

Using Cost-Benefit Analysis to Review Regulation¹

Tyler Cowen (George Mason University)

1. Introduction

One set of proposals for regulatory reform calls for the government to apply cost-benefit analyses to new regulations, or to apply such analyses to old regulations.

Cost-benefit analysis is an analytic procedure which estimates the net economic value of a given policy or project. It converts all costs and benefits into a monetary metric and then measures whether the benefits outweigh the costs.

Cost-benefit analysis may be characterised by the following concrete procedures:

- take most of the world as a given, and ask whether a single policy change would be desirable;
- specify all relevant benefits and costs of that policy;
- measure those benefits and costs in dollar terms;
- take those measurements from evidence on market demand and supply functions, as given by economics;
- discount future costs and benefits accordingly to their location in time, according to appropriate economic formulae;
- come up with a final figure for net benefits or net costs, using the information generated.²

Under the proposals considered in this chapter, regulations that did not pass a cost-benefit test would be struck down, not enacted, or at least required to undergo some further process of scrutiny. We consider these proposals by asking three questions. First, does cost-benefit analysis feasibly evaluate the quality of regulations (section 2)? Second, does cost-benefit analysis provide a morally acceptable means of judging regulatory policy (section 3)? Third, is there a feasible institutional machinery for giving cost-benefit significant influence over the regulatory process? (section 4)

2. What are the Practical Limits of Cost-Benefit Analysis?

The meaning of cost-benefit analysis is subject to conflicting interpretations. Under one extreme view, cost-benefit analysis can tell us directly whether or not a given policy should be implemented. If the policy passes the cost-benefit test, relative to alternatives, it should be enacted. If the policy fails, it should be rejected. This view, however, requires the extreme claim that economic efficiency is the only value. This view thus commands little assent, by either academicians, policymakers, or the general public.

¹ Chapter prepared by Tyler Cowen, Department of Economics, George Mason University, Fairfax, VA 22030, Draft January 15, 1998.

² For a selected bibliography of cost-benefit studies, see Boardman, et.al., 1996, pp.445-472.

A more modest view suggests that cost-benefit analysis provides a summary statistic for the efficiency of a given project, but that efficiency is only one consideration of many. Nonetheless we need cost-benefit analysis to know the trade-offs involved in policy choice, such as how much efficiency we must sacrifice to achieve other values, if we are so inclined. Cost-benefit tells us the menu of trade-offs which policymakers face.

While this second conception of the normative scope of cost-benefit analysis is more reasonable and defensible, it has little bite for regulatory reform. As discussed in earlier chapters of this report, the problems of regulation stem from the poor incentives and information of regulators. Simply doing a cost-benefit study, and telling regulators to think about or weigh the results, is unlikely to improve policy outcomes or strike down bad regulations. We can too easily imagine the regulators simply noting that they have thought about the relevant trade-offs and proceeding apace with costly regulations. The requirement for a cost-benefit study would have simply created another layer of costly bureaucracy.

Within the practical realm of regulatory reform, cost-benefit analysis must take on the status of a veto mechanism, if it is to have any bite at all. That is, agencies must somehow be influenced or constrained to reject policies that fail a cost-benefit test. With this in mind, we evaluate cost-benefit analysis in these terms, as a method that can yield an unambiguous no but not produce an unambiguous yes. However overly ambitious this normative conception of cost-benefit analysis may be, it is the only conception that can have a significant impact on real world policy. We must evaluate cost-benefit analysis in more extreme form than its most sophisticated proponents would be willing to defend, and we must evaluate it as a source of policy veto. No one has proposed that an agency is obliged to pass every regulation that passes a cost-benefit test nor would this be a feasible idea, given the nearly infinite number of potential regulations that could be tested.

The remainder of this section considers a number of the critical issues in cost-benefit analysis and whether these issues are capable of resolution. For a variety of reasons, cost-benefit analysis may be theoretically suspect, practically indeterminate, or susceptible to manipulation. We now survey the key problem areas for cost-benefit studies, including the difference between willingness to pay and willingness to be paid, choice of discount rate, the valuation of human life, option value, non-use values, distributional issues, and whether market prices reflect social opportunity costs. The discussion focuses on whether cost-benefit analysis *can* yield useable answers; section 3, to follow, focuses on whether these answers are morally sound, just, or acceptable.

Willingness to pay vs. willingness to be paid

Cost-benefit analysis has two ways of measuring the benefits of a policy change; namely, willingness to pay and willingness to be paid (henceforth WTP and WTBP). Both sums attempt to measure how many dollars a given change is worth to an individual - how much would an individual pay for that change, for instance, or how much would an individual have to be paid to receive a sum of equal value.

Problems arise when WTP and WTBP differ by a considerable amount. Consider a simple example. An individual might report that he is willing to pay only \$200 to save the sperm whale from extinction. That same individual, if asked how much he would have to be paid, to accept the extinction of the sperm whale, usually will cite a much higher figure. The individual might be willing to accept sperm whale extinction for a payment of, say, \$2,000. In this case, which is the correct value for saving the sperm whales for this individual - \$200 or \$2,000? Economic attempts to evaluate policy are potentially indeterminate.

In standard economic theory the difference between WTP and WTBP arises from income effects. The postulated individual cannot so easily give up money to save the whales, given budget constraints, but he does not have an equally strong need for extra funds. In the absence of income effects, WTP and WTBP are equal because an individual's valuation of a policy change is independent of his level of income. And according to standard theory, if income effects are small, WTP and WTBP will differ only slightly. Willig (1976) argued that for apparently reasonable assumptions, both figures would be within a few percent of consumer surplus on each side.³

In practice WTP measures of welfare are usually significantly lower than WTBP measures. Studies of the value of human life which use WTBP, for instance, yield significantly higher values than studies which use WTP. Thaler (1980) reports that the minimal compensation demanded for accepting a .001 risk of sudden death is one or two orders of magnitude higher than the WTP to eliminate a comparable risk, even though a risk so small should not be expected to generate a significant income effect.

Other significant WTP-WTBP discrepancies from cost-benefit analyses are reported by Knetsch and Sinden (1984, p.508). A sample of duck hunters from the United States indicated that on average, each would pay \$247 to maintain a wetlands area for hunting, but would require compensation of \$1,044 if the area were to be eliminated (Hammack and Brown, 1984). Survey evidence concerning air pollution found that the average WTBP for giving up clean air exceeded the average WTP for receiving clean air by a factor of four to six (Rowe et al., 1980). Boardman, et.al. (1996, chapter eleven), in their survey of the literature, note differences between WTP and WTBP which range from four to fifteen times.

Knetsch and Sinden (1984) use laboratory experiments to test the relationship between WTP and WTBP. Individuals confronted with actual monetary payments and compensations revealed unexpectedly wide variations between WTP and WTBP, even for small sums of money. Average WTP for a lottery ticket of small value was estimated at \$1.28, whereas average WTBP for the same ticket was \$5.18, more than four times greater. Significant disparities between WTP and WTBP can also be found in the experiments developed by Kahneman and Tversky (1982), who find strong evidence for an "endowment effect." Individuals appear to value their current endowment far higher than any potential additions to that endowment; that is, they attach special value to the property they already own.

