discount rate, the latter being a function of the former. For analysts, he explains that the utility discount rate—which might be presumed to be zero—is a general equilibrium concept, used in models of the evolution of an entire economy over time. If the analyst is instead evaluating a small project with no economy-wide implications, then the analysis is a partial equilibrium exercise and the consumption rate of discount (possibly the 3 percent rate suggested by OMB) is appropriate. He describes the climate change issue as one that might require a general equilibrium model.¹⁵

For practical U.S. regulatory analysis, a partial equilibrium analysis will almost always be the appropriate course. That is because (a) the U.S. economy is only one part of a huge and growing world economy, and (b) a single regulation is rarely expected to have a discernible impact on the overall growth path of the U.S. economy. Even in the case of policies to address global climate change, we should not assume that general equilibrium approaches to analysis will be required. The U.S. economy, for example, is far less sensitive to changes in energy prices than it was thirty or fifty years ago. Moreover, climate

¹³ See Martin L. Weitzman, *Gamma Discounting*, 91 *Am Econ Rev* 260, 266–69 (2001) (describing and analyzing a survey of 2,160 economists showing that the vast majority would use lower discount rates for long-term projects than for short-term projects); Geoffrey Heal, *Intertemporal Welfare Economics and the Environment*, in Karl-Göran Mäler and Jeffrey R. Vincent, eds, 3 *The Handbook of Environmental Economics: Economywide and International Environmental Issues* 1106, 1140 (Elsevier 2005) (citing Weitzman's survey of economists as evidence that economists are aware of the issues raised by long-term discounting).

¹⁴ OMB, Circular A-4 at 35–36 (cited in note 5) (allowing use of a lower discount rate in the intergenerational context because of ethical considerations about the equal treatment of future generations).

¹⁵ Heal, *Intertemporal Welfare Economics* at 1139 (cited in note 13) (noting that the general equilibrium model is best used on policies that will impact an entire region or economy). See also Geoffrey Heal, *Discounting: A Review of Basic Economics*, 74 *U Chi L Rev* 59, 67 (2007).

change policies that have a significant impact on the overall U.S. economy are not likely to be politically feasible.¹⁶

IV. A COMMENT ON WELFARISM

In the conference discussion, some participants envisioned a future for regulatory analysis where economic measures of benefit and cost—those based on classical concepts of willingness to pay money (for benefit) and willingness to accept money (as compensation for cost)—might be replaced by direct measures of changes in utility or happiness as a result of new policies. This revival of pure utilitarian thinking would surely have made Jeremy Bentham proud.¹⁷

The philosophical attraction to this idea is that economic measures are more influenced by the distribution of wealth and income in society than are utility and happiness. For example, measuring gains in health policy based on changes in quality-adjusted life years (QALYs) is gaining intellectual ground as compared to monetary measures, in part because the determination of QALYs is not heavily influenced by the wealth or income of the beneficiaries (whereas willingness to pay for personal health gains is obviously constrained by wealth and income).¹⁸ In making decisions affecting health policy, we may be concerned with more than our own personal health and the amounts that people getting benefits from the government might be able to pay for such benefits. Do we really want a government that values ten QALYs saved in a poor community less than ten QALYs saved in a wealthy community?

In other words, a pure welfarist approach to regulatory analysis based on utility or happiness may be less vulnerable to allegations of unfairness based on underlying inequities in the distribution of eco-

¹⁶ A mandatory, economy-wide cap on greenhouse gas emissions was voted down twice on the floor of the U.S. Senate, once in 2003, 108th Cong, 1st Sess, in 149 Cong Rec S 13598 (Oct 30, 2003), and again in 2005, Roll Call Vote No 148, 109th Cong, 1st Sess, in 151 Cong Rec S 7029 (Jun 22, 2005). Concerns about adverse economic impacts were cited by opponents in both floor debates. See, for example, 149 Cong Rec S 13495 (Oct 29, 2003) (Sen Voinovich) (arguing that carbon dioxide caps will raise energy prices and cost jobs); 151 Cong Rec S 7002–03 (June 22, 2005) (Sen Bond) (arguing that mandatory carbon dioxide limits would cost the U.S. jobs). See also Mike Mills, *Futurist: Climate for Change*, CQ Weekly 444 (Feb 21, 2005), online at http://public.cq.com/public/20050221_futurist.html (visited on Jan 22, 2007) (arguing that although the government is unlikely to mandate carbon dioxide limits soon, many businesses are beginning to support such limits, especially at the federal level so as to preempt state schemes); Mary Clare Jalonick, *Ominous Forecast Predicted for Greenhouse Emissions Bill in Upcoming Senate Debate*, CQ Weekly 2645 (Oct 25, 2003) (observing that the sponsors of the bill knew they do not have the votes to win).

