Regulation, Compensation, and the Loss of Life:
What Cost-Benefit Analysis Really Requires

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Abstract

This paper defends two main claims. First: Although it is easy to lose sight of this, what cost-benefit analysis really demands, in order to approve of a prospective policy, is that it be possible for those who would gain through the policy change to compensate those who would lose through it. And second: In cases where a policy change does, or can reasonably be expected to, lead to someone’s death, the demand of compensability is much harder to satisfy than economists typically think. More specifically, their standard move – maintaining that compensability should be judged ex ante, and that it is thus really just risk of death, not death itself, that must be (and often is) compensable – is unsuccessful. Then, the implications of these claims are briefly explored.
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I. Introduction

There is considerable disagreement regarding the merits of cost-benefit analysis (CBA) as a tool for appraising public policy proposals. To some, it is the paragon of rational decision making, while for others, it is besieged by serious administrative and philosophical problems.\(^1\) The issue is far from merely academic, as CBA is brought to bear on many public policy decisions that have direct implications for human mortality. This especially includes decisions regarding environmental regulatory standards, since an enormous number of deaths are attributable to what can broadly be construed as environmental factors—especially organic and chemical pollutants. Recent research puts the number at as high as roughly 40% of all worldwide deaths (Pimentel et al., 2007; 1998). Consider, for example, estimates from the World Bank that on an annual basis in China, 350,000 to 400,000 people die prematurely from outdoor air pollution, roughly 300,000 die from indoor air pollution, and roughly 60,000 from water pollution (Kahn and Yardley, 2007). In the United States: (1) 400,000 current or former smokers and 38,000 nonsmokers die annually from diseases attributable to smoking or exposure to tobacco smoke, making this the leading preventable cause of death (Giovino, 2007); (2) the Environmental Protection Agency (EPA) recently issued final regulations that will reduce enough air pollution from industrial boilers and incinerators to prevent 2,500 to 6,500 premature deaths annually beginning in 2014 (U.S. EPA, 2011); (3) the EPA believes that its Clean Air Nonroad Diesel Rule will, when fully implemented, prevent roughly 12,000 premature deaths annually (U.S. EPA, 2004); (4) foodborne diseases cause roughly 5,000 deaths each year, many
of which could be prevented by the enactment and enforcement of certain food-inspection regulations by the Department of Agriculture (Mead et al., 2000); and (5) the regulation of silica exposures by the Occupational Safety and Health Administration could prevent approximately 41 silicosis deaths per year (Smith, 2008). Examples of this sort are plentiful. It is thus plainly important to understand properly how CBA handles prospective public policies that have implications for human mortality; and this paper aims to help produce such understanding.

Many of the familiar moral criticisms of CBA take issue with its view of what counts as a cost and what counts as a benefit. In other words, they criticize the theory of value on which CBA is built—one that maintains, as I will explain later, that benefits are generated when individuals’ preferences are satisfied, and that these can be expressed in monetary terms. For example, Sagoff (2000; 1982) argues (roughly) that instead of our subjective and self-interested preferences, it is our considered judgments as citizens – the kind we express when we vote – that ought to determine costs and benefits. Other critics (e.g., Adler & Posner, 2006; [Author], 2006) contend that while the preferences of affected individuals are generally the appropriate basis for policy decisions (in virtue of a conceptual link between well-being and preference-satisfaction), this is contingent on the preferences being well-informed, consistent, and stable—when in fact they often do not satisfy these conditions. Others (e.g., Sunstein, 2002) maintain that scientific and economic technocrats, not lay citizens, ought to be central in determining what counts as a cost as what counts as a benefit. Some (e.g., [Author], 2007) criticize CBA’s insistence on equating the strength of an individual’s preference for \( X \) with the extent of that individual’s willingness to pay for \( X \). Still others (e.g., Ackerman & Heinzerling, 2002) criticize CBA’s practice of “discounting” future costs and benefits.
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My tack here is different. I address what might properly be called CBA’s theory of right action, i.e., its account of what must be true with respect to costs and benefits in order to approve of a policy. Under this heading, CBA has long been criticized for ignoring issues of equity, fairness, justice, and rights. (See, e.g., Kelman, 1981; Langlois, 1982.) Others have argued (at least in effect) that CBA involves an oversimplified view of how each individual’s state of well-being relates to an overall (i.e., societal) state of well-being. (See, e.g., Broome, 2004.) Again, though, my current approach is different. Indeed, my objection is not as much to CBA itself as to a particular understanding of what CBA entails regarding policies that lead to the loss of life. I first make clear that although some of CBA’s contemporary exponents obscure this fact, and although it is in general somewhat counterintuitive, CBA’s fundamental requirement, in order to approve of a policy change, is not merely that the gains (i.e., benefits) generated by the prospective policy exceed the losses (i.e., costs). Rather, it is that the policy-generated losses must be capable of being compensated—though there is no requirement that the compensation actually be paid. I then consider whether this demand can be satisfied in cases where the policy-related losses include, or are expected to include, the loss of human life. At first blush, the answer would seem to be that it could not. However, as I explain, the standard economic approach to answering this question is to make a distinction between the ex ante and ex post perspectives, and to maintain that the ex ante perspective is the appropriate one from which to consider the potential for compensation. Typically we do not know, ex ante, who will die from a policy change, but rather know (roughly) who will be subject to greater risks of death, and how much greater those risks will be. Thus – it is maintained – what needs to be compensable is simply exposure to these risks; and because people often can be compensated for this, CBA’s demand often can indeed be satisfied even where human lives will end up being lost through the
policy change. I then argue that this answer is unconvincing. My central claim is that serious and underappreciated barriers against the possibility of compensation exist even from the *ex ante* perspective. The mere fact that a policy’s benefits exceed the sum of the amounts that affected individuals would be willing to accept to face an increased risk of dying does not entail that the policy satisfies the demand for compensability. The implication of this is that if practitioners of CBA want to apply it in the manner intended by those who developed this policy tool, they will have to reject at least some of the policies that contemporary economists standardly, but confusedly, say CBA will endorse.