Numerous tests of the endowment effect are examined by Kahneman, Knetsch, and Thaler (1990, 1991). In hypothetical surveys, the ratio between WTBP and WTP for various commodities ranges from 2.6 to 16.5, even though none of the commodities examined accounts for a large part of individuals' budgets. These gaps do not narrow significantly for real exchange experiments. Heberlein and Bishop's (1985) study of deer hunting produces a ratio of 6.9 for WTBP vs. WTP, and the study of park trees by Brookshire and Coursey (1987) yields a ratio of 5.6.⁴

³ Willig (1976, p.589) noted: "observed consumer's surplus can be rigorously utilized to estimate the unobservable compensating and equivalent variations - the correct theoretical measures of the welfare impact of changes in prices and income on an individual...in most applications the error of approximation will be very small...The results in no way depend upon arguments about the constancy of the marginal utility of income." Hanemann (1991), however, provides a critique of Willig, and shows that the discrepancy may be larger for non-marketable public goods.

⁴ The experiments of Coursey, Hovis, and Schulze (1987) produce a smaller, albeit still significant ratio of 1.4. They suggest, however, that the ratio may approach one with market experience and that many economic experiments therefore are misleading.

WTP-WTBP differentials persist even when we control for income effects as traditionally conceived. Knetsch, Thaler and Kahneman (1987, pp.10-11) ran experiments where they adjusted for income effects by appropriately adjusting the wealth endowments of experiment participants. Members of one group, who were designated Sellers, were given a coffee mug and asked whether they would sell the mug at a series of prices ranging up to \$9.25. Another group, Choosers, were asked to choose, for the same set of prices, if they would prefer receiving the mug or cash. Median values of Sellers for the mug were more than twice the median values of Choosers, even though income effects (as traditionally understood) were not present.

The implications of these studies are clear. First, cost-benefit analysis is subject to potential manipulation. If some governmental agency or monitor is given the task of performing cost-benefit analyses, it can produce high or low policy valuations by simply choosing WTBP or WTP. An agency can control outcomes to suit its tastes, to a considerable degree. Second and more importantly, even an honest or non-manipulating agency will not know which figure to use. We simply do not know which policy evaluation is the correct one. We cannot define which figure is the "manipulative" one and which figure is the "correct" one.

The literature on WTP and WTBP really reflects a more general problem that is simply easier to see in this context, since WTP and WTPB can be measured with relative ease. When we ask how much an individual values a policy change, there is no simple fact of the matter, most of the time. Preferences are never given in pure form, but rather they are mixed in with the context of the choice, how a choice is presented, what is the baseline for the choice, and numerous other factors. For this reason, cost-benefit analysis does not typically produce unique or even closely bunched figures for demand valuations.

Discount rates

When costs and benefits accrue in the future, they are typically discounted for time. That is, a cost or benefit in the future counts for less than a cost or benefit occurring in the present. The application of discount rates creates further ambiguities for cost-benefit analysis, especially for policies with long or far-reaching implications, such as environmental policy (Lind 1982 surveys the relevant issues behind choice of discount rate).

There are two primary methods of choosing a discount rate for policy analysis. The first method uses the real rate of return on private capital to compare future and present values. One typical study (Holland and Myers 1979) estimated such rates of returns at 12.41 percent. After adjusting these returns for risk premiums (more on this below), this method typically generates discount rates between five and ten percent, although these figures vary with country and time period. The second method estimates the social rate of time preference by examining the real rate of return on the near-riskless obligations of the relevant government or fiscal authority. This procedure usually generates discount rates between one and two percent for the United States, although real rates of return in New Zealand often have been higher than that in recent times. The final rate yielded by this second method again will depend on country and time period, but typically it yields significantly lower rates than the first method (for further examples of studies which generate numerical social discount rates, see Boardman et al., 1991, chapter five).

A more extreme view, defended by Solow (1974) and Cowen and Parfit (1991) claims that a zero rate of discount should be used for intergenerational decisions. If policymakers create a forthcoming benefit for future generations, those individuals do not have to engage in waiting or abstinence in the meantime. A cost or benefit experienced by the current generation ought not count for more than a cost or benefit to come in the more distant future. Future generations cannot trade in today's markets and interest rates therefore do not reflect all

relevant preferences. Defenders of this view, however, do not necessarily suggest that a zero rate should be used for decisions within a generation. Furthermore, discounting for the uncertainty of future benefits and costs still makes sense, under this view.⁵

A related literature examines whether policymakers should use riskless or risk-adjusted rates of discount. Kenneth Arrow and Robert Lind, in a famous article, argued that government should use the riskless rate of discount. Arrow and Lind claim that when the government is large and takes on a variety of projects, the social risk of any single project approaches zero. This reasoning subsequently has been criticised by Samuelson (1966) and Bailey and Jensen (1972). Arguably the government and the private sector should use the same discount rate. In a world of well-developed capital markets, as we find in most developed countries, the government and the private sector have access to roughly the same risk-shifting and insurance possibilities. The government typically is large and initiates many projects, but private markets can mobilise a large pool of capital and a large number of shareholders, if doing so would usefully reduce risk. The arguments of Samuelson (1966) imply that the large number of government projects is irrelevant, since adding more risky projects increases rather than decreases risk. Bailey and Jensen (1972) argue that Arrow focuses too much on financial risk and not enough on real risk, in this case the risk of the value of the project output, which is invariant across government or private supply.

The choice of discount rate has a significant effect on the evaluation of costs and benefits when the time horizon is long. At a five percent rate of discount, the value of one dollar today is more than \$4.30 thirty years from now and worth more than \$11.40 fifty years from now. Looking even further into the future, one current dollar is worth five billion dollars four hundred and sixty years from now. The following tables outline tradeoffs of how many future dollars are equal to one present dollar at various rates of discount.

ONE PERCENT RATE OF DISCOUNT

Years in the future	Number of future dollars
30	1.3
50	1.6
100	2.7

THREE PERCENT RATE OF DISCOUNT

Years in the future	Number of future dollars
30	2.4
50	4.3
100	19.2

FIVE PERCENT RATE OF DISCOUNT

Years in the future	Number of future dollars
30	4.3
50	11.4
100	131.5

TEN PERCENT RATE OF DISCOUNT

Years in the future	Number of future dollars
30	17.4
50	117.3
100	13,780.6

⁵ For further treatment of intergenerational issues, see Sikora and Barry (1978) and Parfit (1984).

We will not pretend to settle or even fully survey the relevant issues about which discount rate is the correct one. The essential point is that the literature has not reached a consensus on this matter and is unlikely to reach such a consensus in the near future. The proper rate of discount, depending upon one's theoretical loyalties, can be from as low as zero percent and as high as twelve to fifteen percent. The absence of a consensus reflects the weakness of cost-benefit analysis in generating determinate normative recommendations.

Governmental agencies cannot be expected to apply the proper discount rate, even if there were a correct answer as to what the proper rate is. The likelihood of correct application here is small, except by accident. Regulatory agencies, even if they are staffed and controlled by very good economists, do not typically have answers to unsolved intellectual problems of this kind. Furthermore, staff economists do not typically control regulatory agencies.