¹⁷ See Ted Honderich, ed, *The Oxford Companion to Philosophy* 85–88 (Oxford 1995) (describing Jeremy Bentham's utilitarianism).

¹⁸ See Peter J. Neumann, *Using Cost-Effectiveness Analysis to Improve Health Care: Opportunities and Barriers* 8–10 (Oxford 2005).

conomic goods. Across generations, one might also be able to assume that a unit of happiness (or a QALY) in one generation is equivalent to a unit of happiness (or a QALY) in a future generation, without having to address the willingness to pay of the present versus the future generation.

As attractive as the welfarist revival may be, it may be useful to remind readers why Kaldor-Hicks (economic) approaches to regulatory analysis became the practical norm in the first place, instead of the various social welfare constructs that have been proposed and discussed over the years. There was the rejection of cardinal utility, the apparent logical impossibility of the sort of social functions that are attractive to welfarists, and the practical reality that costs of policies are readily determined in monetary units, without any obvious way to convert them into utility or happiness.

First, a social utility function would presumably be based on some aggregation of cardinal utilities for each person in the society. Yet modern economics, after careful consideration, rejected the measurability and interpersonal comparability of utility (or related concepts of happiness).¹⁹ Progress in psychology and neuroscience may cause economics to reconsider its rejection of cardinal utility but, for now, we do not have an objective measure of zero utility or a unit measurement of utility (like we have for distance or weight), and thus the utility scales for different individuals need have no connection with one another.

Second, the logical impossibility of a social welfare function that satisfies fairly innocuous assumptions is another serious concern. Kenneth Arrow's famous work sought to define a social welfare function that satisfied a few basic, ethical axioms: unanimity (if one person's preference is unopposed by all others in society, that preference should be respected by the function); nondictatorship (no individual has an ability to have his preferences dominate others in the function); transitivity (if Policy A is better than Policy B, and B is better than C, then A is better than C); and more complex yet plausible axioms such as unrestricted domain and independence of irrelevant alternatives. What Arrow found, sobering as the result may be, is that no social welfare function satisfies these basic axioms.²⁰

¹⁹ For example, see the textbook discussion in James P. Quirk, *Intermediate Microeconomics* 75 (Science Research 1976) (explaining that individual preferences do not provide a benchmark for interpersonal comparisons because of the lack of a means of measuring differences between individuals).

²⁰ For a lucid discussion of Kenneth Arrow's Impossibility Theorem, see Dennis C. Mueller, *Public Choice* 185–201 (Cambridge 1979) (establishing that the collective-choice process fails

Finally, there is the practical reality that analysts measure the costs of policies using data from markets where prices are determined based on a particular distribution of income and wealth. If the metric for analysis will be utility instead of money, we will need to learn how to transform monetary costs into diminished utility and happiness, a significant new analytical challenge. Moreover, if we want the cost measure to be based on a “just” wealth distribution, the challenge becomes even more difficult. It is far from straightforward to determine what the costs of Policy A would be under Wealth Distribution 1 versus Wealth Distribution 2, since different wealth distributions may generate different prices in the economy. It is, of course, the prices of resources (for example, labor and capital) that are combined with input quantities to determine the costs of a policy.

Some of these problems can be averted if we back away from an ambitious benefit-cost position and settle for a comparison of policies based on cost-effectiveness. Health policy is moving in this direction, leaving to accountable politicians the value judgment about how much it is worth to save a QALY. Some have charted ways for regulatory analysis to move in that direction as well.²¹ In A-4, OMB instructs agencies to present both benefit-cost and cost-effectiveness results.

to satisfy certain basic criterion, such as allowing unopposed preferences and ensuring nondictatorship of one individual over the rest).

²¹ See generally Wilhelmine Miller, Lisa A. Robinson, and Robert S. Lawrence, eds, *Valuing Health for Regulatory Cost-Effectiveness Analysis* (National Academies 2006) (exploring the use of cost-effectiveness analyses for “economically significant health and safety regulations”).