It is critical to note that the topic of this paper is not identical to the issue of the economic value of a life (though it is obviously also not entirely distinct). The questions of whether the value of a life can be expressed in economic terms (or whether, instead, there are incommensurable values, with lives and dollars being of fundamentally different types), and, if the value of a life *can* be monetized, how this is to be done and what a life’s actual monetary value is, have received a great deal of attention in the economic and philosophical literatures. My topic is discussed much less. A quick scan of current literature on valuing a life will make clear that most such discussions altogether ignore the issue of compensation. It is one thing to establish that a life is genuinely worth, say, $6 million, and so to know that a policy-imposed death equals a $6 million loss (i.e., cost); but it is another thing to establish – no matter how large the benefits generated elsewhere by that same policy – that this loss is capable of being *compensated*. Now, to be fair, not every discussion of the value of a life *needs* to make contact with the issue of compensation, since the issue may be unimportant in some contexts. As I hope to demonstrate, though, the notion of compensability plays a critical role within CBA, and so discussions set within the context of CBA do need to consider it. This happens much less often
than it should; and when it happens, it is often in an insufficiently sustained or rigorous way. I aim to establish that before CBA can be shown to approve of a policy that imposes sufficient risks that it can be expected to cause or permit the loss of life, its advocates and practitioners need to show not just that their method for valuing lives is defensible, but also that such a policy can satisfy the demand for compensability. Even if they are able to do the former, I do not believe they can do the latter.

II. The Importance of the Notion of Compensation Within Cost-Benefit Analysis

My purpose in this section of the paper is to make clear that what CBA requires in order to approve of a policy change is that any losses the change generates be capable of being compensated. There are several reasons why I devote part of my argument to this task. One is simply that doing so is important to making the paper broadly accessible, since at least some nonspecialists will not be aware of any connection between CBA and the notion of compensation. A second is more philosophically interesting: It is that the requirement of compensability is different in a subtle but important way from what CBA might alternatively have required. Indeed it is different from two other possible requirements, each of which might have been more intuitive, and so more expected. Specifically, it is different from the demand that any losses generated by a policy must actually be compensated, and from the utilitarian requirement—i.e., the demand simply that a policy’s benefits outweigh its costs. As it turns out, what I find in scanning the literature is that a number of the leading exponents of CBA give characterizations that at least obscure this difference—especially the difference between CBA’s requirement and utilitarianism’s. This not only makes it tough for those who are nonspecialists to discern what CBA truly requires, but also raises the possibility that even some specialists are not
properly appreciating the significance of the subtle difference. Insofar as the next section of the paper argues that this difference matters greatly in a certain kind of case to what CBA will approve and disapprove of, it is critical at the outset – for the sake both of those familiar with CBA in a relatively passing way and those who specialize in CBA – to be entirely clear about the role the notion of compensation plays in CBA.

The first step in understanding exactly what CBA requires in order to approve of a policy is to examine CBA’s relationship to several concepts bearing the name of the Italian economist Vilfredo Pareto. A distribution of goods/services is called Pareto optimal or Pareto efficient if it is such that in order to make one person better off through a redistribution another person would have to be made worse off. (Such a distribution is optimal insofar as any redistribution would be counted by at least someone as inferior to the original distribution; and it is efficient insofar as there is no “free lunch” available through a redistribution.) In turn, one possible criterion for evaluating proposed policies – one related to CBA’s policy criterion, but nonetheless importantly different from it – is the Pareto Criterion (PC), which holds that a policy should be endorsed if and only if it would make at least one person better off without thereby making anyone else worse off.

Before one can assess whether this is a desirable policy criterion – or understand why pioneers of CBA did not adopt it – the notions “better off” and “worse off” must be clarified. Economists typically maintain that these notions are relative to each affected individual’s preferences: one is better off exactly when one gets what one prefers; one is worse off exactly when one gets what one does not prefer. Preferences must be expressed in some standard unit; and money is supposed to be a convenient one. So, taken together, we find out how much better or worse off a change makes someone by discerning how much money she/he is or would be
willing to pay (to get a positive change or avoid enduring a negative change) or willing to accept
(to endure a negative change or avoid getting a positive change). Economists have two general
strategies for ascertaining information about willingness-to-pay (WTP) or willingness-to-accept
(WTA). Sometimes it can be gleaned by looking at people’s actual behavior—for example, how
much more people pay for houses in an area with relatively clean air than in an area with dirtier
air (ceteris paribus), or how much more individuals who work a risky job are paid than those
whose job is safer (ceteris paribus). This is known as the revealed-preference method for
gleaning individual preferences. Other times, individuals’ WTP or WTA is found through the use
of survey devices. This is known as the stated-preference method, or contingent valuation.6

To be sure, a policy that satisfies PC has something going for it. It seems as though no
one can legitimately claim to have been wronged through a change that satisfies this criterion;
and so, especially if the initial distribution was a fair one, the satisfaction of PC makes a
powerful case for that policy. It is typically said, however, that approving only of those policy
changes that satisfy PC would be quite restrictive in practice, since almost any change at the
public-policy level will make at least someone worse off. For example, consider the problem of
the pollution of air, water, and soil in and around shipping ports. In California, for example,
many jobs and homes are located near ports in big cities—Oakland being one of these.
According to Rain (2006):

Cargo ships using heavy bunker fuel are partly responsible for making
ports major sources of pollution, worsened by fleets of diesel-powered trucks that
carry cargo in and out of facilities. Numerous studies have associated fine
particulate matter, mainly from diesel, with a variety of respiratory and
cardiovascular problems, ranging from aggravated asthma to irregular heartbeats, heart attacks and early death in people with heart or lung disease.

Some West Oakland residents are exposed to roughly five times more diesel particulates than residents in other parts of the city. The particulates are 90 times more concentrated than the state average, according to a 2003 report by the Pacific Institute, a nonprofit advocacy group.

“Goods movement,” says the California Air Resources Board, is a cornerstone of the state’s economy. But its own study concluded that for 2005, pollution from the trade is estimated to be responsible for 750 of California’s estimated 9,000 premature deaths associated with air pollution.7 Options exists for reducing this pollution: there are cleaner-burning fuels, and work could be done by smaller, cleaner engines once the ship is near the port. Not surprisingly, however, such alternatives cost money for someone, somewhere.8 Thus, a proposal to tighten regulations governing pollution in and around ports would apparently not satisfy PC. And obviously proposals to loosen such regulations would impose costs – additional health costs – on those working and living in and around the posts, and so would also seemingly be rejected by PC. In short, as Layard and Walters (1994, p. 180) say, “in the real world most changes hurt someone, and if we were only willing to undertake Pareto improvements we should spend much of our time in suspended animation.”