In practice, regulatory agencies have few incentives to find or apply the correct discount rate. Agency heads are typically not evaluated on the basis of the intellectual contributions or sophistication of their divisions. Rather, the agency is evaluated on the basis of whether its projects and regulations are popular with voters, special interest groups, and other politicians. When agencies are given freedom, they tend to first decide which projects or regulations they want to implement, and then work backwards and apply a discount rate on that basis. The indeterminate status of the academic debate allows for easy manipulability on this count, without the agency even facing a charge of intellectual dishonesty or "excess intellectual flexibility." If, after all, no one knows what the correct rate is, policymakers have no alternative but to use their own seasoned judgment and intuition.

Governments typically apply a variety of discount rates without insisting on consistency. In the United States, the Office of Management and Budget tells most regulatory agencies to use a real rate of ten percent. (The Canadian Treasury Board Secretariat advises the same rate and most provincial governments follow suit.) Even in this case, U.S. agencies can use an alternative rate if they can provide justification. The Congressional Budget Office, an advisory arm of Congress, however, uses a real discount rate of two percent. The General Accounting Office, an oversight agency, applies rates more flexibly. For lease-purchase decisions, the Federal government uses the Treasury borrowing rate, plus one-eighth of one percent. We find further examples of flexibility even within single agencies. While the Office of Management and Budget usually uses ten percent, for water projects it follows a different lead. The *real* rate on water projects is to be taken from the *nominal* rate on U.S. Treasury borrowing. This rate is usually relatively low but it can be relatively high in times of inflation (Boardman et.al., 1996, pp.176-7). In both theory and practice, the choice of the proper rate of discount remains an unresolved issue.

Valuing lives

The valuation of human life provides one of the most difficult issues in cost-benefit theory. As discussed in the opening section of this chapter, cost-benefit analysis works best for changes in government policy which have very small effects on the margin. Yet economics is based on methodological individualism, the view that all costs and benefits are defined only in terms of the preferences of individual persons. A death is anything but a small change for the victim and therefore it resists easy economic measurement.

The valuation of human life features prominently in cost-benefit issues. Health care, health regulations, safety regulation, welfare policy, disease inoculation, research and development into many kinds of new products, and many other areas of government policy affect who lives and who dies. If we consider *all* of the consequences of policy, nearly every policy has life and death implications. Nearly all policies change the prevailing level of wealth, in one direction or the other. Lower levels of wealth usually end up leading to the death of some

individuals or others. Poorer people take more dangerous jobs, buy less safe cars, and more generally they invest less in protecting their lives. Given that most policies are matters of life and death, at least for some, cost-benefit analysis cannot avoid taking a stance on how a human life should be valued.

Cost-benefit analysis usually treats the value of life by measuring the value of risks of death or increased chances of safety. Economists can examine, for instance, how much an individual will pay to lower the risk of dying in a fire. Purchase of a smoke detector, for instance, may lower fire-related death probability by 0.001 percent, or one thousandth of one percent. If a purchased smoke detector costs 50 dollars, cost-benefit analysis can value a one percent chance of death at \$50,000 dollars. Going even further, these figures can be used to value a certain death at five million dollars. This final sum of five million dollars can be constructed from a group experiment. If we subject a set of 100,000 individuals to this given risk, on average one of them will die, given the laws of probability. The value that the group would pay to avoid this risk, taken collectively, is five million dollars. Cost-benefit analysis therefore takes the value of one life as equal to five million dollars, at least given the numbers postulated for the example. In the terminology of some economists, cost-benefit analysis values "risk reduction for groups", rather than valuing life *per se*.

Ted Miller (1989) performed a comprehensive survey of valuation of life studies, examining 49 studies and picking the 29 that best met standards of scientific accuracy. From these 29 studies, the average value of life was U.S. \$1.95 million, measured in 1985 dollars. Most of the valuations were within the range of \$1 to \$3 million. The studies based on contingent valuation, which used surveys and questionnaires, yielded somewhat higher results than average, typically generating figures above \$2 million. Fisher, Chestnut, and Violette (1989) find figures ranging from \$1.6 million to \$8.5 million in their survey of 21 studies, noting that the lower figures appear to be the more reliable ones. Viscusi (1993) examines 14 labour market studies and comes up with figures ranging from \$3 to \$7 million, using 1990 U.S. dollars. It is difficult to assess whether this consensus is more illusory than real, given that researchers may aim to have their results fall within the appropriate range and that "publication bias" may discriminate against estimates outside of that range.

A variety of critics have questioned the appropriateness of these procedures. The extant criticisms can be broken into two categories, practical and conceptual. The practical criticisms question whether we do in fact have good measures of the value of risk reduction. Data are usually taken from market demands for safety equipment (such as smoke detectors) or wage premia for especially risky jobs.

Neither provides an exact measure of risk reduction in the pure sense. In the case of smoke detectors, for instance, individuals may not have a good idea of the fire risks involved or the ability of smoke detectors to lessen those risks. The demand for smoke detectors may depend more on public relations campaigns and peer pressure, than on objective assessment of the value of risk and the value of life. Furthermore, smoke detectors (or any other safety device) provide a host of ancillary services, such as property protection. The "value of life component" of the price is difficult to separate out. Wage data for risky jobs present similar ambiguities of interpretation. Jobs differ in many concrete aspects, and even advanced regression analysis cannot easily separate out the "risk component" for a particular job and attached salary. Furthermore, the individuals who take relatively risky jobs most likely value their lives less than average, again making the selected measure unreliable. Finally, individuals do not always judge small probabilities with full rationality (Kahneman and Tversky 1979).

The second and more fundamental set of criticisms question whether economic analysis can value a life at all, even in principle. Extant methods place great stress on the value of "risk

reduction," and are loathe to examine cases where analysts know that one individual will die with certainty. Cases of certain death, however, pose more fundamental difficulties for the cost-benefit method.

Many policy options involve cases where we know that an identifiable individual will die, unless specific action is taken to prevent this outcome. Health care economics provides the most obvious set of examples, or cases where a mountaineer is lost and resources are being devoted to rescue. How far should society go in saving a set of known victims? If an individual or group of individuals suffers from a potentially fatal disease, how many resources should be devoted to trying to find a cure?

The economic cost-benefit method, if applied naively, suggests using either willingness to pay or willingness to be paid criteria for these decisions. Yet these magnitudes do not appear to provide satisfactory answers. Willingness to pay, to save one's own life, is bounded by how much money an individual has. This magnitude simply happens to measure historically accumulated wealth, rather than how much the life is actually worth. To that individual, the life has infinite or near-infinite value. Some individuals may not be willing to give up all their money to save their lives, given altruistic bequest motives, and this may keep down willingness to pay for staying alive. Nonetheless it does not seem proper to conclude that these lives should be worth less; if anything, the presence of familial altruism should make the life worth more. Cost-benefit analysis, as expressed through willingness to pay magnitudes, works best for small changes in wealth but works very poorly for large changes, as represented by a potential death. Valuing "risk reduction" is a fudge which does not work in all circumstances, if indeed in any.