It is because PC is so restrictive, essentially locking us into the status quo, that – as everyone acknowledges – CBA does not require that prospective policies satisfy PC. CBA’s policy criterion is, however, closely related to PC. It is so closely related that it is sometimes called the Potential Pareto Criterion—though more often it is called the Kaldor-Hicks Criterion.
(henceforth, KHC), after Nicholas Kaldor and John Hicks, whose work established it. Notice that if (1) those who were made better off through a policy change were to pay those who were initially made worse off through the policy so that those who were originally made worse off now considered themselves to be as well off as they were before the policy change, and (2) after this compensation took place none of those who originally gained through the policy was worse off, and at least one of them was better off, than was the case prior to the enacting of the policy, then PC would, in a manner we might call “indirect,” be satisfied after all. Such a policy and subsequent redistribution would actually promote Pareto efficiency. What KHC, and in turn CBA, require is merely that such a redistribution be possible. Thus, another of its names is the Potential Compensation Criterion. In the seminal paper in which Kaldor lays the groundwork for the criterion which would eventually bear his name – and it seems to me that he lays much more of that groundwork than Hicks – Kaldor (1939, p. 550) writes:

There is no need for the economist to prove – as indeed he never could prove – that as a result of the adoption of a certain measure nobody in the community is going to suffer. In order to establish his case, it is quite sufficient for him to show that even if all those who suffer as a result are fully compensated for their loss, the rest of the community will still be better off than before.

I want more or less to stay agnostic on the merits of KHC—that is, on the view that the mere potential for compensation justifies. Nonetheless, it will be useful to look at some reasons why those who support KHC as the appropriate policy criterion say that actual compensation payments are not demanded. Though I am not ultimately endorsing any of these, the first I will mention is – in addition to being the most pragmatic in nature – the one I find most compelling. When cost-benefit analysts calculate costs and benefits, they frequently do so by soliciting
specifications of WTP or WTA not from every single person affected, but rather from a random sample of these people. Statistical practices make it possible to generalize total costs and benefits from this sample; and it is a good thing, since directly contacting each affected individual would typically be extraordinarily expensive and time consuming. One result of this, however, is that precisely how much each particular affected individual would need as compensation is simply not known. Even if we wanted to compensate, this would keep us from doing so. Other reasons – which are generally flimsier, in my judgment – are, according to Leonard and Zeckhauser (1983), that: (1) the transaction costs involved in a “compensation system that ensures that all individuals will be net winners… would often be so high as to make the project as a whole a net loss”; (2) if we “construct full compensation systems… losers will generally have an incentive… to overstate their anticipated losses in order to secure greater compensation”; and (3) the view that compensation must actually be paid “reflects a presumption that on average [gains and losses] do not balance out—that is, that some groups systematically lose more than others,” whereas many advocates of KHC “do not believe this is generally the case.”

In any case, as Zerbe Jr. et al. (2006, p. 449) say, “The Kaldor-Hicks criterion has long been the standard for cost-benefit analysis.” This is not contested. That KHC does not require that compensation actually be paid is also not contested. Nonetheless, the notion of compensation is not dispensable to CBA. What I find, though, is that many of those who write about CBA – including many of its most influential exponents – do not properly emphasize the importance of the notion of compensation. They recognize KHC as central to CBA, and are at least ostensibly aware of KHC’s demand for compensability, but their characterizations of it conflate, or risk conflating, it with the utilitarian demand simply that the policy’s benefits exceed its costs.
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For example, Layard and Glaister (1994, p. 1) say that KHC maintains that a policy or project is justifiable “if [its] benefits exceed those of the next best alternative course of action, and not otherwise.”\(^{12}\) Freeman (1998, p. 296) claims that KHC “asks whether the aggregate of the gains to those made better off measured in money terms is greater than the money value of the losses of those made worse off. If the gains exceed the losses, the policy is accepted by this criterion.”\(^{13}\) According to Munger (2000, p. 103):

The Kaldor-Hicks criterion might be thought of as having two parts:

- Compare two states of the world, S\(_1\) and S\(_2\). If one is Pareto superior, no further analysis is needed: the Pareto superior one is preferred.\(^{14}\)
- If both states are Pareto optima, add up the gains and losses to all citizens from choosing each alternative. Select the policy that maximizes the difference between the gains to the gainers and the losses to the losers. Importantly, it is not required that the gainers compensate the losers, but only that the excess value created by the policy choice is maximized.\(^{15}\)

And Jenkins-Smith (1990, p. 22) says that “in the comparison of policies, the relevant criterion” – which he earlier has explicitly identified as KHC – “is: which policy option serves to create the largest net gain in social well-being?”\(^{16}\)

More examples could be cited, but these should suffice. Now, perhaps the potential exists for winners to compensate losers any and every time gains exceed losses. (Or perhaps it does not. I will explore this in the coming pages.) Even so, one might endorse policies whose gains exceed their losses without thinking the justification for this endorsement has anything to do with the possibility of compensation. One who did so would be proceeding on utilitarian, not Kaldor-Hicksian, grounds. There is no problem in viewing utilitarianism as offering a policy criterion.
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(Moral philosophy perhaps tends to treat it primarily as a tool for evaluating “private,” individual actions, but it obviously can be employed to evaluate public policies as well.) The problem, though, is conflating the utilitarian criterion and KHC. For utilitarians it is the mere fact of gains outweighing losses that justifies a policy change; whereas in KHC the justificatory work is done by the fact that the losers could be compensated. So, by reducing KHC essentially to the demand that benefits exceed costs, these authors tacitly rob it of its distinctiveness and of much of what those who developed CBA’s conceptual underpinnings saw as recommending KHC as a policy criterion. Even if it is the case that compensation is possible anytime a new policy’s benefits outweigh its costs, the aforementioned characterizations of KHC obscure what is supposed to be doing the justificatory work when the new policy is adopted. And – significantly – if, on the other hand, benefits can outweigh costs without the demand for compensability being satisfied, then the aforementioned characterizations will end up sometimes misleading practitioners of CBA into endorsing policies that ought, by the very lights of CBA, to be rejected.

III. Risk, Death, and the Possibility of Compensation

I hope it is now clear that CBA demands that those who lose through a policy change be capable of being compensated by those who gain through it (with the gainers afterward still being better off than they were originally), and that this is different from the demand simply that the benefits of the change outweigh the costs. If so, then the next question is: In what cases is this demand satisfied? More specifically, can it be satisfied in cases where the policy change leads – as such changes sometimes do – to at least one more human death than an alternate policy or the status quo would have? I will argue that contemporary economists who answer
“yes” are generally mistaken, and that their standard way of justifying that answer – namely by appealing ultimately to a distinction between the ex ante and ex post perspectives – is unsuccessful.

Interestingly, the problem of compensation when someone could or will die does not seem even to have occurred to Kaldor himself. (In any event, he does not engage with it.) Kaldor’s discussion focuses on something as relatively benign as the repeal of the “Corn Laws”—laws in place in 19th-century Britain that imposed tariffs on foreign grain imports in order to protect the price of the domestic crop. And so Kaldor (1939, p. 550) writes simply that:

In all cases, therefore, where a certain policy leads to an increase in physical productivity, and thus of aggregate real income, the economist’s case for the policy is quite unaffected by the question of the comparability of individual satisfactions; since in all such cases it is possible to make everybody better off without making anybody worse off. 18

Is this, though, really possible in all such cases? What happens when – to use Kaldor’s words – “those who suffer as a result” of a policy change actually die? Could, for example, the port-related policy decision(s) that lead to the air-pollution-related deaths of 750 Californians annually have satisfied the demand that compensation be possible (at least assuming that alternate policies could have produced fewer such deaths)? Was or is there, in other words, any way in those cases to make “those who suffer” – that is, those who would lose through the policy decisions – no worse off than they were originally?

I am much more skeptical than the average economist. However, my claim is not that policy changes that result in more deaths than do other policy options or the status quo must always count as producing non-compensable losses. There are two classes of possible
exceptions. The first is where the deaths are produced only somewhat far into the future. For example, if a policy will create conditions whereby I will die two years earlier than I would have – at, say, age 91 rather than 93 – a payment of, say, $1,000,000 now (when I am still many years younger than 91, and so could enjoy that money for many years to come) would probably be one I would count as sufficient to compensate me. I would be no worse off with that $1,000,000 now but without those two additional years of life than I would be without the money but with the years. The second class of possible exceptions involves the “compensating” amount being left as a bequest. Imagine, for example, an extremely desperate parent who agrees to be killed (soon, we can even imagine) in exchange for a large sum of money that will benefit her starving children.19 This sort of case is more contentious, but if the agreed-upon amount of money is delivered, this person at least might count as compensated for her death.

Importantly, however, according to what I will call the standard economic approach, it is not just in these two classes of cases where human life is or will be lost but the demand for compensability can be satisfied. Because it allows us to see the flaws in this standard approach, the kind of case that I will have in mind throughout the remainder of this paper is one where a policy would produce more deaths than the status quo or some alternate policy, the death is anticipated to take place soon as opposed to many years down the line, and those whose lives are in jeopardy have no one to whom they desire to leave a bequest. While Kaldor was not concerned to address the possibility of compensation in connection with policies that lead to death, economists since then have tried to deal with the issue. In cases like those on which I am focusing, it is clear none but the suicidal would specify any finite number in response to the question: “How much would you need to be paid in order voluntarily to accept being killed?” The average economist will standardly maintain, however, that this is actually not the proper
question. Rather, the question ought to be (roughly, and in a generic form): “How much would you need to be paid in order voluntarily to accept such-and-such an increase in your risk of dying?” In turn, we are told, what needs to be compensable is exposure to an increased risk of dying, not death itself. This is because policy changes, even where they have lethal consequences, will essentially never kill everyone within a certain population. Rather, they impose risks on individuals within a population. These risks may catch up with certain individuals, which is to say that certain individuals may die; but even so, it will almost never be the case that we know ahead of time with whom the risk will catch up. What we know is that it will impose risks, and so it is this about which our question should ask.

From here, it is remarked that how people will answer the question about the money they would need in order to accept the increased risk is an empirical issue. And what the empirical evidence demonstrates is that if the risk is not extremely high, then – even if the risk is of death soon (rather than many years down the line) and there is no interest in or possibility of bequeathing – there is indeed a finite amount that people will specify. If this is the case, and if (as is at least sometimes the case) the policy is expected to generate benefits that exceed the sum of the amounts specified by the individuals facing this risk, then – we are told – each person is in theory compensable; and this includes those people who are or will be statistically unlucky and actually succumb to the risk and die (soon).

To call this approach standard is to say that it is widely accepted by teachers and practitioners of CBA. This does not, though, mean that every economist is on board. The most powerful resistance I know of comes from Broome (1978, p. 93), who offers the following thought experiment (among others):
Imagine that it is not known today who will die as a result of a project, but it is known that the information will be available tomorrow. The project is up for consideration today. It is known today that [tomorrow] it would be deemed unacceptable by an infinite margin, since the people who would die would accept no finite compensation. Yet today everyone has only a probability of dying. [By the standard approach] they may be compensated for this by a finite amount that turns out to be less than the benefits. So the project is accepted.

Broome thinks this is ridiculous. He writes:

The government, if it follows [this standard approach], really seems to be playing a trick on people’s ignorance. Provided it can get in and make the decision soon enough, before there is much information about who will die, it can get away with causing many more deaths than if it waited. Each project which causes deaths and which is nevertheless accepted is accepted in the knowledge that, were it re-evaluated later, it would be rejected as infinitely wrong.

A number of unconvinced economists wrote in reply. One theme in the replies is that the problem Broome presents arises only from illicitly jumping from the *ex ante* to the *ex post* perspective—which is to say, roughly, from the perspective available at the time the decision must be made to the perspective available at the time the effects of the decision have (more or less) played out. Jones-Lee (1979, p. 250), for example, invokes the distinction, and argues that the hypothetical compensation test – KHC, in other words – should be applied *ex ante*, and this is “quite simply because advocates of [CBA] subscribe to the value judgment that social decisions should reflect private tastes and preferences (and views of the future) as these exist at the time of
In response to Broome’s aforementioned thought experiment, Jones-Lee (1979, p. 252) adds:

Suppose… that the decision *must* be taken today and the government does *not* know the identity of the victim. The fact that the government – and society – will know the victim’s identity tomorrow (or next year, or in a decade) is then surely quite irrelevant to the *unavoidable* current decision, except insofar as specification of the time at which the identity of the victim will become known affects the current evaluation of gains and losses via, for example, anxiety (but of course such effects would be captured by a fully worked [cost-benefit] analysis).