Instead of using willingness to pay to stay alive, the analyst could look at willingness to be paid for dying. The conceptual difficulties mount even further, though. For a purely selfish individual, the compensating variation for death is infinite. That is, no amount of money will induce that individual to die. WTBP may be less than infinite for altruistic individuals, who wish to die and donate the money to family or charity, but again this does not mean that the lives of these individuals are worth less. It simply implies that they feel more altruism towards others, not that they care less about themselves.

The inability of cost-benefit analysis to handle cases of certain death raises questions about stochastic death as well, that is about valuing risk reduction. Say that a given policy creates risk for some set of individuals. Why should it matter whether or not we know the exact identities of who dies? Take a policy that would spend \$500 million to increase food safety for a small number of products. The expected number of lives saved is, by construction of the example, one. Cost-benefit analysis normally would reject such an investment but it is not clear why. If we knew the identity of the saved life, the value of that life would be infinite or near-infinite to that individual. Why shouldn't the internal logic of cost-benefit analysis suggest using the value that is based on greater information about the final outcome? Consider the comparison between the perfect information WTBP and the imperfectly informed WTBP. The real world has imperfect information and we do not always know who will die. Nonetheless we do know that the perfect information WTBP is very high, perhaps infinite, no matter who dies. So why not use this latter magnitude? Such a move, however, would cause cost-benefit analysis to break down and cease to yield useful or determinate answers.

This argument is *not* suggesting that individual lives in fact have infinite or near-infinite value, relative to other social goals. Virtually all plausible moral theories reject this conclusion; we should not devote the entirety of gross domestic product to research into terminal diseases, for instance. Rather the argument is that cost-benefit analysis, which relies exclusively on dollar valuations, cannot meaningfully bound the value of human life. Our

rationale for bounding the value of human life must come from outside of cost-benefit analysis, implying that cost-benefit analysis is missing something fundamental about the value of an individual life to society.

To sum up this discussion, economic analysis has not provided a fully satisfactory means of valuing human lives. Current methods for valuing risk reduction are useful in the sense that they often make correct recommendations: we should not spend an infinite amount to save a life. Nonetheless these methods do not grapple with or resolve the difficult issues. For both practical and conceptual reasons, the value of a human life does not appear to be adequately expressible in dollar-based terms. Economic methods for valuing human life therefore represent a value judgment on the part of the economist, rather than a fully objective application of the cost-benefit method.

Option value

The concept of option value provides another potential ambiguity in the application of cost-benefit analysis. As the name would indicate, option value refers to the value that consumers place on having the "option" to consume a given good or service. The example of National Parks illustrates the concept. According to the option value hypothesis, the value of National Parks is greater than is measured by the number of people who go in a given year. The value depends also on the options of going, as experienced by many people, some of whom end up not visiting. Even though many New Zealanders did not go to National Parks last year, they had the option of going. This option was worth something to them and arguably should enter the cost-benefit calculus.

Option value is an attempt to express the *ex ante* value of economic resources. Older cost-benefit techniques typically measured the expected value of consumer surplus, that is the benefits that would be expected to materialise *ex post*. Option value measures the value of a policy, given that consumers do not know exactly which contingencies will occur (e.g., they do not know whether or not they wish to visit a National Park, in the context of the example).⁶

Option value can dramatically affect the outcome of a cost-benefit study. Many goods and services, or policies, do not affect the immediate consumption patterns of large numbers of people. The potential holders of "option value" often are very large, relative to those who actually pay for the good or service. When individuals are asked about their option value for a National Park, they typically will give an answer of at least some positive sum, even if they live far away from the Park or never go to parks. Counting option value can significantly increase the measured benefits of a public good.⁷

The debate over option value has not been resolved. Critics of the concept charge that it is ghostlike and mystical and that individuals claiming to have "option value" are simply engaging in cheap talk. After all, many of those individuals do not end up making the trip to the relevant National Park. The critics also argue that if we count all the people who make

⁶ The seminal articles on option value include Schmalensee (1972), Bishop (1982), Graham (1982), Plummer and Hartman (1986), and Freeman (1984), and Meier and Randall (1991), to name a few examples.

⁷ Option value is typically positive, as an intuitive understanding of the Grand Canyon example would suggest. Under some circumstances, however, option value may be negative; see Schmalensee (1972) and Boardman et al., (1991, p.223), for a discussion of these conditions. The intuition is complex, but option value is typically positive for uncertainty about real income, where risk-aversion is positive and well-defined. When the uncertainty concerns prices, however, individuals may prefer variation rather than feeling risk-averse about it (the indirect utility function is convex in prices, in technical language). Under these special conditions, involving price variability, option value can be negative.

the trip, over a sufficiently long period of time, that we have a close enough approximation to option value in any case. Finally, the costs of the project also involved an "option value" on other goods and services; if we count option value for the benefits we should count an option value for the costs as well. Why not then simplify the entire procedure by not counting option value in the first place?

Defenders of the option value concept point to its established place in economic theory. In a world of uncertainty, individuals truly do have demands for the ability or option to consume a good or service. The value of warranties, contracts, and financial options reflects this value in tangible form. Although the value of the relevant option is less tangible when we consider public goods like National Parks, it need not be less real.

We will not attempt to resolve the option value debate in this context. The relevant issues span both philosophy and economics and have been the subject of numerous articles in the academic literature, as cited above. The relevant point again is that option value decreases the ability of the cost-benefit method to yield determinate results. A policy can look much better or worse, simply through the decision of whether or not to count option value. Cost-benefit analysis becomes more malleable, more susceptible to political influence, and less likely to serve as an independent check on policymakers.

Non-use values

Non-use values are a concept related to option value, but they do not rely on consumer uncertainty about prices or quantity. Non-use values arise when some individuals value a given state of affairs, even if they are not consumers of the relevant good or service. Again, environmental issues provide an example of the relevant issues. Some individuals may value the very existence of the blue whale, even if they never go see a blue whale or directly benefit from the blue whale in any way. These individuals simply take a kind of comfort in the existence of the blue whale, or in its ability to withstand extinction.⁸

The concept of non-use value is theoretically sound, given the emphasis in economics upon the subjectivity of value. "Use" is in any case not defined objectively, but rather in terms of whether or not consumers value a given state of affairs. Despite this sound theoretical foundation, non-use value creates practical problems for cost-benefit analysis. In the absence of measured or estimated market demands, there is no easy way to measure non-use values. In the case of blue whales and other environmental amenities, for instance, the relevant goods and services are not traded on any active market.

In practice, the cost-benefit analyst must rely on questionnaire and survey evidence, when seeking to estimate non-use values. These forms of evidence are unreliable for a variety of well-known reasons. Most significantly, individuals do not always report their true demands when asked. Individuals will claim to value the blue whale more than they really do. It is easier to announce a high valuation when the queried individual does not actually have to put up the money. In other cases, non-use values will depend critically on how the questions or questionnaire are being worded.⁹

Non-use demands also may be subject to manipulability by outside parties. In 1989 several whales were saved off northern Alaska from encroaching ice; the rescue became a media event and attracted worldwide attention. Presumably the "non-use" values for these whales skyrocketed at this time; suddenly the fate of the whales had significant value to millions of people. Whether this preference was "real" or just a "temporary creation of media dramatisation," remains a moot point.