I believe this is not sufficient to demonstrate the satisfiability of the compensability demand in the kind of case at hand. Though one might take issue with Jones-Lee’s claim that the preferences that matter are those that exist “at the time of the social decision” – since he is asserting it more than arguing for it – I will give a pass here. Instead, I will first simply note that even at the time of the social decision, each individual’s “private tastes and preferences” will obviously include a preference not to die (soon)—no matter how much money is offered in return. Now, it will be replied that this is compatible with a current willingness to accept such-and-such an increase in one’s risk of death for the right price (call it $X)—which is to say, with a preference for (i) such-and-such an increased risk and $X over (ii) the status quo. And so it is. The important point, however, is that this does not entail compensability. Suppose the government has to make a decision today, but does not, and could not, know today who will die. I will join Jones-Lee in thinking that the fact that the victim’s *identity* will be known at some future point is irrelevant. This entails – not incidentally – that though some economists attach significance to the fact that the victim’s exact identity is unknown at that outset, *that* fact, too, is
irrelevant. What *is* relevant, though, is the knowledge we often have even at the time the decision is made – which is to say, even *from the ex ante perspective* – that at least someone will die. Now, it is true, as Jones-Lee (1979, p. 252) says, that “When a prospective [policy] is referred to as being capable of ‘saving *n* lives per annum’ what is really being quoted is the mean of a probability distribution of lives to be saved.” And even where a very high risk of death is imposed on a large population, the probability of at least one death will never be 1.0.23 So, on the day the decision must be made, we cannot be literally 100% certain that at least one person will die, let alone who exactly this person will be. What we often know, though – even on the day the decision must be made – is that at least one death is *highly* probable. That is, if – as is often the case – a large enough population is subjected to a high enough risk, we can be very confident, *ex ante*, that *someone* will die. Sometimes we are even very confident that someone will die *soon*. And if we can be very confident of this, then it is disingenuous, and grasping at straws, to say that assessment *ex ante* can only inquire into compensability for risk, not for death itself.

Layard and Glaister (1994, p. 24) take a tack slightly different from Jones-Lee’s. They say:

What does the [cost-benefit analyst] put into his calculation: his own expected *ex post* evaluation or the *ex ante* one expressed by the individuals? The answer to this quite general question depends on the degree of paternalism that planner is willing to exercise. If he supports the prohibition of “merit bads,” like cigarette smoking, on the grounds that the government can foresee the suffering these will cause better than the individual can, then it seems quite logical to adopt the same approach to cost-benefit analysis. The present valuations of the parties are disregarded in favour or their future valuations. How often one would be willing
to do this is debatable, but it seems absurd to argue that one should always regard people’s present preferences as decisive.

I appreciate that this view is more moderate than Jones-Lee’s. Nonetheless, it is a mistake to maintain that a rejection of what I have called the standard economic approach is necessarily based in a willingness to exercise a high degree of paternalism and thus should be treated with some suspicion. There is nothing paternalistic in my argument. Rather, there is simply careful analysis of what we can reasonably describe – even \( \text{ex ante} \) – as the costs of various policies and careful attention given to whether these are compensable. Suppose we are considering a policy that entails a sufficiently high risk of death for a sufficiently large population that we can, \( \text{ex ante} \), be quite confident that at least one person would die (soon) were that policy enacted.

Suppose, too, that some individuals prefer – and, importantly, what follows should again count as a characterization from the \( \text{ex ante} \) perspective – the situation in which they get \( X \) and such-and-such an increase in the risk of death (soon) to one in which they keep their original risk of death and do not get \( X \). My point is that even if this preference is satisfied – even if the policy that produces that increase in the risk of death is enacted, and each individual immediately gets \( X \) – we are, in virtue of our current confidence that someone will die (soon), and that no such person can be made as well off as she was originally, able to say that this policy fails the compensation test. I see no paternalism in that.

It may be objected here that I have made a mistake by focusing on cases where death comes soon rather than many years down the line and where there is no bequeathing. Williams (1979, p. 257) directed this kind of objection at Broome’s argument (since Broome focused on the same type of case), saying:
In the special circumstances postulated compensation cannot effectively be paid, because the individual has no opportunity to spend the money in such a way as to improve the quality of his life. But this is not the context in which those advocating the use of [the compensation] test envisage it being employed. The general case would be one in which an individual is offered an opportunity to choose between an improvement in his standard of living and an improvement in his life expectation. It is a choice we all make every day. We risk our lives traveling to and from work to earn money. We can take risks in order to get there and back a little bit faster, so as to linger longer over breakfast or get home earlier to enjoy more leisure time.

I have already conceded that one could be compensated in cases where a policy change trims time off of one’s life well into the future. Furthermore, those cases may well be the most common kind of case. So, fittingly, I have not at any point said that CBA, properly understood – which is to say, understood as demanding the possibility of compensation for those who would be made worse off through a policy change – could never endorse a policy change that results in more deaths than would the status quo or some alternate policy. Williams is entirely wrong, though, when he says that the restricted context is “not the context in which those advocating the use of [the compensation] test envisage it being employed.” Were that so, there would be no need to emphasize, as many of CBA’s defenders have done, that we do not know in advance who the risk will catch up with, or to talk about the special weight that attaches to individual preferences as they exist at the time the policy decision is made. There would be no need to say, as Layard and Glaister (1994, p. 24) – like so many others – do, that “the key feature of this approach is that it does not value death (or life) as such” and that “all the valuations are thus ex
ante and no attempt is made to value the suffering which will actually (ex post) be caused if a typical worker dies.”

The next objection to my argument notes that when people are asked “How much would you need to be paid in order to accept such-and-such an increase in your risk of dying?” they often do in fact specify some finite amount. So long as the risk is not enormous, then even if the death would be brought about soon, most people will specify some finite number. And, it will be added, if someone claims that she would accept this increased risk of death for $X, then $X must count as sufficient compensation if this person succumbs to that risk and dies (even where she dies soon rather than far in the future, and where she cannot bequeath the money to others).

Imagine – the objector continues – the following parallel case, which looks not at “life” but (literally) at “limb.” Suppose that my colleagues and I work a job in which each person’s chance of losing her/his arm is 1% in any given year, and each person is asked how much money she/he would need in order willingly to endure changes in our working conditions that would push this risk up to 5%. Suppose my sincere, well-considered answer is $10,000 per year. Now imagine that this risk quickly catches up to me, which is to say that, unluckily for me, I soon lose my arm. Supposing that the $10,000 were to be paid out immediately, it would be problematic for me to maintain that $10,000 does not compensate me. In just the same way, the objector notes, it would be nonsensical to say that $X would not compensate me were the risk of death to catch up with me.

Perhaps there is something problematic about the case where the individual specifies a willingness to accept the aforementioned risk of losing an arm for $10,000, but then, when this risk catches up with her/him, says the amount does not compensate. My point, though, is that dying is different from losing an arm. Losing an arm is a terrible thing, but I suspect that for
most of us it is not literally an uncompensable loss. Part of the evidence for thinking that death is different consists in the fact that we do not have to insist on sticking to the \textit{ex ante} perspective in order for the loss in the “limb” case to count as compensable. We do not need to talk about our ignorance of who the risk will catch up with, or insist, as Jones-Lee did, that we focus only on preferences as they exist at the time the decision is made. Nor is there any pressure to avoid – as Williams said we ought – applying the compensation test in cases where the loss is incurred in the very near future. Even when we describe the preferences and the loss from the \textit{ex post} perspective, and even where the loss is suffered essentially immediately, the right amount of money likely can make one who loses a limb no worse off (by one’s own account) than one was originally. Again, though, the point is that the fact that we cannot give similar treatment to cases involving death shows that death is different. At least when it takes place soon, the loss of life is not compensable.