The cost-benefit analyst also needs to find out how many individuals have non-use values for a given good or service. Again, since no market exists for non-use values, this enterprise is largely speculative in nature. The cost-benefit analyst might try to obtain a sample population for estimation, but non-use values may differ with demographics, geography, and other factors which are difficult to adjust for. If the number of excluded individuals, or falsely included individuals is large, the outcome of the cost-benefit study could be seriously affected. As with option value or choice of discount rate, we see that non-use values render cost-benefit judgments more problematic, and more easily susceptible to manipulation, than cost-benefit advocates would have us believe.

Distribution of wealth

Applications of cost-benefit analysis must start from a given distribution of wealth. That is, given some pattern of resource ownership, what is the most efficient or wealth-maximising policy? Cost-benefit analysis cannot tell us what is the best outcome, among all possible outcomes that might exist. Rather, it compares small changes from some given starting point.

⁸ The concept of non-use values dates from Krutilla (1967). For a survey, see Boardman, et.al., (1996, chapter [x] Rosenthal and Nelson (1992) present a systematic critique of the concept, see Kopp (1992) for a corresponding defense and rebuttal.

⁹ On the overstatement of use value for these reasons, see Rosenthal and Nelson (1992, p.120).

For instance, given the current distribution of wealth in New Zealand, should new regulations on food safety be implemented or not?

Although cost-benefit analysis takes the initial distribution of wealth as given, cost-benefit analysis nonetheless can incorporate some kinds of equity considerations. Cost-benefit analysis can treat "economic value for poor people" differently from "economic value for rich people," for instance. Economists have developed methods for weighting the value of dollars, depending upon who receives them. A cost-benefit analysis might, for instance, value a given dollar 1.5 if it goes to the very poor, where dollars to the rich remain valued at 1.0. This practice is sometimes called distributional weighting (Harberger 1978, Holtmann 1991).

The ability of cost-benefit analysis to incorporate equity values at the margin is both a strength and a weakness. On one hand, cost-benefit analysis shows its ability to reflect the common moral intuition that the distribution of wealth matters. On the other hand, considering distributional concerns moves cost-benefit analysis away from its role as "efficiency watchdog." The very purpose of cost-benefit analysis is to show whether a proposed policy is consistent with economic efficiency. If not, there may be some other, better way of achieving the same ends. If cost-benefit analysis gives up this watchdog role, and tries to incorporate ancillary ethical considerations, it loses its bite and effectiveness. The trade-off between distribution and efficiency perhaps is best performed during final policy debate, once the cost-benefit analysis is finished, rather than within the cost-benefit analysis itself.

Distributional weights also increase the manipulability of cost-benefit analysis. Given that distributional weights are an established academic procedure (albeit one that does not command universal acceptance), cost-benefit practitioners can use such weights at the regulatory level to make a given policy look better or worse. Since there is no academic consensus on what the weights should be, if they are to be used, there is no intellectual check, much less an effective practical check, on the agencies in this regard.

Finally, critics have argued that the efficiency cost of distributional weights is likely to be high. Distributional weights can easily lead us to approve policies that destroy considerable sums of economic value (Harberger 1978). The tax system, or welfare policy, provide arguably more efficacious means of redistributing wealth.

Market prices and equilibrium

Finally, cost-benefit analysis requires that market prices are relatively close to their equilibrium values. The price of a resource is used to measure its social opportunity cost, that is, how much value can be produced with that resource. So if it costs \$500 million to equip automobiles with air bags, the cost-benefit study assumes that if not for the regulation, those same resources could have produced \$500 million in value elsewhere.

The assumption that price reflects social opportunity cost relies upon ancillary presuppositions. First, market participants must be relatively well-informed about how to maximise value and how to spot profitable opportunities for resource deployment. Perceptual biases of the kind identified by Kahneman and Tversky (1979) will lead to splits between prices and true social values. Second, the relevant markets must come closer to market-clearing; that is, prices must balance supply and demand to a point of equality or near equality. Otherwise the price is reflecting artificial conditions of bottlenecks, surpluses, or regulations, rather than resource value. Third, resource uses should not involve positive or negative social externalities; that is, the price should reflect social value as well as private value. Consider, for instance, a regulation which destroys or consumes real resources that

would otherwise have gone into pollution-producing economic sectors. The real social value of these resources will be less than their observed market prices.

Cost-benefit analysts can attempt to adjust for these imperfections in market prices when performing their studies. Nonetheless the attempted adjustments are conjectural to large degree. The analyst must try to estimate some equilibrium other than the state of affairs that prevails in the market. For the same reasons that central planning is so difficult, the external observer, the economist, cannot predict another equilibrium with much confidence either. Application of cost-benefit analysis therefore is of moot validity, given that the above assumptions about prices and equilibrium do not typically hold.

Summary remarks on section 2

The survey of the above issues indicates that the practical and theoretical application of cost-benefit analysis is problematic on a variety of grounds. We do not intend these remarks as dismissing cost-benefit analysis altogether. As we will discuss further below, cost-benefit studies still may provide useful information to policymakers. Nonetheless proposals for cost-benefit analysis cannot claim a mantle of pure scientific objectivity and efficiency. The practical application of cost-benefit analysis involve a significant number of controversial value judgments. Proposals to expand the use of cost-benefit analysis should be viewed in that light. The cost-benefit method is not a fully objective means of measuring value, but rather relies upon a series of value judgments that have become embedded in the practice of economics as we know it.

3. Moral Presuppositions of Cost-Benefit Analysis

We also must consider whether we *should* follow the guidance of the cost-benefit method, even if cost-benefit studies have no practical or conceptual problems. This section turns to that topic and considers the normative limitations of cost-benefit analysis.¹⁰

The following discussion, throughout, draws a distinction between the advanced frontiers of welfare economics and the actual practice of cost-benefit analysis. Over the last several decades, welfare economists have developed rich and challenging analyses of cardinal utility, changing preferences, and how to analyse varying distributions of wealth. But these ideas have not filtered down into practice of cost-benefit analysis, nor will they in the foreseeable future. For better or worse, they are primarily theoretical constructs, based more in philosophy than in practical policy evaluation. The more philosophical parts of welfare economics are useful for helping us think about moral problems, but they do not provide useful and replicable means for policy analysis by regulatory agencies. Both the virtue and the failing of cost-benefit analysis is its (ostensible) simplicity. Cost-benefit analysis must be based on measurable dollar magnitudes if it is to have operational meaning. This reliance on measurable dollar figures forces the cost-benefit analyst into relying on observable, ordinal demands, based on the prevailing distribution of wealth.