Still, \textit{I do} need to account for the specification of $X$ in response to the question of how much one would need in order to face a higher risk of death (soon). What does $X$ represent, if not the amount that would compensate one in the event that this risk caught up with one? When one is asked to value the increased risk of death and answers with $X$, what is one actually saying? One possibility is that the specification of $X$ simply ought to be taken as the mark of confusion, as nonsensical and as signifying nothing meaningful—somehow akin to the specification of any number at all in response to the question, “What is 5 divided by zero?” But it is a second possibility that seems more promising, though it also almost seems too obvious to mention. When a person is asked how much she would accept in order voluntarily to face such-and-such a risk of death, and she answers with $X$, this could simply be the amount for which she would be willing to endure the risk! That she says she would willingly face the risk for $X$ does
not mean that $X$ compensates her now, or would compensate her if she died, or even that she believes that it does/would. Again, it may be true that in many cases where one is willing to endure a risk for $X$, $X$ would compensate this individual if that risk caught up with her. But these two concepts – willingness to endure a risk, and compensability for facing the risk – need not always hang together in this manner. For the right price, I could be willing to face a risk, even if nothing could compensate me for doing so (ex ante or ex post). Getting that amount of money is a precondition for my accepting the risk, but it does not necessarily compensate me.

The existence of the gap between these concepts is critically important to the viability of my argument. And the gap can be seen even in ordinary cases. Consider, for example, that although graduate-level academic inquiry can be very difficult, there are people who are willing to engage in a great deal of it if they can be awarded the degree of Doctor of Philosophy at the end. However, this is not necessarily because they believe that the degree will compensate them for all that hard work. Similarly, many people are willing to be parents. Parenting, though, can be quite arduous, and it is easy to imagine someone saying, “I will undertake being a parent only on the condition that I am confident I can give the child a good life.” It would, though, be strange at best to say that giving the child a good life literally compensates the parent for all his/her hard work. The same gap, then, can and does exist in the “unordinary” case where the hardship that one will voluntarily face only on a condition consists of being exposed to a sufficient risk that we can be sure in advance will result in the loss of life (soon). One’s willingness, for $X$, to endure such-and-such an increase in one’s risk of death (soon) is not necessarily because, and does strictly entail that, $X$ compensates one.

Even when knowledge of the severity of a risk and of the size of the population that will be exposed to the risk of death makes possible a reliable projection of how many people will be
succumb to the risk and die, economists, after highlighting the fact that it is not known precisely who will do so, say they are not putting a price on any actual person’s life but rather are merely calculating the “value of a statistical life” (VSL). Even so, it should now be clear why establishing that a policy’s benefits outweigh the value of the statistical lives lost due to the policy – even where VSL is obtained by gauging the WTP or WTA of the individuals facing the risk – is not the same as establishing that the policy satisfies the demand for compensability. Recently, some economists have said that rather than VSL, CBA actually ought to calculate and use the value of a statistical life year (VSLY), or even the value of quality-adjusted life years (QALYs)—both of which are still fundamentally based on individuals’ WTP. Even so, such approaches must answer charges of age discrimination, they accommodate the intuition that, as Sunstein (2004, p. 206) says, “other things being equal, a program that protects young people seems far better than one that protects old people, because it delivers greater benefits.” Sunstein adds (p. 206) that “at the very least, the number of statistical life years [at stake] is a more precise measure of what is involved” than is the number of lives at stake. And that may be true. Nonetheless, these notions do not altogether escape the problem I have raised in regard to compensation. If our unit of accounting is monetized VSLY (quality-adjusted or not) and a policy can be expected to deprive an individual of her/his life years starting soon, then regardless of this person’s current age, this policy imposes an uncompensable loss just as clearly as when the unit of accounting was VSL.

IV. The Implications for the Proper Application of CBA

I have argued that if a policy imposes a sufficiently high risk of death on a sufficiently large population that we can (even ex ante) be very confident that someone will die (soon) if this
policy is enacted, then even if each affected individual would be willing to face this risk for some finite amount of money, and even if the policy’s benefits exceeded this sum, the policy fails to satisfy KHC’s demand of compensability, and in turn is not recommended by CBA as its pioneers intended it. What exactly are the implications of this? Consider, for instance, a variation on an example from the beginning of the paper: the U.S. EPA’s recent decision to lower the permissible level of air pollution from industrial incinerators and boilers. This decision, according to EPA documents, is projected to prevent 2,500 to 6,500 premature deaths annually beginning in 2014; but for simplicity’s sake, let us suppose that this decision has been fully implemented, and that the number of premature deaths due to air pollution generated by such incinerators and boilers is now exactly 4,500 less per year than it had been. Call the EPA policy that created this state of affairs Policy 1. Policy 1 is \((\text{ex hypothesi})\) the status quo. Now imagine that a policy is proposed – call it Policy 2 – that would loosen this regulation and, by permitting more pollution than Policy 1 currently permits, quickly bring about an expected 1,000 more deaths annually than Policy 1. One implication of my view is that the move from Policy 1 to Policy 2 will not satisfy KHC, no matter how great the benefits of this change would be. Or, more generally, the implication is that a policy that would permit even one more death (of a sort that would occur relatively soon) than the status quo does must be rejected by KHC, regardless of what the benefits are. Next, imagine an alternate policy that would impose a tighter regulation than Policy 1 does. This policy – call it Policy 3 – would annually bring about an expected 1,000 less deaths than Policy 1 (i.e., than the status quo). If Policy 3 is an option, then 1,000 deaths suddenly count as costs of Policy 1. Thus, if we forgo Policy 3 and stick with Policy 1, this is tantamount to imposing death. So, a second implication – more radical than the first – would seem to be that KHC could not endorse Policy 1 if Policy 3 were an option. Or, more generally,
the implication is that KHC (and thus CBA) must reject the policy decision of sticking with the status quo when an alternative exists that would impose fewer deaths. Indeed, if it is possible to reduce the number of premature deaths caused by air pollution from industrial incinerators and boilers to zero, then no policy that permits even one death (soon) could satisfy KHC (or, in turn, CBA).