Wealth vs. utility

Cost-benefit analysis encounters problems from its unwillingness to consider cardinality and interpersonal comparisons of utility. Most welfare judgments, whether economists like it or not, express underlying interpersonal comparisons of utility and intuitions of basic cardinality. Most people believe that New Zealand has a better economic system than does

¹⁰ A variety of writings consider the normative status of cost-benefit analysis, including Copp (1987), Cowen (1993), Hubin (1994), Kelman (1981), Leonard and Zeckhauser (1986), and Schwartzman (1982). Lave (1996) is the most recent survey.

Albania, and they are willing to offer advice on this basis, as either economists, politicians, citizens, or in other capacities as well. Yet upon inspection, this judgment requires interpersonal comparisons of utility. At least some individuals in Albania, such as political leaders, may be better off than some New Zealanders. So we cannot say that all New Zealanders are better off than all Albanians. In a strictly ordinalist framework we cannot even say that any New Zealanders are better off than any Albanians. The New Zealanders and Albanians have different utility functions, which do not admit of direct comparison. We do observe that more people would emigrate from Albania to New Zealand than vice versa, if they could, but even this fact cannot be directly translated into a comparison of aggregate welfare for one group of citizens against the other, at least not without stepping outside a narrowly ordinalist framework. It means only that a given set of Albanians would prefer to live in New Zealand.

The need for cardinal or quasi-cardinal judgments in policy analysis is common. Very few policies constitute universal Pareto improvements, making everyone better off (or worse off, for that matter). Arguably there is not a single policy that avoids having to weight conflicting interests. How then does cost-benefit analysis arrive at a final policy recommendation, given that Paretian unanimity so rarely holds?

Wealth maximisation as a standard

Defenders of cost-benefit analysis have not offered a compelling reason for its normative validity. Why is a policy good if it passes a cost-benefit test, and conversely, why is a policy bad if it fails a cost-benefit test?

One option is the modest claim that cost-benefit analysis merely represents one consideration and does not provide a final normative standard. This claim, while reasonable, does not provide much bite for practical policy analysis. As discussed in the second section of this chapter, we must consider varieties of cost-benefit analysis which actually veto policies which fail the cost-benefit test, otherwise the cost-benefit mandate will have little practical effect on regulatory policy. In other words, we must examine interpretations of cost-benefit analysis which carry relatively strong normative claims.

A more ambitious argument for cost-benefit analysis cites wealth maximisation as an appropriate normative end (Posner 1981; see also the "Kaldor-Hicks" standard of cost-benefit analysis, which looks only at total wealth, rather than whether every person benefits). Wealth maximisation includes not only measurable material wealth, but also the dollar value of intangibles such as leisure time, environmental amenities, the value of social capital, etc. Wealth maximisation therefore is a modified version of utilitarianism, the philosophy of maximising utility. It suggests maximising the total amount of good in society, while measuring "good" through the medium of monetary values. It does not require or suggest that money or material values are the only goods in society.

Sometimes wealth maximisation is given a contractarian or Rawlsian defense (Leonard and Zeckhauser 1986). That is, if individuals were placed behind a veil of ignorance, not knowing their future identities, they might prefer a standard of wealth maximisation. This argument, however, is question-begging. We do not know what individuals would choose behind a veil of ignorance. Furthermore, that choice should be determined by "correct moral principles," which is precisely what we are trying to discover and agree upon.

The case for wealth maximisation has not commanded universal or even general assent. Most generally, wealth may not be a good proxy for other, non-wealth values, such as justice, equality, dignity, and human rights, especially along the margins of very small changes. (It is more plausible to claim that very wealthy countries have more of these other non-wealth

values than do very poor countries.) The connection between wealth and other values would have to be demonstrated before a wealth maximisation standard could be accepted.

A further criticism applies a *reductio ad absurdum* to the wealth maximisation standard. If we take wealth maximisation seriously as a value, why should we stop at the limited, partial equilibrium perspective of cost-benefit analysis? Cost-benefit analysis takes the distribution of wealth as given, but a more general wealth maximisation standard need not do so. The wealth maximisation standard, if taken literally, suggests that we should evaluate the entire prevailing distribution of wealth in terms of its ability to maximise wealth. Why not, for instance, confiscate the assets of old ladies and redistribute them to Bill Gates? Gates presumably can create more wealth with those assets than the old ladies can.

Most individuals resist this conclusion because they believe it would violate rights and be unfair. Furthermore, the victimised old ladies may have "basic needs" which are lexicographically more important than the wealth which Gates could create. All of these considerations, rooted in common sense, militate against a strict wealth maximisation standard. They also raise questions about the applicability of wealth maximisation in more limited contexts, such as the partial equilibrium assumptions which underlie cost-benefit analysis. Individuals attach importance to social values which cannot be reduced to wealth and which may even conflict with creating more wealth.

Other critics (Kelman 1981) have charged that using a wealth maximisation standard is inherently undesirable and degrading, because it seeks to attach a dollar value to everything. Some commentators find cost-benefit analysis repugnant for this reason.

We are unwilling to attach dollar values to many states of affairs in ordinary life. Individuals do not, for instance, usually place dollar values on their marriages. Individuals do not say "my marriage is worth three million dollars to me." Not only would this kind of statement be distasteful, but making the statement would belittle the marriage and make it worth less. Individuals create value in our lives, in part, by deliberately refusing to make or even countenance some trade-offs. In similar fashion individuals do not attach direct monetary value to their children, friendships, or lives.

These same individuals nonetheless make economic trade-offs when it comes to these values. Parents, for instance, do not spend all their money on the very safest (and most expensive) automobile, even though such a vehicle would make their children safer. In that sense parents *do* place economic value on the lives of their children. We can say that in one sense parents do not place economic value on their children and that in another sense they do. The question then remains which of these attitudes should be distilled into public policy. Critics of cost-benefit analysis favor the first attitude, the one in which parents do not place direct economic value on the lives of their children. They believe that public policy should reflect the same kind of attitude. At some margin we must make economic trade-offs, but a humane and caring society should nonetheless limit how much it views these trade-offs in explicitly economic terms.

In addition, the wealth maximisation standard assumes that the best outcome can be determined by adding up separate values, in particular by adding up sums of wealth; this assumption has been questioned by many philosophers (see, for instance, Hurka 1993). Value may be irreducible and holistic, rather than additive. When comparing one social outcome to another, the evaluation of overall patterns cannot always be broken down into separate additive parts.

We may, for instance, judge Switzerland to be a better society than India, for largely holistic reasons and not because we have "added up" more value in Switzerland. Switzerland

arguably is more free, more just, and places greater emphasis on human dignity. It comes closer to our idea of a good society. We could imagine an economic policy that made Switzerland poorer, by making Switzerland more like India, and therefore increased Swiss population, albeit at considerable cost to the overall desirability of Swiss society. Holistic views of ethics imply we do not necessarily have to perform a cost-benefit analysis to reject this alternative. We know that making Switzerland more like India runs counter to fundamental human values and we reject the decision outright. We need not measure the gains from a greater Swiss population, and weigh them against the lower level of per capita wealth, to reject the policy. Instead, we simply note that Switzerland would have moved away from our vision of a good society.

Critics charge that cost-benefit analysis, by seeking to add and sum all values, gives short shrift to the holistic nature of value and inherently non-economic considerations. This argument has been applied, for instance, to the debate over public access for the handicapped. Many buses in the United States are equipped with special lifts that allow for handicapped boarding [do you have a comparable NZ example?]. The technology is very expensive and some critics have noted that it often would be cheaper to hire a private chauffeur for each and every handicapped person. In this sense the handicapped lifts fail a cost-benefit test. Many defenders of the handicapped lifts nonetheless stand by the policy, even though they are aware of the great expense, relative to hiring chauffeurs. They believe that the value "equal treatment for the handicapped" takes priority over the cost-benefit stipulation "save money by hiring chauffeurs." The former value corresponds more closely to their idea of a good society, even if it costs more.

Defenders of cost-benefit analysis typically defend the nature of their enterprise and the additivity assumption on the grounds of methodological individualism. In this view, all values are values to specific individuals. The claim "X is good" is reducible, ultimately, to claims of X being good for some specific set of individuals. This is exactly the claim which holism denies. Holism claims that social states of affairs can be good (or bad) on the grounds of objective values such as freedom, equality, meeting basic human needs, etc. In the holistic view, these values carry weight independently of our ability to trace them back to the interests or preferences of specific individuals.

Judging preferences

Policies which change preferences provide a further challenge to the presuppositions of cost-benefit analysis and also to the case for wealth maximisation. As mentioned in the first section of this chapter, cost-benefit analysis takes preferences as fixed and given in estimating market demands. Cost-benefit analysis therefore has a difficult time evaluating policies which change preferences, since such policies remove the fixed benchmark for comparison.

Consider a government which is evaluating two alternative educational policies. One policy will instill a strict work ethic in the citizenry, but at the cost of diminishing some of their ability to enjoy life (note that the concept of an "ability to enjoy life" cannot even be defined in a strictly ordinalist economic framework, which cannot compare one set of preferences to the other). The second policy leads to a weaker work ethic but arguably a greater ability to enjoy life. Cost-benefit analysis will, without hesitation, recommend the first educational policy. It creates greater wealth and therefore beats out the second policy in a cost-benefit comparison.

Yet it is not clear that the first policy is better, all things considered. Not only does cost-benefit analysis give us the wrong answer in many cases, it does not even give us a framework for considering questions of cardinal utility and interpersonal comparisons. Cost-benefit analysis gives us no means of comparing the two educational policies and the two sets

of preferences which result. In other words, cost-benefit analysis gives us no guidance as to how wealth translates into utility or human well-being.¹¹

The issue of how wealth translates into well-being applies generally across a range of cost-benefit issues. Critics of cost-benefit analysis argue that some forms of wealth translate into ultimate human well-being more readily than do other forms of wealth. An environmentalist, for instance, might believe that the economic value of a beautiful view produces more "real" human satisfaction than an equivalent economic value found in ordinary consumer markets, such as beer or potato chips. While this argument may smack of paternalism to some, it cannot be answered within a purely economic, cost-benefit framework, it simply lies outside of that paradigm. Similarly, the economic value of meeting "basic needs" for all citizens may produce more real satisfaction than an equivalent quantity of economic value produced through financial market activity. Again, the point is not that either of these claims is necessarily correct. Rather, cost-benefit analysis has no general mechanism for helping us analyse or evaluate such claims.

4. Implementation of Cost-Benefit Proposals

The above discussions have focused on the normative status of cost-benefit analysis, but they have not considered how cost-benefit analysis might be given greater influence over policy. This section considers a number of proposals for reform, focusing on what is actually feasible. The question is not how cost-benefit analysis might be best used ideally, but rather how can it be used in the real world, given the imperfections of politics.

The simplest and most direct option requires the issuing agency to perform the cost-benefit study itself. A second and arguably more radical option would create a separate agency or institution empowered to conduct cost-benefit studies of the regulations of other agencies. The United States Office of Management and Budget performed this function partially during the Reagan years, as we will discuss in more detail further below.¹²

The trade-off between these two kinds of proposals is clear - put simply, the first proposal is easier to implement but also less effective. It is cheaper to allow agencies to perform their own cost-benefit analyses. Agencies are intimately familiar with their own activities and with the industries or sectors they regulate. The agencies might need to add economists and other researchers to fulfill a cost-benefit mandate, but the proposal for cost-benefit analysis of regulation could be enacted within the structure of the current bureaucracy. In this regard the first option involves lower costs and could be implemented more easily.

This same cost advantage, however, points to the problem with agency cost-benefit studies. Agencies which evaluate their own activities are unlikely to provide a substantial independent check on their excesses. If a given agency wishes to pass a particular regulation, we can imagine that same agency manipulating the cost-benefit study to produced the desired outcome (the manipulability of cost-benefit analysis is discussed further below). The first proposal, in essence, is asking the fox to guard the henhouse.

¹¹ Cowen (1993) focuses on related dilemmas. Sen (1984) focuses on the limited informational poverty of the economic conception of preference.

¹² Most Western countries have some cost-benefit requirements for regulation, at least across a range of program areas, even if not universally. In Canada, for instance, the "Federal-Provincial Fraser River Flood Control Agreement" specifies preconditions for dyke construction. Before a project can be enacted, it must be determined to be "engineeringly sound" and "economically viable," where the latter is determined by cost-benefit analysis (Boardman, et.a., 1996, p.6). [Can you say anything about current NZ practice here, or perhaps Australia?]

The creation of an independent agency, with the ability to strike down regulations of other agencies, would change the balance of regulatory influence, with both positive and negative effects, at least if the independent agency had a real mandate to apply cost-benefit checks. Individual regulatory agencies would lose power, at the expense of this hypothetical supra-agency. Agency policy decisions would never be final but always would be subject to this further check and balance.

Most importantly, the supra-agency would have considerable control over the individual agencies and would use that control to achieve a variety of ends, not just striking down inefficient regulations. The supra-agency could influence the content of regulation for ideological, political, or special interest ends. Agencies would have to comply with these influences, knowing that their proffered regulations could otherwise be struck down, held up, or changed beyond recognition. Most likely, some kind of bargaining equilibrium would be established between the supra-agency and the individual agencies, due to repeated trading and dealing over time. Regulatory power would become more centralised and more subject to external non-agency manipulation; such manipulation, of course, can produce both desirable and undesirable results.

Whether a centralisation of regulatory power would improve the quality of regulation is open to dispute. On one hand centralisation increases the likelihood of sweeping, dramatic reforms for the better. The reformers need only control or influence a single central agency. On the other hand, the greater centralisation could favour a long-run expansion of regulation. Regulation would become more politicised, easier to manipulate, and more easily subject to political horse-trading. This does not necessarily provide a favourable long-run recipe for regulatory reform.