Proponents of CBA now face a decision. One possibility, of course, is simply to start rejecting policies that fit these descriptions. Perhaps this would not be such a big deal, because perhaps in many cases where a policy imposes lethal risks on a population, the risks are unlikely to catch up with anyone soon. In such cases – as I conceded earlier – the compensability demand seems able to be satisfied—at least if we are imagining that the compensation would be paid out immediately (and since it is only hypothetical compensation, why not hypothetically pay it out immediately?). Nonetheless, even if many cases would be like that, not all would. There will still be policies where we can be confident that at least one person will die soon. I cannot say what percentage would be like this, but if the EPA report is correct that the industrial incinerator/boiler rule will reduce the annual number of premature deaths beginning in 2014 – i.e., just three years from now – then one can infer that there are plenty of policy decisions that have near-term consequences for human mortality. Perhaps, then, economists and other proponents of CBA can get comfortable with the idea that policies that we can be confident will impose death (in either of the two ways I sketched through the example above) can be approved by CBA only when the death comes sufficiently far into the future (and even then only when the benefits are great enough that at least one person would remain better off even after the compensation is paid than she or he was originally).
Those who cannot get comfortable with this, however, may seek a way of revising what CBA demands that does not radically alter CBA but that nonetheless allows for the endorsement even of those policies that we can be confident would reasonably soon produce more deaths than the status quo or competing policies. One way of revising CBA would be to say that it is not merely that we are able to compensate the losers and thereafter have at least one winner who remains better off than she/he was originally that justifies a policy change, but rather that we are able to do this and actually do so. This is, in short, to build CBA on the Pareto Criterion (PC) rather than on KHC. This revision has the virtue of getting around the worry that, on reflection, no justificatory force actually seems to attach to the mere possibility of compensation. (If I am willing to pay $500 to retain a smog-free view of mountains on the horizon, the claim that I could be compensated via that $500, though I will not actually be, hardly comforts me when the smog increases.) The obvious problem, though, is that just as when compensation was merely hypothetical, what is demanded by PC cannot be satisfied when we can reasonably and confidently expect someone to die soon as a result of the policy change.27

It should thus be clear that the desired modification to CBA would assign the work of justifying a policy change to something entirely distinct from compensation—be it hypothetical or actual. One way of doing this is to replace KHC not with PC but rather with the utilitarian theory of right action. I made the case earlier that KHC and utilitarianism are not the same—and I criticized the tendency evinced by a number of authors to treat them as the same. I have never read a utilitarian whose explanation of why we should perform the action, or support the policy, that produces the best balance of preference-satisfaction versus preference-frustration was that there then exists the possibility of compensation. Utilitarians simply ask (with an incredulous tone!) why anyone would favor one action/policy if another would produce a better balance of
satisfaction versus frustration. When it is intended as offering a policy criterion, they can additionally note that democracies have a legitimate interest in following the will – i.e., respecting the preferences – of the majority. However, noting, as I have, that KHC is different from the utilitarian theory of right action is not the same as saying that KHC is superior. Indeed, as mentioned above, in reality the mere possibility of compensation does not seem to do much justificatory work. And if that is true, then jettisoning reference to the possibility of compensation from CBA’s policy criterion is perhaps not a drastic move. As I said earlier, sometimes a person will be willing to face such-and-such a risk of death (soon) for $X. Though $X does not necessarily compensate – and, as I have argued, cannot if we are confident that at least someone will succumb to the risk – $X can still be counted as a cost of the policy change. Presumably, though, more than one person is affected, so the total cost of the policy is the sum of the amounts that each person who is affected for the worse would be willing to accept in order to endure the policy change; and the total benefit is the sum of the amounts that each person who is affected for the better would be willing to pay to get the policy change. If the policy’s benefits exceed the costs, the utilitarian could argue that the policy should be endorsed—even if some of the costs are of a non-compensable sort. Perhaps this could even supported by veil-of-ignorance-type considerations. (See Rawls, 1971.) That is, perhaps individuals who are deciding on principles of justice for a community without any knowledge of what their position would be in that community would say that policies should be endorsed simply if their benefits outweigh their costs—where this has nothing to do with compensability. We know, though, that Rawls himself thought otherwise. Indeed, the criticisms against the utilitarian theory of right action are many, familiar, and serious. And so CBA could not be built on the utilitarian theory of right action without those criticisms being answered well.
In any case, it is not my point to endorse any of these, or even to call one better than another. In fact, it has not even been my purpose to exhaustively consider all the alternatives. (Among others, there is, for example, the very sophisticated view developed in Broome, 2004.) Instead, it has been my aim in this section of the paper simply to explore several different ways one who is convinced by my earlier arguments might go when confronted with the need to evaluate policies that have lethal consequences. And those earlier arguments aimed at establishing two things. First, insofar as CBA incorporates KHC, as nearly everyone currently acknowledges it does, then it demands more than that benefits exceed costs. Notwithstanding the subtly of the difference, the unintuitiveness of the demand, and the many characterizations that obscure this, what CBA demands is compensability. And second, the standard economic explanation of how this demand can be satisfied even in cases where a policy change can be expected to result in someone’s death is unconvincing—as is made plain by focusing on cases where the death would happen soon and where there will be no bequeathing of assets left behind.

To show that a policy is going to be endorsed by KHC and in turn CBA, it is not enough to value monetarily each affected person’s risk of death, sum these, and then show that the expected benefits exceed this amount. And though there is obviously more to say about this large and complex topic, establishing even just this much is, I think, very significant.

NOTES:

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1 Recent, thoughtful, philosophically-sophisticated treatments of CBA’s strengths and weaknesses include: Adler & Posner (2006); Ackerman & Heinzerling (2004); Sagoff (2004); Sunstein (2002); and O’Neill (1993).

2 Anything resembling a full list would be prohibitively massive. On the other hand, an abbreviated list seems problematically arbitrary. Risking this, I will point readers interested in recent contributions regarding the value of a life to: Evans & Schaur (2010); Hendryx & Ahern (2009); Wolff (2007); Sunstein (2004b); Shogren & Stamland (2002); and Johansson (2001). Going back slightly further, one would do well to read Broome (1994; 1985). Also, Chang (1998) provides a terrific collection of essays about incommensurability, which is certainly a related topic. A variety of other relevant references are given intermittently later in the paper.

3 When compensation has been squarely addressed, it has been primarily in the tort law and insurance literatures, mainly in the context of cases of wrongful deaths in the workplace. Again, a (necessarily small and problematically arbitrary) sample: Macauley (2010); Walker (2009); Oswald & Powdthavee (2008); Cross & Silver (2006); Posner
& Sunstein (2005). However, compensability deserves also to be more seriously scrutinized within the context of governmental regulation and public investment, and the scrutiny should more fully address philosophical (as opposed to merely “administrative”) dimensions of issue.

4 And this true even, as I will later argue, where the value of a life is determined via affected individuals’ specifications of their willingness to pay.

5 And, to be sure, this paper is intended not just for specialists, but more broadly for all those people who are interested in thinking about philosophical complexities in environmental policy.

6 This is obviously only the roughest of summaries. It glosses many ongoing debates, including those regarding: how respondents’ perception of risk affects their preferences (Chilton et al., 2002); ways in which the amount of “dread” associated with certain ways of dying affects WTP (Chilton et al., 2007); whether specifications of WTP may contain an altruistic element (Johannesson et al., 1996); and differences between specifications of WTP and WTA (Guria et al., 2005). And even this only touches the surface.

7 My emphasis. For more on port pollution, including discussion of what policy changes the California Air Resources Board has implemented, see Sharma (2006).

8 Who exactly will ultimately incur these costs is a complicated issue, but this distributional question is not important from the perspective of the Pareto Criterion. All that matters is whether at least one person would be made worse off by the change, which would in this case be to tighten emissions regulations. The notions of costs and benefits are handled in the same way that the notions of better off and worse off are. That is, costs are the amount of money that affected individuals would be willing to pay in order to avoid, or willing to accept in order to endure, a change that is not preferred; and benefits are the amount of money that affected individuals would be willing to pay to get, or willing to accept in order not to get, a preferred change.

9 That compensation is not demanded by KHC does not mean that KHC somehow forbids compensation or that policies endorsed by CBA will as a matter of fact never involve actual compensation. For an interesting discussion of compensation for the nearby siting of environmental hazards (such as waste disposal facilities), including reflection of whether such compensation should be of a monetary or an in-kind sort, see Claro (2007).

10 Evidence that I am not alone in this assessment is found in the fact that some people refer to the criterion simply as the “Kaldor Criterion.” See, e.g., Layard & Walters (2008, p. 182).

11 My emphasis.

12 My emphasis. Though at this early stage of the book, no mention has yet been made of KHC, the term enters by pg. 6. There they characterize it as saying that “a project can be supported provided the gainers could, in principle, compensate the losers even if they do not.” My point is that they treat the notion of compensation as dispensable, since it is fully omitted from the earlier, most-crystalline formulation of CBA’s demand.

13 My emphasis.

14 Note: In comparing two distributions, A and B, A is called Pareto superior to B if in A at least one person is better off, and no one is worse off, than in B.

15 My emphasis. Some will be inclined here to note that Munger has made reference to the notion of compensation, and will ask what more he is supposed to do to make clear that compensability is important to CBA. The problem is that one could infer from Munger’s characterization that CBA’s demand is: Satisfy PC, and if this is not possible, compensate the losers even if they do not.” My point is that they treat the notion of compensation as dispensable, since it is fully omitted from the earlier, most-crystalline formulation of CBA’s demand.

16 Emphasis in original. Actually, Jenkins-Smith first says: “The Kaldor-Hicks criterion allows redistributions that increase net welfare such that those who gain from the distribution could compensate those who lose, restoring the losers to their prior level of well-being, while the winners retain enough of their gains to be better off than they would have been without the redistribution.” However, he then follows this with the claim I have quoted in the body of the paper; and my point, again, is that this inappropriately makes the notion of compensability seem dispensable.

17 Whether the potential for compensation really does have any special justificatory power is an issue that will be taken up briefly later in the paper.

18 Emphasis in original. Now, to Kaldor’s credit, he does recognize certain complications regarding the compensability requirement. For example, in a footnote he says: “An increase in the money value of the national income (given prices) is not… necessarily a sufficient indication of this condition being fulfilled: for individuals might, as a result of a certain political action, sustain losses of a non-pecuniary kind—e.g., if workers derive satisfaction from their particular kind of work, and are obligated to change their employment, something more than their previous level of money income will be necessary to secure their previous level of enjoyment; and the same applies in cases where individuals feel that the carrying out of the policy involves an interference with their individual freedom” (p. 551). Nonetheless, he stops short of considering the problem I am pressing.
Perhaps her organs could uniquely benefit a very wealthy but extremely ill person.

Technically, as Hanemann (1994, p. 23) notes, since the mid-1980s “most major contingent valuation studies have used closed-ended questions like ‘If it cost $x, would you be willing to pay this amount?’ or ‘If it cost $x, would you vote for this?’ Different people are confronted with different dollar amounts. Plotting the proportion of ‘yes’ responses against the dollar amount traces the cumulative distribution function of willingness-to-pay. Of course, if people carried utility functions engraved in their brains, the question format would not matter. But they don’t, and it does matter.” Also, as alluded to in Note 6, the questions “How much would you be willing to pay to avoid getting such-and-such an increase in your risk of dying?” and “How much would you need to be paid in order voluntarily to accept such-and-such an increase in your risk of dying?” are supposed to be functionally identical; but in practice they are not. It is well known that the amount people are willing to accept to endure risks is higher than the amount they are willing to pay to avoid risks. In part this is because one’s WTA is constrained by one’s ability to pay in a way that one’s WTP is not. It is also (at least suspected to be) because the WTA question suggests that one has a right not to be exposed to the risk whereas the WTP question suggests otherwise. One other noteworthy difference between the WTA and WTP formulations – and one I have never heard anyone else mention – is that the amount one indicates one is willing to accept in order to face a risk is easier to construe as an amount that would compensate one than is the amount one indicates one is willing to pay to avoid facing the risk. If I say I am willing to pay $X to avoid such-and-such a risk and the risk is imposed on me, I plainly do not count as having been compensated for facing the risk simply by not being made to pay $X.


Emphasis in original. See also Buchanan & Faith (1979) and Ulph (1982).

The mathematics here involve binomial probabilities. For more, see, e.g., Wonnacott and Wonnacott (1990), especially pp. 116-122.

Remember: We are focusing on cases in which the death would come soon rather than many years later, and where there is no bequeathing.

On VSLY, see, e.g., Sunstein (2004a). On QALYs, including the possibility of assigning them a monetary value, see, e.g., Jones-Lee (2007).

Again, at least on the supposition that there will be no bequests.

I explained earlier that a big criticism of PC was that it locked us into the status quo. It is worth noting, in defense of PC, that this claim is false. Although nearly any policy change is indeed going to make at least one person worse off initially, in many cases – though of course not those in which this person dies soon – this person could nonetheless end up no worse off than she/he was originally by receiving a compensating payment. On the other hand, the problems (mentioned earlier) pertaining to the transaction costs involved in actually paying compensation, and to the use of the sampling procedures that make it difficult to know exactly how much each person would need, do seem like reasonably serious ones.

REFERENCES:
Author (2006) Citation omitted for the sake of blind review.
Author (2007) Citation omitted for the sake of blind review.