The evidence on this matter is mixed, largely because experience with serious *procedural* regulatory reform is scanty. Administrations have undertaken regulatory reform, across the world, but these reforms have usually been accompanied by sympathetic regulatory appointments. That is, those same governments appointed agency heads who favoured deregulation or regulatory reform and were willing to work towards those ends. It is difficult to trace how much of the deregulatory impetus came from procedural reforms and how much came from the sympathetic appointments, but the appointments appear to have been the more significant factor in most cases. How a pure procedural change would operate, if not accompanied by sympathetic regulatory appointments, remains an open question.¹³

The Reagan experience with cost-benefit analysis

The experience of the Reagan administration in the United States illustrates the difficulty of implementing cost-benefit analysis for regulations. Although the United States and New Zealand forms of government differ considerably, the United States nonetheless offers some lessons about potential pitfalls in regulatory reform. For the most part, serious applications of cost-benefit analysis did not get off the ground in the United States, despite a sympathetic executive branch.

In the first month of the Reagan administration, Reagan issued Executive Order 12291, which called for all regulatory agencies to submit proposed major regulations to the Office of Information and Regulatory Affairs (OIRA). OIRA is part of the Office of Management and Budget, which answers directly to the President, rather than to Congress. OIRA was then bound to submit all proposed regulations to a cost-benefit test and recommend rejection for those that failed. While an agency could still promulgate a regulation that failed the OIRA

¹³ On the radically ideological nature of Reagan regulatory appointees, see Goodman and Wrightson (1987, pp.39-40).

test, it would have much less political support and risk future presidential or OMB reprisals on other issues. "Major" regulatory initiatives are defined as exceeding \$U.S. one hundred million in cost.

Reagan neither changed the agencies which generated regulations, changed the procedures of those agencies, nor did he manage to pass a new legislative statute governing the implementation of such regulations. He simply issued an Executive Order that created one additional check on the regulation-generating process. Later, at the beginning of Reagan's second term, he issued another Executive Order 12498, which required agencies to disclose regulations that were "planned or underway" and evaluate them with cost-benefit criteria.¹⁴

OIRA immediately became unpopular with the Washington bureaucracy, for obvious reasons. The agencies suddenly had less power and had to answer to external authorities whose knowledge and expertise they did not respect (Friedman 1995, chapter 3).

In reality, OIRA did not place much heed on cost-benefit analysis. If a given set of proposed regulations achieved unpopular press, OIRA officials were under strong political pressure to strike that regulation down. OIRA employees knew that they could advance through the bureaucracy by striking down regulations with bad press. While the failed regulations may well have been undesirable, the reality was that politics and publicity had greater influence than dispassionate economic analysis (Friedman 1995, chapter 4). OIRA never demonstrated its expertise with cost-benefit analysis, and some OIRA officials confessed that their major strategy was a "laugh test"; if a given regulation induced laughter, they struck it down. To some extent, OIRA also became a "final court of appeals" that business lobbyists could go to, if they believed that a given regulation was too costly but could not convince Congress to repeal it.

The Reagan campaign against regulation failed to attract public support, in part because the regulatory reforms appear no more legitimate than the regulations themselves. Reagan's Executive Order never passed any legislative process or was given any kind of mandate, unless one counts Reagan's initial presidential victory as a mandate for deregulation (which is arguable, since Carter had been pursuing deregulation already). Numerous opinion polls documented that public support for government regulation increased, rather than decreased, over Reagan's terms (Friedman 1995, p.155). Most of the victories won by OIRA were one-time only, and concentrated in highly visible areas. Reagan's program for regulatory reform did not portend any permanent decline in the burden of regulation.

The eventual fate of the Reagan regulatory reform program reflects its failures to orchestrate systematic change. In the closing years of the Reagan administration, Reagan had less political capital to expend on fighting regulations. Leadership at OIRA became moderate and the process of regulatory review settled into a routine. By the time the Bush administration took over, in early 1989, regulation was again on the rise; the Bush administration is commonly considered to have been a "regulatory renaissance." Regulation, whether measured by number of rules, number of pages in the Federal Register (where new regulations are published), or measured by expenditures, was again growing in real terms. Bush simply did not have the commitment to regulatory reform that Reagan did and Bush did not make equally "deregulatory" appointments (on the Bush era, see Friedman 1995, chapter 10).

Under Clinton, of course, regulation has continued to grow with few checks. In 1993, Clinton issued Executive Order 12866, which in letter supported and strengthened Reagan's Executive

¹⁴ Friedman (1995) provides the best historical overview of the Reagan experience; the following discussion draws on his work. See also Eads and Fix (1984), Harris and Milkis (1989), and Goodman and Wrightson (1987).

Order. The reality has been quite different though, and free market economists typically have criticized the Clinton Administration for promulgating excessively costly regulations. The Clinton Administration experience with this Executive Order lends further support to the view that the key issues are ones of personnel, and the agendas of regulators, and not whether some formal mechanism mandates a cost-benefit study.¹⁵

In sum, cost-benefit proposals have yet to specify an adequate institutional machinery for implementation. Either the forces favoring the status quo *ex ante* tend to re-emerge, or cost-benefit proposals must create a supra-authority with potentially expansionary powers.

5. Summary Remarks on Cost-Benefit Analysis

The arguments against the ambitious normative interpretations of cost-benefit analysis are numerous and relatively strong. These arguments concern issues of political implementability, practical and conceptual limitations, and moral foundations.

Cost-benefit analysis nonetheless continues to command influence and respect. The reason is simple. There is a wide class of decisions for which cost-benefit analysis does in fact give the right answer. If someone were to suggest towing in icebergs from the North Pole to address New Zealand water shortages, cost-benefit analysis will give what we intuitively know is the proper answer, which is no, the iceberg towing should not occur. As long as cost-benefit analysis satisfies this gut level intuitive test, it will retain some role in the evaluation of policy, even though its more ambitious interpretations are subject to the limitations discussed above.

When attempting to construct a program of regulatory reform, however, cost-benefit analysis should not take the primary seat. In practice cost-benefit analysis is unlikely to serve as an independent, objective check on regulatory policy, for better or worse. In normative terms, cost-benefit analysis is largely another set of value judgments, albeit a set of value judgments in line with modern economic thinking. For purposes of practical regulatory reform, cost-benefit is, at best, a useful label under which some ridiculously costly policies can be struck down. It is a myth to think that cost-benefit analysis could ever serve as an objective gatekeeper and measurer of efficiency on a truly widespread scale.

Interestingly, cost-benefit analysis itself has not been subject to a cost-benefit test. Depending on the scope and quality of the analysis, a good cost-benefit study can cost up to \$U.S. 800,000 (Friedman 1995, p.47). The political and lobbying resources needed to have the test made in the first place are, in many cases, much greater. These factors also militate against placing too much hope in cost-benefit analysis.

Nonetheless if cost-benefit analysis does result in even a few costly proposals being struck down, its role in policy analysis should not be resisted, whatever its normative and practical limitations. Cost-benefit procedures may provide a useful supplement to some other well-thought out program for regulatory reform. This more modest claim, however, is quite distinct from arguing that we should push for greater use of the cost-benefit method. Perhaps the most accurate recommendation is to say that a call for a cost-benefit test should not be resisted, provided that the political and material resources for the test come from elsewhere. Giving cost-benefit analysis a greater voice in policy may lead to fewer bad regulations than otherwise, but cost-benefit analysis is not up to serving as a centerpiece for regulatory reform.

¹⁵ On Clinton's executive order, see Morgenstern (1997, p.11, *passim*).

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